PUBLIC NOTICE/TENDER NOTICE							
Sr. No.	**Name of Department /Board/ Corp./ Auth**	**Name of Work/ Notice/ Tender**	**Starting date & ending date (Time)**	**EMD**	**Website of the department**	**Nodal Officer/ Contact details/ Email**	**Tender Ref. No/ Tender No**
1	Shri Vishwakarma Skill University, Dudhola, Palwal, Haryana	Supply and Installation of Items for Tinkering and Mobile Robot Lab (Major/Minor equipment/Items, sensors, drone items and computers)	03-11-2026 05:10 PM to 02-12-2026 05:10 PM	Rs. 91000/-	www.svsu.ac.in	Deputy Registrar 7496873094 tenders@svsu.ac.in	Tender No. & Tender Id.- SVSU/2026/PS/E6479/753 & 2026_HRY_558282_1 (http://etenders.hry.nic.in)

सावर्जनिक सूचना / निविदा सूचना							
क्रमांक	विभाग/बोर्ड/निगम/प्राधिकार का नाम	कार्य/ नोटिस/निविदा का नाम	आरंभ तिथि (समय) व समाप्ति तिथि (समय)	EMD	विभाग की वेबसाइट	नोडल अधिकारी/ संप्रर्क विवरण/ ईमेल	निविदा संदभ्र संख्या/ निविदा संख्या
1	श्री विश्वकर्मा कौशल विश्वविद्यालय, दुधोला, पलवल, हरियाणा	टिंकरिंग और मोबाइल रोबोट लैब के लिए वस्तुओं की आपूर्ति और स्थापना (प्रमुख/गौण उपकरण/सामग्री, सेंसर, ड्रोन से जुड़ी वस्तुएं और कंप्यूटर)	03-11-2026 05:10 PM to 02-12-2026 05:10 PM	Rs. 91000/-	www.svsu.ac.in	उप-रजिस्ट्रार 7496873094 tenders@svsu.ac.in	टेंडर नं: SVSU/2026/PS/E6479/753 & 2026_HRY_558282_1 (http://etenders.hry.nic.in)

SHRI VISHWAKARMA SKILL UNIVERSITY
(State University enacted under the Government of Haryana Act 25, 2016)

SVSU

श्री विश्वकर्मा कौशल विश्वविद्यालय

(हरियाणा सरकार, एक्ट संख्या 25, 2016 के तहत)

SHRI VISHWAKARMA SKILL UNIVERSITY

DUDHOLA, PALWAL, HARYANA

Tender Document for

Supply and Installation of Items for Tinkering and Mobile Robot Lab (Major/Minor equipment/Items, sensors, drone items and computers)

Tender No: SVSU/2026/PS/E6479/753 **Dated: 03-11-2026**

SHRI VISHWAKARMA SKILL UNIVERSITY
(State University enacted under the Government of Haryana Act 25, 2016)

Tender dates for supply and installation of items
for
Tinkering and Mobile Robot Lab
(Major/Minor equipment/Items, sensors, drone items and computers)

S.N		Dates
1	Issue of Tender Document (Date of uploading of Tender & other Documents) (online)	**03.11.2026 at 17:00 Hrs**
2	Online Tender Download/Purchase Start Date	**03.11.2026 at 17:10 Hrs**
3	Last date for receipt of queries through Mail	**10.11.2026 at 15:00 Hrs**
4	Date of pre-bid meeting, if any	**11.11.2026 at 11:00 Hrs**
5	Online proposal Submission Start Date	**03.11.2026 at 17:10 Hrs**
6	Online proposal Submission End Date	**02.12.2026 at 17:10 Hrs**
7	Opening of Technical Bid	**04.12.2026 at 15:10 Hrs**
8	Financial Bid	Subsequent date to be informed Later at etender portal.

Notice Inviting Tender

Sub: Notice Inviting Tenders for Supply and Installation of Items for Tinkering and Mobile Robot Lab (Major/Minor equipment/Items, sensors, drone items and computers)

Shri Vishwakarma Skill University, Haryana invites online Tender: **"Supply and Installation of Items for Tinkering and Mobile Robot Lab (Major/Minor equipment/Items, sensors, drone items and computers)"** through e-procurement on portal https://etenders.hry.nic.in from reputed Manufacturers/Authorized Dealers/Distributors/Agent as per TENDER document. The TENDER documents may also be downloaded from website (http://www.svsu.ac.in) of Shri Vishwakarma Skill University, Haryana for reference only. A minimum eligibility criterion has been given in TENDER document.

Apart from uploading e-tender on website, bidder has to deposit EMD and Tender Fee +E-service fees along-with other documents.

I.1. SCHEDULE

1.	**Tender No**	
2.	**E-Service Fee + GST**	**As per E-tender portal**
3.	**Tender Fee + GST**	
	(1) For Haryana based manufacturing Micro and Small Enterprises (MSEs) & Khadi Village Industries Unit eligible as per the "Haryana State Public Procurement Policy for MSME -2016" notified vide G.O. No. 2/2/2016-4I BII(I) dated20-10-2016.	**NIL**
	(2) For Haryana based manufacturing Startups/First Generation Entrepreneurs eligible as per State policy "Concession/benefits in Public Procurement to Startups/First Generation Entrepreneurs of State" Issued vide G.O No.2/2/2016-4I B-II dated 03.01.2019.	**NIL**
	(3) For remaining bidders both from the Haryana and Non Haryana	**As per E-tender portal**
4.	**EMD Amount**	

	(1) For Haryana based manufacturing Micro and Small Enterprises (MSEs) & Khadi Village Industries Unit eligible as per the "Haryana State Public Procurement Policy for MSME - 2016" notifiedvide G.O. No. 2/2/2016-4I BII(1) dated20-10- 2016.	**NIL**
	(2) For Haryana based manufacturing Startups/First Generation Entrepreneurs eligible as per State policy Concession/benefits in Public Procurement to Startups/First Generation Entrepreneurs of State" issued vide G.O No.2/2/2016-4I B-II Dated 03.01.2019.	**NIL**
	(3) Central or Haryana Public Sector Enterprises and "approved sources" as declared by the Industries Department, Haryana	**NIL**
	(4) For remaining bidders both from the Haryana and Non Haryana	**02 % of Tender Value/quoted value**
5.	**Performance Security**	
	Haryana Based manufacturing Micro and Small Enterprises (MSEs)	0.2%of the Total Order Value or estimated value of the rate contract
	Haryana Based manufacturing Startups/First Generation Entrepreneurs	0.2%of the Total Order Value or estimated value of the rate contract
	Haryana based other firms/enterprises	2%of the Total Order Value or estimated value of the rate contract
	Other States/UTs based firms	5% of the Total Order Value or estimated value of the rate contract
	# Haryana based MSEs and Startups/First Generation Entrepreneurs will be eligible for performance security deposit @ 0.2% who have filed Entrepreneurs Memorandum (Micro or Small Enterprise category) in the Industries Department Haryana and who participate directly in the tendered/quoted items and offering to supply the entire quoted quantity manufactured from their own Haryana based Unit.	
6.	Product Warranty Period	**Minimum 3 Years warranty of complete lab/equipment/items therein**
7.	Issue of Tender Document (Date of uploading of Tender & other Documents) (online)	

8.	Online Tender Download/Purchase Start Date	
9.	Last date for receipt of queries through Mail	
10.	Date of pre bid meeting	
11.	Online proposal Submission Start Date	
12.	Online proposal Submission End Date	
13.	Opening of Technical Bid	
14.	Technical Presentation	**Subsequent date to be informed later.**
15.	Financial Bid	**Subsequent date to be informed later.**
16.	Validity period of Proposal	180 Days from the opening of financial bid.
17.	Address of Communication	**Registrar** **Shri Vishwakarma Skill University,** Dudhola , Palwal Haryana – 121102
18.	Contact Officer Name, Phone Number and Email ID for this tender	tenders@svsu.ac.in, 9813891890, 7496873094

Note:

- Tender document can also be downloaded from University Website www.svsu.ac.in University reserves all right to change any Date, Time and Condition of Tendering without assigning any reason.
- Amendments to TENDER, if any, shall be published on e-procurement website https://etenders.hry.nic.in, https://www.svsu.ac.in only and not in newspaper. Shri Vishwakarma Skill University, Haryana reserves all rights to accept or reject any or all tenders without assigning any reasons.
- The concessions/benefits to MSMEs/startup subject to fulfillment/eligible as per Haryana State Public Procurement Policy for MSME -2016 notified vide G.O. No. 2/2/2016-4I BII (1) dated20-10-2016 and turnover criteria as per Haryana Government (or as amended from time to time in this regard).
- The location for supply & installation of items/instruments as mention under scope of work will be Shri Vishwakarma Skill University, Dudhola, Palwal, Haryana-121102
- Queries will be sent to the Officer appointed for this tender. Each Bidder will send only

27/08/26

one e-mail containing the Pre-Bid Queries, as per format mentioned below. In case of more than one e-mail, only the queries provided in the first e-mail will be considered.

S. No.	Clause/Section/Reference/ Page/Paragraph		Existing clause/RFP Text	Queries/suggestions
1.				

1.2. DISCLAIMER

The information contained in this Tender document or subsequently provided to the bidders, whether verbally or in documentary or any other form by or on behalf of ShriVishwakarma Skill University, Haryana is provided to bidder on the terms and conditions set out in this TENDER and such other terms and conditions subject to which such information is provided.

Information provided in this TENDER to the bidders is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Shri Vishwakarma Skill University, Haryana accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

Shri Vishwakarma Skill University, Haryana also accepts no liability of any nature whether resulting from negligence or otherwise however caused arising from reliance or any bidder upon the statements contained in this TENDER.

Shri Vishwakarma Skill University, Haryana may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this TENDER.

The issue of this TENDER does not imply that Shri Vishwakarma Skill University, Haryana is bound to select a bidder or to appoint the Selected Bidder, as the case may be, for the Consultancy and Shri Vishwakarma Skill University, Haryana reserves the rights to reject all or any of the Proposals without assigning any reasons whatsoever.

The bidder shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by Shri Vishwakarma Skill University, Haryana or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses will remain with the bidder and Shri Vishwakarma Skill University, Haryana shall not be liable in any manner whatsoever for the same or for any other costs or other expenses

incurred by a bidder in preparation or submission of the Proposal, regardless of the conduct or outcome of the Selection Process.

2. Instructions to Bidders

2.1. Subject: Invitation for Supply and Installation of Items for Tinkering and Mobile Robot Lab (Major/Minor equipment/Items, sensors, drone items and computers)

Shri Vishwakarma Skill University, invites online Bids (Technical bid and Financial bid) from eligible and experienced OEM (Original Equipment Manufacturer) OR OEM Authorized Dealer/Distributors/Agent for **Supply and Installation of Items for Tinkering and Mobile Robot Lab (Major/Minor equipment/Items, sensors, drone items and computers)** with warranty period as stated at "Schedule" on site comprehensive warranty from the date of receipt of the material as per terms & conditions specified in the tender document.

Bidders can access tender documents on the website of the University and fill them with all relevant information and submit the completed tender document with E-service Fee, Tender Fee and EMD amount online as per the schedule to https://etenders.hry.nic.in.

2.2. INSTRUCTION TO BIDDER FOR E-TENDERING

Note: *Following conditions will over-rule the conditions stated in the tender documents, wherever relevant and applicable. Interested bidders can read the instructions related to e-tender system from the website www.etenders.hry.nic.in.*

2.2.1. E-Tendering:

2.2.1.1. For participation in e-tendering module of Shri Vishwakarma Skill University, Haryana it is mandatory for prospective bidders to get registration on website https://etenders.hry.nic.in. Therefore, it is advised to all prospective bidders to get registration by making on line registration fees payment at the earliest.

2.2.1.2. Tender documents can be downloaded from website http://www.svsu.ac.in. However, the bidders have to upload complete tender document online along-with deposit of EMD amount and Tender Document Fee + E- service fee and without EMD amount and Tender Document Fee + E-service fee bids will not be accepted.

2.2.1.3. E-service/gateway charges shall be borne by the bidders.

2.2.1.4. As per the directions of the Controller of Certifying Authorities, Ministry of Communication and Information Technology, Government of India, a **Class III Digital Certificate** shall be required to bid for all tenders solicited electronically. If the bidder does not have such a certificate, it may be obtained from any of the registering authorities or

certification authorities. Kindly note that it may take at least three-five business days for the issue of a digital certificate. Bidders are advised to plan their time accordingly. Shri Vishwakarma Skill University, Haryana shall bear no responsibility for accepting bids which are delayed due to non-issuance or delay in issuance of such digital certificate.

2.2.1.5. If bidder is bidding first time for e-tendering, then it is Obligatory on the part of bidder to fulfil all formalities such as registration, obtaining Digital Signature Certificate etc. well in advance.

2.2.1.6. Bidders are requested to visit our e-tendering website regularly for any clarifications and/or due date extension or corrigendum.

2.2.1.7. Bidder must positively complete online e-tendering procedure at https://etenders.hry.nic.in

2.2.1.8. Shri Vishwakarma Skill University, Haryana shall not be responsible in any way for delay / difficulties / inaccessibility of the downloading facility from the website for any reason whatsoever.

2.2.1.9. For any type of clarifications, bidders/contractors can visit https://etenders.hry.nic.in and http://www.svsu.ac.in.

2.2.1.10. The bidder whosoever is submitting the tender by his Digital Signature Certificate shall invariably upload the scanned copy of the authority letter.

2.2.1.10.1. TENDER cost + E-service Fee and EMD Amount.

2.2.1.10.2. Affidavits.

2.2.1.10.3. An Authority Letter to Sign on behalf of bidder, if filled by authorized representative.

2.2.1.10.4. Authority Letter for use of Digital Signature, if filed be authorized representative

2.2.1.10.5. Technical Bid with all relevant enclosures.

2.2.1.10.6. All documents to be submitted by the firms should be duly attested by gazetted officer/ notary public in case these are copies of the original documents. No un-attested documents will be entertained.

The prospective bidders will upload scanned self-certified copies of requisite documents as required in e-tendering process.

2.2.1.11. The Tender document cost+ E-Service Fee is to be deposited online by bidder.

2.2.1.12. The tenders uploaded without/incomplete/partial EMD and tender fee + E-service fees shall be disqualified.

2.2.1.13. The EMD amount is to be deposited online by bidder.

2.2.1.14. The tender documents fees shall not be refunded.

2.2.1.15. If the tenders is cancelled or recalled on any grounds, the Tender Document Fee and e-Service Fee will not be refunded to the bidder.

2.2.1.16. No Proposal will be accepted without valid TENDER cost

and Earnest Money Deposit.

2.2.2. Technical bid: -

Bidders must positively complete online e-tendering procedure at https://etenders.hry.nic.in. They shall have to submit the documents as prescribed in the TENDER online in the website. The website/e-portal may accept a file sizing upto 10 MB, however, the bidders may submit their complete bids (with all the requisite documents) in multiple files.

2.2.3. Financial bid: -

Bidder must submit the Price/Financial bid document as per the format given in TENDER/available online and uploaded as per instructions therein. **Physical submission of price bid will not be considered.** The financial bids of technically qualified bidders shall be opened online at the notified date. The bidder can view the financial bid opening date by logging into web-site.

2.2.3.1 On the due date of e-tender opening, the technical bids of bidders will be opened online. Shri Vishwakarma Skill University, Haryana reserves the right for extension of due date of opening of technical bid.

2.2.3.2 Shri Vishwakarma Skill University, Haryana reserves the right to accept or reject any or all tenders without assigning any reason what so ever.

2.2.3.3 In case, due date for opening of tender happens to be a holiday, the due date shall be shifted to the next working day for which no prior intimation will be given.

2.2.3.4 Any change/modifications/alteration in the TENDER by the Bidder shall not be allowed and such tender shall be liable for rejection.

2.2.4. For amendment, if any, please visit https://etenders.hry.nic.in web site regularly. In case of any bid amendment and clarification, the responsibility lies with the bidders to note the same from web site. The Shri Vishwakarma Skill University, Haryana **shall have no responsibility for any delay/omission on part of the bidder.**

<< Organization Letter Head >>

3. TERMS and CONDITIONS

3.1 **Due date**: The tender has to be submitted online on or before the due date. The offers received after the due date and time shall not be considered. No application will be received through e-mail/fax. The University shall not be responsible for any delay.

3.2 **Tender Fee (Non-Refundable):** The Bidder shall submit a non- refundable tender fee online. The Technical Bid without Tender fee shall be considered as UNRESPONSIVE and will not be accepted. The tender fee shall not be returned/refunded to any Bidder in any circumstances. If the tender is cancelled or recalled on any grounds, the Tender Document Fee and e-Service Fee shall not be refunded to the bidder.

3.3 **Preparation of Bids**: The Technical and financial offer/bid shall be submitted online. The technical bid should consist of all technical details along with commercial terms and conditions. Financial bid should indicate item wise price for the items mentioned in the technical bid.

All documents to be submitted by the firms should be duly attested by gazetted officer/ notary public in case these are copies of the original documents. No unattested documents will be entertained.

Revision in the technical bid and financial bid quoted in the offer will not be entertained after the last date and time fixed for receipt of tenders.

3.4 **Earnest Money Deposit (EMD) (if applicable):** While submitting bid, the BIDDER shall deposit an amount mentioned in tender document as Earnest Money, with the Institute through the following instruments:

3.4.1 The Bidder shall submit an EMD amount online. The Technical Bid without EMD would be considered as UNRESPONSIVE and will not be accepted. The Earnest Money Deposit (EMD) in other form viz., Pay Order / Cheque etc. shall not be accepted.

3.4.2 No interest shall be payable by the BUYER to the BIDDER on Earnest Money for the period of its currency.

3.5 **Refund of EMD:** The EMD will be returned to unsuccessful Bidders only after the award of Purchase Order. In case of successful Bidder, EMD shall be returned without any interest after the submission of Performance Bank Guarantee.

EMD shall not be refunded, if the order is not accepted by the successful bidder. In case, the offer is accepted, but not honored by the Bidder, the EMD shall be forfeited. The EMD will also be forfeited, if wrong information is furnished or any vital information is concealed in the tender document. Apart from it, he shall be Liable for any other action against him,

as may be considered necessary by the Competent Authority, SVSU.
If the tenders are cancelled or recalled on any grounds, the EMD will be returned to the bidder without interest.

3.6 Opening of the tender:

3.6.1 On the due date of e-tender opening, the technical bids of bidders will be opened online. Shri Vishwakarma Skill University, Haryana reserves the right for extension of due date of opening of technical bid.

3.6.2 The bid will be opened by a committee duly constituted for this purpose in presence of Bidder's representative if available. Only one representative will be allowed to participate in the tender technical bid opening. The Bidder if interested may participate on the tender opening Date and Time.

3.6.3 Bid received without or incomplete Tender Fee or EMD will be rejected out rightly.

3.6.4 Tenders which do not fulfil any or all of the terms & conditions or incomplete, are liable to be rejected.

3.6.5 Incomplete bidding will not be accepted; in such case the bid will not be considered.

3.6.6 The technical bid will be opened first and it will be examined by a technical committee (as per specification and requirement).

3.6.7 The financial offer/bid will be opened only of those bidders who qualify on the basis of their Technical Bid and will be opened in the presence of the bidder/bidder's representatives subsequently for further evaluation. Only one representative will be allowed to participate in the Financial bid opening. The date & time of opening of the Financial bids will be intimated in the due course.

3.6.8 The Bidder should produce authorization letter from their company to participate in the technical bid opening, Technical Presentation and Financial bid opening.

3.6.9 The University may call bidders for demonstration and presentation of the tools during technical evaluation. The cost for the demonstration will be borne by the supplier and University will not pay any TA/DA for presentation/ demonstration. If any firm fails to successfully demonstrate the system quoted by them, the Bid of that firm will not be considered.

3.6.10 Sample for offered items may be asked from tender during technical evaluation.

3.6.11 In case, due date for opening of tender happens to be a holiday, the due date shall be shifted to the next working day for which no prior intimation will be given.

3.7 Acceptance/ Rejection of bids: The Committee reserves the right to reject any bid not fulfilling the eligibility criteria.

Eligibility Criteria:

3.7.1 The bidder shall be a legally registered entity in India, such as a Proprietorship Firm, Partnership Firm, LLP, Private Limited Company, Public Limited Company, or Government Organization.

3.7.2 The bidder should have successfully supplied and installed

Tinkering Labs, Mobile Robotics Labs, STEM Labs, IoT Labs, or similar educational laboratory setups in educational institutions/research labs/center of excellence during the last three (03) years.

3.7.3 The bidder should have an average annual turnover of at least ₹50 lakhs during the last three financial years. A CA-certified turnover certificate or audited financial statements shall be submitted.

3.7.4 The bidder should have adequate technical manpower and infrastructure for supply, installation, testing, commissioning, and user training related to the Tinkering and Mobile Robot Laboratory.

3.7.5 The bidder should not have been blacklisted, debarred, or banned by any Central Government, State Government, PSU, University, or Autonomous Body in India during the last three years. A self-declaration on the bidder's letterhead shall be submitted.

3.7.6 The bidder shall submit a signed declaration confirming acceptance of all tender terms, technical specifications, delivery conditions, installation requirements, and training obligations mentioned in the tender document.

3.7.7 Bidder should be the manufacturer/authorized dealer/ distributors/agent. Letter of Authorization from original equipment manufacturer (OEM) specific to the tender should be enclosed (Annexure – IX).

3.7.8 An undertaking from the bidder is required stating that they would facilitate the Bidder on a regular basis with technology/product updates and extend support for the warranty as well. (Annexure - IV)

3.7.9 The bidder must possess a valid GST Registration Certificate and Permanent Account Number (PAN) issued by the Income Tax Department.

3.7.10 Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between Bidder specification and supporting documents etc. may lead to rejection of the bid.

3.7.11 Incomplete Tender such as unsigned Tender, late submitted Tender, conditional Tender, not confirming to the eligibility criteria and non-submitting Technical specification & compliance sheet with supporting documents or with any vaguer term such as 'Extra as applicable', will be considered as rejected.

3.7.12 In the tender, either the agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.

3.7.13 If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.

3.7.14 Sample for offered items may be asked from tender during technical evaluation.

3.7.15 The Agency should not have incurred any loss for the last 3 financial years which is mandatory. Bidders should submit audited statement and Financial assessment copy/Income Tax Return Copy showing their net balance / Profit for last three financial years

3.7.16 Additional Desirable Conditions: The following conditions may also be included as desirable criteria, depending on the tender requirements: ISO 9001:2015 certification for quality management, Experience of working with government educational institutions, Availability of local or regional service support in the state/region and submission of product brochures/catalogues and compliance sheets for all quoted items.

3.8 Performance Security:

3.8.1 Performance Bank Guarantee is mandatory (annexure-VII).

3.8.2 The Successful Bidder shall require to submit the performance security/Guarantee for an amount (as stated at "Schedule "of this tender) in the form of irrevocable bank guarantee issued by any Indian Nationalized Bank for an amount which is stated at the "Schedule" of the tender document within 21 days from the date of receipt of work order/purchase order and should be kept valid for a period of 180 days beyond the date of completion of warranty period. The Performance security in other form viz., FD/Term Deposit Receipt etc. shall not be accepted.

3.8.3 The Successful Bidder should submit performance security/Guarantee as prescribed above to be received in the office of procurement department on or before 21 days from the date of issue of supply order acknowledgement.

3.8.4 The Performance Bank Guarantee should be established in favour of **The Registrar, Shri Vishwakarma Skill University, Dudhola, Palwal, Haryana 121102,"** through any Bank situated at Palwal or outstation with a clause to enforced the same on their local branch at Palwal. Performance Bank Guarantee shall be for the due and faithfully performance of the contract and shall remain binding, notwithstanding such variations, alterations for extensions of time as may be made, given, conceded or agreed to between the successful Bidder and the purchaser under the terms and conditions of acceptance to tender.

3.8.5 If the supplier shall not submit the performance security within 21 days from the date of receipt of work order/purchase order and if there is delay in submission of performance security, purchase order may be cancelled. The competent authority may accept the performance security after the above-mentioned deadline of 21 days' subject to submission of justification by the Bidder, however the decision of the competent authority is final in this regard.

3.8.6 The successful Bidder is entirely responsible for due performance of the contract in all respects according to the speed, intent and meaning of the terms and conditions and specification and all other documents referred to in the acceptance of tender.

3.8.7 The performance bank guarantee shall be kept valid during the period of contract.

3.9 Force Majeure: The Supplier will not be liable for forfeiture of its

performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

3.9.1 For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

3.9.2 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

3.10 **Risk Purchase Clause:** In event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from the other source on the total risk of the supplier under risk purchase clause.

3.11 **Packing Instructions:** Each package will be marked on three sides with proper paint/indelible ink, the following:

3.11.1 Item Nomenclature
3.11.2 Order/Contract No.
3.11.3 Country of Origin of Goods
3.11.4 Supplier's Name and Address
3.11.5 Consignee details
3.11.6 Packing list reference number

3.12 **Delivery and Documents:** Delivery of the goods should be made within a maximum of 06 weeks from the date of placement of purchase order at Shri Vishwakarma Skill University, Dudhola, Palwal – 121102, Haryana or at that place to be informed by the SVSU. The delivery period can be extended by the Registrar, Shri Vishwakarma Skill University, Dudhola, Palwal, Haryana, only in exceptional cases on written request of the Supplier giving reason/explaining circumstances due to which delivery period could not be adhere to. Within 24 hours of shipment, the supplier shall notify the purchaser and the insurance company by cable/telex/fax/e mail the full details of the shipment including contract number, railway receipt number/AAP etc. and date, description of goods, quantity, name of the consignee, invoice etc. The supplier shall mail the following documents to the purchaser with a copy to the insurance company:

3.12.1 4 Copies of the Supplier invoice showing contract number, goods description, quantity
3.12.2 unit price, total amount;
3.12.3 Insurance Certificate if applicable;
3.12.4 Manufacturer's/Supplier's warranty certificate;
3.12.5 Inspection Certificate issued by the nominated inspection agency, if any

3.12.6 Supplier's factory inspection report; and

3.12.7 Certificate of Origin (if possible, by the beneficiary);

3.12.8 Two copies of the packing list identifying the contents of each package.

3.12.9 The above documents should be received by the Purchaser before arrival of the Goods (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.

3.13 Liquidated Damages (L.D)/Penalty for Non-execution of Order:

If a supplier fails to execute the order in time as per the terms and conditions stipulated therein, it will be open to the purchaser to recover liquidated damages for delay in delivery from the supplier at the rate 1% (one percent) of the total cost of the material/contract per week or such other amount as the Registrar, SVSU, Dudhola, Palwal may decide till the supply/work remains incomplete, provide that the total amount of the compensation shall not exceed 10% (ten percent) of the total cost of the material/contract.

The installation, commissioning and demonstration will be completed within one month from the delivery/supply of the material, if the bidder fails to install and demonstrate the material on time then the Registrar will be competent to impose penalty @ 1% per week of the purchase order or such other amount as the Registrar may decide till the supply/work remains incomplete, provided that the entire amount of penalty shall not exceed 10% of the total amount of Purchase order.

After the lapse of 15 days beyond the stipulated/extended period, it will be the discretion of the University to cancel the supply/work execution order at the risk and the cost of the Supplier/contractor. Besides, forfeiture of the Earnest Money/Performance Security, the University shall be at liberty to take such action as recovery of compensation to the extent of 10% of the amount of the supply/contract order, blacklisting, etc. An appeal against this penalty shall, however, lie with the Hon'ble Vice-Chancellor (VC), Shri Vishwakarma Skill University, DUDHOLA, PALWAL, HARYANA, whose decision shall be final.

Note: It is mentioned that both, delivery penalty and installation penalty can also be imposed simultaneously.

If the Liquidated Damage exceeds 10% of the order value, SVSU reserves the right to terminate the contract and SVSU will get the job completed by any other competent party. The difference of cost incurred by SVSU will be recovered from the Earnest Money Deposited/Performance Security submitted by the bidder.

3.14 Prices: The price should be quoted in net per unit (after breakup) and must include all packing, forwarding, freight, insurance charges, loading, unloading and delivery charges etc. may be quantified in terms of amount. These charges may not be payable against such vague statement as "packing, forwarding, freight, insurance charges, loading, unloading and delivery charges etc. extra". The offer/bid should be exclusive of GST, which will be

paid by the purchaser as applicable. However, the percentage of GST shall be clearly indicated. **Charges not mentioned in the quotation/tender shall not be paid.**

3.15 **Rate contract with GEM or DS&D (Haryana):** If the bidder or their Principals are on rate contract with **GEM or DS&D (Haryana)**, this shall be mentioned specifically in the offer and a photocopy of the same, duly attested, may be appended.

3.16 **Progress of Supply:** Wherever applicable, supplier shall regularly intimate progress of supply, in writing, to the Purchaser as under:

- **3.16.1** Quantity offered for inspection and date
- **3.16.2** Quantity accepted/rejected by inspecting agency and date
- **3.16.3** Quantity dispatched/delivered to consignees and date
- **3.16.4** Quantity where incidental services have been satisfactorily completed with date
- **3.16.5** Quantity where rectification/repair/replacement effected/completed on receipt of any communication from consignee/Purchaser with date
- **3.16.6** Date of completion of entire Contract including incidental services, if any
- **3.16.7** Date of receipt of entire payments under the Contract (In case of stage-wise inspection, details required may also be specified).

3.17 **Resolution of Disputes:** The dispute resolution mechanism would be as follows:

- **3.17.1** In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments there of shall apply to the arbitration proceedings. An arbitrator shall be appointed with mutual consent of both the parties. The award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.
- **3.17.2** If the Parties fails to appoint sole Arbitrator with the mutual consent, then there shall be three Arbitrators, each party shall appoint one Arbitrator, and the two appointed Arbitrators shall appoint the third Arbitrator is shall act, as the Presiding Arbitrator and decision of the Arbitration shall be binding on both the Parties. The language of Arbitration shall be English. Any payment to the Arbitrator/Arbitrators shall be paid by the both parties equally.
- **3.17.3** In the case of a dispute between the purchaser and a Foreign Supplier, the dispute shall be settled by arbitration in accordance with provision of sub-clause (i) above. But if this is not acceptable to the supplier then the dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules.
- **3.17.4** The venue of the arbitration shall be the place from where the order

is being issued.

3.18 **Jurisdiction:** The place of jurisdiction shall be district court Palwal Haryana.

3.19 **Right to Use Defective Goods:** If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

3.20 **Transfer and Subletting:** The supplier shall not sublet, transfer, assign or otherwise part with the acceptance to the tender or any part thereof, either directly or indirectly, without the prior written permission of the Purchaser.

3.21 **Supplier Integrity:** The Supplier is responsible for and obliged to conduct all contracted activities in accordance with the Contract using state of the artmethods and economic principles and exercising all means available to achieve the performance specified in the contract.

3.22 **Installation & Demonstration:** The supplier is required to do the installation and demonstration of the equipment within ten days of the arrival of materials at the SVSU, Palwal, site of installation in the designated lab, otherwise the penalty clause will be the same as per the supply of materials. In case of any damage to equipment and supplies during the carriage of supplies from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. SVSU will not be liable to any type of losses in any form.

3.23 **Insurance:** For delivery of goods at the purchaser's premises, the insurance shall be obtained by the supplier in an amount equal to 110% of the value of the goods from "warehouse to warehouse" (final destinations) on "All Risks "basis including War Risks and Strikes. The insurance shall be valid for a period of not less than 3 months after installation and commissioning. In case of orders placed on FOB/FCA basis, the purchaser shall arrange Insurance. If orders placed on CIF/CIP basis, the insurance should be up to SVSU, Palwal Campus.

3.24 **Warranty:**

3.24.1 Warranty period shall be (as stated at "Schedule "of this tender) from date of successful/satisfactory inspection report and acceptance of the equipment/material/goods by the SVSU for each item/system on comprehensive basis.

3.24.2 The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the contract. If for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall at its discretion make such changes, modifications, and/or additions to the Goods or any part thereof as may be necessary in order to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further

performance tests. The warranty should be comprehensive on site.

3.24.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall arrange to repair or replace the defective goods or parts within 10 days free of cost in Shri Vishwakarma Skill University, Dudhola, Palwal, Haryana – 121102, Haryana or at that place to be informed by the SVSU. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Purchaser for the replaced parts/goods thereafter. The period for correction of defects in the warranty period is 10 days. If the supplier having been notified fails to remedy the defects within 10 days, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses and without prejudice to any other rights, which the purchaser may have against the supplier under the contract.

3.24.4 The comprehensive warranty (if applicable) will commence from the date of the satisfactory installation/commissioning of the tools against the defect of any manufacturing, workmanship and poor quality of the components.

3.25 **Governing Language:** The contract shall be written in English language. English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract, which are exchanged by the parties, shall be written in the same language.

3.26 **Interpretation Clause:** The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction i.e District court of Palwal.

3.27 **Notices:**

3.27.1 Any notice given by one party to the other pursuant to this contract/order shall be sent to the other party in writing or by cable, telex, FAX or e-mail and confirmed in writing to the other party's address.

3.27.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

3.28 **Bid Currencies:** Prices shall be quoted in Indian National Rupee (INR).

3.29 **Taxes:** Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser. However, GST in respect of the transaction between the Purchaser and the Supplier shall be payable extra, if so stipulated in the order.

3.30 **Payment:** For Indigenous supplies, 100% payment shall be made by the Purchaser against successful/satisfactory delivery, inspection, inspection report and acceptance of the equipment/material/goods at Shri Vishwakarma Skill University, Dudhola, Palwal, Haryana– 121102, Haryana or at that place to be informed by the SVSU in good condition and to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee as specified in Clause of tender terms and conditions.

Payment shall be released on receipt of the valid original bills in triplicate complete in all respect.

3.31 **User list:** Brochure detailing technical specifications and performance, list of industrial and Government Educational Establishments where the items enquired has been supplied by the Bidder has undertaken such work during last three years must be provided. (Annexure-V).

Note: - The Bidder(s) are required to submit proper proof (Purchase order / Work order) duly self-attested by the Bidder / Authorized Signatory in support of the claim. Without said documents, Experience and Performance report cell not be considered.

3.32 **Manuals and Drawings (Wherever Applicable):**

3.32.1 Before the goods and equipment are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.

3.32.2 The detailed literature / catalogue of the quoted instruments and its accessories should also be attached with the Technical Bid. The specifications claimed by the firm should be clearly mentioned on the literature / catalogue also.

3.32.3 The Manuals shall be in the ruling language (English) in such form and numbers as stated in the contract.

3.32.4 Unless and otherwise agreed, the goods equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawing have been supplied to the Purchaser.

3.33 **Application Specialist:** The Bidder shall mention in the Techno-Commercial bid the availability and names of Application Specialist and Service Engineers in the nearest regional office. (Ref. to Annexure-VI).

3.34 **Site Preparation:** The supplier shall inform to the Institute about the site preparation, if any, needed for the installation of equipment, immediately after the receipt of the purchase order. The supplier must provide complete details regarding space and all the other infrastructural requirements needed for the equipment, which the Institute should arrange before the arrival of the equipment to ensure its timely installation and smooth operation thereafter.

The supplier may visit the Institute and see the site where the equipment is to be installed and may offer his advice and render assistance to the Institute in the preparation of the site and other pre-installation requirements.

3.35 **Spare Parts:** The Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier. Such spare parts as the Purchaser may elect to purchase from the Supplier, providing that this election shall not relieve the Supplier of any warranty obligations under the Contract; and in the event of termination of production of the spare parts;

advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if requested. Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares. Other spare parts and components shall be supplied as promptly as possible but in any case within six months of placement of order.

3.36 **Defective Equipment:** If any of the equipment supplied by the Supplier is found to be substandard, refurbished, un-merchantable or not in accordance with the description/specification or otherwise faulty, the faculty/expert committee (constituted by The Registrar, SVSU) will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Supplier with 18% interest if such payments for such equipment have already been made. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 7 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges. In case supplier fails to replace above item as per above terms & conditions, SVSU may consider "Banning" the supplier and the Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/ Performance Bank Guarantee (after the contract is signed) shall stand forfeited either fully or partially, as decided by the University Competent Authority and the Authority shall not be required to assign any reason thereof.

No payment shall be made for rejected material nor would the Supplier be entitled to claim for such items. The supplier from the site would remove rejected items within two weeks of the date of rejection at his own cost. In case items are not removed, it will be auctioned at the risk and responsibilities of the Supplier without any further notice.

3.37 **Termination for Default:**

3.37.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

3.37.1.1. If the Supplier fails to deliver, any or all of the Goods with in the period(s) specified in the order, or within any extension thereof granted by the Purchaser.

3.37.1.2. If the Supplier fails to perform any other obligation(s) under the Contract.

3.37.1.3. If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

3.37.2 **For the purpose of this Clause:**

3.37.2.1. **"Corrupt practice"** means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

3.37.2.2. **"Fraudulent practice"** means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidder (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.

3.37.3 In the event the Purchaser terminates the Contract in whole or in part, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

3.38 **Shifting:** Once our new Academic Block will be ready, the supplier has to shift and uninstallation and reinstall the instrument free of cost to that new Academic Block within the warranty period.

3.39 **Reservation of Rights:**

3.39.1 The University reserved all the right to enhance or mitigate the quantity without any notice.

3.39.2 The University reserves all the rights to accept or reject any or all tenders without assigning any reason what so ever at any stage and no further correspondence will be entertained in this regards.

3.39.3 The University reserved all the right to change any Date, Time and Condition of Tendering without assigning any reason.

3.39.4 The acceptance or rejection of the technical bid/tender shall be the sole decision of the University.

3.39.5 The University shall not bound to accept any Proposal, and reserves the right to annul the selection process at any time prior to award of Contract without thereby incurring any liability to the Consultant thereby.

3.39.6 The University reserves all the right to call/demand any document from the bidder as and when required or to reject the bid.

3.40 **Training of Personnel:** The supplier shall be required to undertake to provide the technical training (minimum 10 working days or may be extended if required) to the personnel involved in the use of the equipment at the Institute premises, immediately after completing the installation of the equipment as per Annexure-X.

3.41 **Technical Compliance Certificate:** This certificate must be provided

indicating conformity to the technical specifications and agree to comply with the requirements and intent of specifications (Annexure – II).

3.42 **Evaluation of Offer:**

3.42.1 L1 will be decided on the basis of the policy guidelines issued by Government of Haryana vide G.O. No. 2/2/2010-4-IB-III of dated 19/12/2011 (or as amended from time to time).

3.42.2 If in the event of a tie in L1 in the financial bid, the university will negotiate with all the eligible bidders and the bidder whose quotes are lower than the other bidders shall be declared as L1.

3.42.3 Offer which deviates from the vital conditions (as illustrated below) of the tender shall be rejected:

3.42.3.1. Non-submission of complete offers.

3.42.3.2. Receipt of offers after due date and time and or by email /fax (unless specified otherwise).

3.42.4 In case any BIDDER is silent on any clauses mentioned in this tender document, the Institute shall construe that the BIDDER had accepted the clauses as per the invitation to tender.

3.42.5 No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.

3.43 **Negotiation of** Rates: Regarding negotiations of rates, policy issued by the State Government vide G.O. No.2/2/2010-4-IB-II dated 18.06.2013, G.O. No.2/2/2010-4-IB-II dated 16.06.2014, G.O. No.2/2/2010-4-IB-II dated 09.02.2015 or amended time to time shall be applicable. The policy guidelines are available at https://haryanaeprocurement.gov.in on home page under section as Tender Forms."

3.44 The Financial bids of only those bidders will be opened who qualify on the basis of their Technical Bids. The date & time of opening of the Financial bids will be intimated through e-tender portal.

3.45 Legal action may be initiated against such Bidder in case any of the information submitted by the Bidder is found to be false at any stage of the contract.

3.46 **Sanctions for Violations:** Any breach of the aforesaid terms & Conditions and Technical Specification, requirements & conditions by the bidder or any one employed by it or acting on its behalf (whether with or without the Knowledge of the bidder) shall entitle the buyer to take all or any one of the following actions, wherever required:

3.46.1 To immediately, call the pre-contract negotiations with other bidders without assigning any reason or giving any compensation to the bidder. However, the proceedings with the other bidder(s) would continue.

3.46.2 The Earnest Money Deposit (in pre-contract stage) and/or Security

Deposit/Performance Bank Guarantee (after the contract is signed) shall stand forfeited either fully or partially, as decided by the buyer and the buyer shall not be required to assign any reason therefore.

3.46.3 To immediately, cancel the contract, if already signed without giving any compensation to the bidder.

3.46.4 To recover all sums already paid by the buyer, and in case of an Indian bidder with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a bidder from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the bidder from the buyer in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

3.46.5 To encash the advance bank guarantee and performance guarantee/warranty bond, if furnished by the bidder, in order to recover the payments, already made by the buyer, along with interest.

3.46.6 To cancel all or any other contracts with the bidder. The bidder shall be liable to pay compensation for any loss or damage to the buyer resulting from such cancellation/rescission and the buyer shall be entitled to deduct the amount so payable from the money(s) due to the bidder.

3.46.7 To debar the bidder from participating in future bidding processes of the University for a minimum period of two years, which may be further extended at the discretion of the buyer.

3.46.8 Forfeiture of Performance Bank Guarantee in case of a decision by the buyer to forfeit the same without assigning any reason for imposing sanction for violation.

3.47 BID SIGNING: The Tender must be signed by authorized signatory of the bidding firm/company on each page of the bid, along with seal of the firm/company.

3.48 Conditional Bid: Conditional Bid is not acceptable. Hence, the supplier is advised neither to alter the specification nor to mention anything on the

Tender form, except cost, signature with seal, otherwise his Tender shall not be considered. Conditional tenders shall not be entertained at all and shall liable to be rejected summarily.

There should not be any alterations in the bidding documents. In case any alteration is found at any stage, the tender shall be liable for rejection summarily without further appeal.

3.49 **Delivery Period and Installation Period Extension:** The supply order(s) shall be executed within the time specified in this regard. However, in case of Force Majeure / reasons beyond control of the supplier/ explaining circumstances due to which delivery period could not be adhere to, he may make a written request to the Registrar, SVSU for grant of extension for delivery period and/or installation period. The written request in this regard should clearly spelling out such reasons.

If Registrar, SVSU, is satisfied of such reasons and further that the requested extension is not be detrimental to the interests of the university, may grant extension for a reasonable period for delivery and installation of the goods. The supplier shall be required to indemnify the University against any loss on account of downfall of the price during the extended period.

3.50 **Contacting to SVSU Officers:** Bidder shall not approach SVSU officers beyond office hours and/or outside SVSU office premises from the time of the Bid opening to the time of finalization of successful bidder. Any effort by bidder to influence SVSU office in the decision on Bid evaluation, bid comparison or finalization may result in rejection of the Bidder's offer. If the bidder wishes to bring any additional information to the notice of SVSU, it should be in writing.

3.51 **Forfeiture of EMD/ BG/Performance Security:** EMD/ BG/Performance Security made by bidder may be forfeited under the following conditions:

3.51.1 During the evaluation process, if a bidder indulges in any such activity as would jeopardize the process, the decision of SVSU regarding forfeiture of EMD shall be final and shall not be called upon question under any circumstances.

3.51.2 If bidder violates any of the provisions of the terms and conditions of the proposal.

3.51.3 In case supplier fails to fulfil the all terms & conditions and Technical Specification, requirements & conditions, SVSU may consider "Banning" the supplier and the Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bank Guarantee (after the contract is signed) shall stand forfeited either

fully or partially, as decided by the SVSU and the SVSU shall not be required to assign any reason therefore.

3.51.4 In the case of a successful bidder, if bidder fails to:

3.51.4.1. Accept the work order along with the terms and conditions.

3.51.4.2. Furnish performance security.

3.51.4.3. Violates any of the work conditions of this proposal or indulges in any such activities as would jeopardize the work.

3.51.4.4. Submitting false/misleading information/ declaration/ documents/ proof/etc.

3.51.5 The decision of Competent Authority SVSU regarding forfeiture of EMD/ BG shall be final and shall not be called upon to question under any circumstances, besides, forfeiture of EMD/ BG even the bidder will be deferred from participating in any job for a period of two years.

3.52 **Amendment of Tender Document:** At any time before the deadline for submission of tender, SVSU may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective firm, modify the Tender Document by amending, modifying and/or supplementing the same. All prospective firms shall be notified of any amendments on e-tender website and/or SVSU web site and all such amendments shall be binding on them without any further act or deed on SVSU's part. The prospective firms are advised to periodically browse e-tender website and/or University website www.svsu.ac.in to find out any further addendum/amendment/corrigendum/Notice/clarification published with respect to this tender. In case of any bid addendum/ amendment/corrigendum/Notice/clarification, the responsibility lies with the bidders to note the same from web site. The **Shri Vishwakarma Skill University, Haryana** shall have no responsibility for any delay/omission on part of the bidder. In the event of any amendment, SVSU reserves the right to extend the deadline for the submission of the bids, in order to allow prospective Bidders reasonable time in which to take the amendment into account while preparing their bids.

3.53 **Model Clause for Land Border Sharing Countries with India:** As per the Order of Ministry of Finance, Department of Expenditure, Public Procurement Division. F.No. 6-18-2019-PPD Date 23/07/2020, any bidder from such Countries sharing a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) **only if the bidder is registered with the Competent Authority**, Specified in Model Clause and Certificate Annexure –XVI.

The Competent Authority for the purpose of Registration under this order shall be the Registration Committee constituted by the Department for

Promotion of Industry and Internal Trade (DPIIT).

Bidders can read the clause regarding restrictions on procurement from a bidder of a country, which shares a land border with India as per the Order of Ministry of Finance, Department of Expenditure, and Public Procurement Division. F.No. 6-18-2019-PPD Date 23/07/2020.

A certificate for the same shall be submit by the bidder as Specified in Model Clause and Certificate Annexure –XVI.

3.54 Special Terms and Conditions:

3.54.1 The offer without complete or partial prescribed earnest Money, tender Fee & E-Service fee is liable to be summarily rejected.

3.54.2 The deficiency in the documents and tender requirement can be made subject to the decision made by procurement department/all the tender committees individually has a right to call/demand any document from the bidder as and when required or to reject the bid. Procurement department/all the tender committees individually are empowered to take any action/decision /requirement of documents at any stage.

3.54.3 Any company/firm/dealer/manufacturer black listed by Central/State Government/Autonomous organization are not entitled to submit the tender. If it is submitted, it will be rejected and Earnest Money Depositor/and Performance security will be seized and legal action will be taken against them.

3.54.4 The firm/agency/bidder should not be black-listed/de-listed/debarred/demobilized for poor or unsatisfactory performance from any project by Govt. of India/Any other State Govt./Haryana Govt. or its Departments/agencies etc. for which he has to submit the affidavit.

3.54.5 Bidder should abide to all terms and conditions and Technical Specification stipulated in tender document and Supply of tools etc. in running condition within stipulated time frame for which he has to submit the affidavit.

3.54.6 Bidder should submit affidavit for Authenticity and correctness of information/documents stipulated in tender document.

3.54.7 Bidder should submit the Affidavit and relevant certificate/document regarding seeking benefits/ concessions by Haryana based manufacturing Micro, Small and Medium Enterprises (MSEs) and Startups/First Generation Entrepreneurs (If Applicable)

3.54.8 The foreign manufacturer or their Indian representative will ensure a proper service after sale as per requirement from time to time, against the guarantee/warrantee clause as per the terms and conditions agreed. Any negligence on this account shall be the sole responsibility of foreign bidder and liability for compensation will be fixed up by the Department.

3.54.9 Reference, information and certificates from the respective clients certifying technical and execution capability should be signed and the contact numbers of all such clients should be mentioned. The University may also independently seek information regarding the performance from the clients and visit referred customers' consortium partner in India/Abroad at bidder cost.

3.54.10 In case any BIDDER is silent on any clauses mentioned in this tender document, the Institute shall construe that the BIDDER had accepted the clauses as per the invitation to tender.

3.54.11 The concessions/benefits to MSMEs/startup subject to fulfillment/eligible as per Haryana State Public Procurement Policy for MSME -2016 notified vide G.O. No. 2/2/2016-4I BII(1) dated, 20-10-2016 and turnover criteria as per Haryana Government (or as amended from time to time in this regard).

3.54.12 All the terms and conditions and Technical specifications contained in the Tender document shall be the part of this agreement.

3.54.13 **Pre-dispatch inspection (if required): Pre-dispatch inspection shall be done by representatives of Department at the site of vendor/place of same item supplied by the vendor. An inspection report stating conformations to the specifications as laid down in the tender document and about satisfactory report of the Items for Tinkering and Mobile Robot Lab (Major/Minor equipment/Items, sensors, drone items and computers) during test trials will be submitted. Non-conformity to the specifications/unsatisfactory performance during test trails/defects (if any) will lead to the rejection of the tools/items.**

3.54.14 **Supplier should supply the tools on item wise basis as mentioned in tender document and partial bidding will not be accepted.**

3.54.15 Legal action may be initiated against such bidder in case any of the information submitted by the bidder is found to be false at any stage of contract.

ANNEXURE - II

<< Organization Letter Head >>

4. Technical Specification and Compliance Sheet

Tender Criterion: The Purpose of buying the lab/equipment is for proper education of students & make them employable in Industry. Hence, the equipment availability & reliability should be in high order with latest version. In order to ensure flaw less service back up and 100% Equipment availability without any down time is necessary.

1. The offered Model of OEM must be working in Indian Conditions, without any Problems. Minimum 2 performance reports to be submitted.
2. Company should have Experience in installation, Service and Training of such lab/equipment in Indian Environment. Detailed list to be submitted.
3. OEM should have service branch in the nearest possible locations to the University; and the OEM should have spares etc. stored in India (nearest possible location).
4. The Bidder should be able to provide support for hardware components (spares, accessories and consumables) and the software for a minimum period of 10 years from the date of commissioning.
5. The bidder should provide free updates for the software installed time to time.
6. The Bidder should provide Instruction Manuals, Operation Manuals, Safety Manuals, Training Modules, Relevant manuals, Problems with solutions, literature and standard Programme tutorials both hard and soft copy and provide the display boards.
7. Supplier has to give full warranty of the complete lab for Three Year.
8. All accessories (Connecting pipes/tubes/ electrical cables/compatible accessories etc.) will be supplied by the bidder for each unit for smooth running of Lab.
9. Concerned Department may visit the OEM premise before dispatch of machine.
10. Incomplete or partial bidding will not be accepted; in such case, the bid will not be considered. Supplier should supply all the equipment is mentioned in the tender document on turnkey basis.
11. The systems should be complete in all respect including spares, Consumables and accessories including for 3 years. The warranty period will be three years' duration for each item on comprehensive basis.

Scope of Work:

Specification and Requirements: -

Annexure-A

1. List of items required for Tinkering and Mobile Robotic Lab

S. No.	Item Name	Technical Description/Specifications	Quantity
1	Arduino uno Module	ATMega328P Processor, AVR CPU at up to 16 MHz, 32 kB Flash, 2 kB SRAM, 1 kB EEPROM, Power On Reset (POR), Brown Out Detection (BOD), 2x 8-bit Timer/Counter with a dedicated period register and compare channels, 1x 16-bit Timer/Counter with a dedicated period register, input capture and compare channels, 1x USART with fractional baud rate generator and start-of-frame detection, 1x controller/peripheral Serial Peripheral Interface (SPI), 1x Dual mode controller/peripheral I2C, 1x Analog Comparator (AC) with a scalable reference input, Watchdog Timer with separate on-chip oscillator, Six PWM channels, Interrupt and wake-up on pin change, ATMega16U2 Processor, 8-bit AVR® RISC-based microcontroller, 16 kB ISP Flash, 512B EEPROM, 512B SRAM, debug WIRE interface for on-chip debugging and programming, operating voltage: 2.7-5.5 volts Software Compatibility: Compatible with Arduino IDE (latest version), Support for C/C++ based programming, Drivers and libraries readily available Desirable: Manual with sample exercises supporting arduino uno.	30
2	Arduino Nano Module	ATMega328P Processor, 8-bit AVR® RISC-based microcontroller operating at up to 16 MHz, 32 kB Flash (2 kB used by bootloader), 2 kB SRAM, 1 kB EEPROM, Power On Reset (POR), Brown Out Detection (BOD), 2x 8-bit Timer/Counter with compare modes and PWM capability, 1x 16-bit Timer/Counter with input capture and compare channels, 1x USART, 1x	15

		Serial Peripheral Interface (SPI), 1x Dual-mode I2C (TWI), 1x Analog Comparator, Watchdog Timer with separate on-chip oscillator, Six PWM channels, 8-channel 10-bit ADC, External Interrupts and Interrupt-on-Pin-Change support, USB-to-Serial Converter (ATmega16U2 on official version / FT232RL on earlier original versions), USB 2.0 full-speed interface support, Operating Voltage (logic level): 5V, Input Voltage (recommended): 7–12V, Input Voltage (limits): 6–20V, 14 Digital I/O Pins (6 with PWM), 8 Analog Input Pins, DC Current per I/O Pin: 20 mA, DC Current for 3.3V Pin: 50 mA, Clock Speed: 16 MHz, Board Dimensions: 18 mm × 45 mm Software Compatibility: Compatible with Arduino IDE (latest version), Support for C/C++ based programming, Built-in bootloader for USB programming Desirable: Manual with sample exercises supporting arduino nano	
3	Arduino Mega Module	ATmega2560 Processor, 8-bit AVR® RISC-based microcontroller operating at up to 16 MHz, 256 kB Flash (8 kB used by bootloader), 8 kB SRAM, 4 kB EEPROM, Power On Reset (POR), Brown Out Detection (BOD), 2x 8-bit Timer/Counters with dedicated period registers and compare channels, 4x 16-bit Timer/Counters with dedicated period registers, input capture and compare channels, 4x USART with fractional baud rate generator and start-of-frame detection, 1x controller/peripheral Serial Peripheral Interface (SPI), 1x Dual mode controller/peripheral I2C (TWI), 1x Analog Comparator (AC), Watchdog Timer with separate on-chip oscillator, Fifteen PWM channels, 16-channel 10-bit ADC, Interrupt and wake-up on pin change, ATmega16U2 Processor for USB-to-Serial interface, 8-bit AVR® RISC-based microcontroller, 16 kB ISP Flash, 512B EEPROM, 512B SRAM, debug	15

		WIRE interface for on-chip debugging and programming, operating voltage: 5 volts (logic level), recommended input voltage: 7–12 volts, input voltage limits: 6–20 volts Software Compatibility: Compatible with Arduino IDE (latest version), Support for C/C++ based programming, Built-in bootloader for USB programming Desirable: Manual with sample exercises supporting arduino Mega	
4	Raspberry Pi 4 Model B or Higher	Broadcom BCM2711 Processor, Quad-core 64-bit ARM Cortex-A72 CPU operating at up to 1.5 GHz, VideoCore VI GPU supporting OpenGL ES 3.0, H.265 (4Kp60 decode), H.264 (1080p60 decode/encode), LPDDR4 RAM options: 4 GB / 8 GB, microSD card slot for operating system and storage, Gigabit Ethernet, 2x USB 3.0 ports and 2x USB 2.0 ports, 2x micro-HDMI ports supporting up to 4K resolution, 2x MIPI DSI/CSI ports for display and camera, 40-pin GPIO header with SPI, I2C, UART, PWM, I2S support, Bluetooth 5.0, Dual-band 802.11ac Wi-Fi, 1x PCIe Gen 2 lane (internal), 5V DC via USB-C connector, operating voltage: 5 volts Software Compatibility: Compatible with Raspberry Pi OS (official), Supports Linux-based operating systems including Ubuntu and others, Programming support for Python, C/C++, Java and more.	5
5	Raspberry pi camera	Image Sensor , 8-megapixel CMOS sensor or Higher Version , fixed-focus lens, supports still image resolution up to 3280 × 2464 pixels, video modes: 1080p at 30 fps, 720p at 60 fps, 640 × 480 at 90 fps, CSI-2 (MIPI Camera Serial Interface) connection to Raspberry Pi, pixel size 1.12 µm × 1.12 µm, sensor size 1/4 inch optical format, integrated image signal processing via Raspberry Pi SoC, automatic exposure control (AEC), automatic white balance (AWB), automatic gain control (AGC), supports	5

		RAW10 image capture, ribbon cable interface (15-pin standard CSI connector), operating voltage: 3.3 volts (supplied via CSI interface), compact module dimensions approximately 25 mm × 23 mm × 9 mm Software Compatibility: Compatible with Raspberry Pi OS (latest version), Supported through libcamera and legacy camera stack, Programming support for Python, C/C++ and other languages via official libraries		
6	SD card	High-Performance SDXC Card – UHS-I U3 / V30 rated with up to 170 MB/s read and 90 MB/s write speed, suitable for 4K video recording and high-speed data transfer. 3D NAND flash, shockproof, waterproof, X-ray proof, and temperature resistant for reliable professional use.	64GB	3
			128GB	3
			256GB	2
7	SD Card Reader	USB 3.0 high-speed SD card reader compatible with Class 10 SD/SDHC/SDXC cards, supporting data transfer speeds up to 5 Gbps. Plug-and-play design with backward compatibility to USB 2.0, supporting Windows, macOS, and Linux systems.		5
8	Pen Drive	128 GB High-Performance USB Flash Drive – USB 3.2 Gen 1 interface with read speeds up to 200 MB/s and write speeds up to 100 MB/s for fast data transfer and backup. 3D NAND flash, durable metal casing, shock-resistant design, and backward compatible with USB 3.0 and USB 2.0 ports.		3
		256 GB High-Performance USB Flash Drive – USB 3.2 Gen 1 interface with read speeds up to 200 MB/s and write speeds up to 100 MB/s for fast data transfer and backup. 3D NAND flash, durable metal casing, shock-resistant		2

		design, and backward compatible with USB 3.0 and USB 2.0 ports.		
9	Breadboards & Mini Breadboard	Minimum 400 tie points with terminal strips and power rails, ABS plastic body with nickel-plated phosphor bronze contacts; 2.54 mm pitch, rated voltage up to 24V and current minimum 1A. Compatible with 20–29 AWG wires. Reusable design with firm grip, self-adhesive backing on rear side, and interlocking capability.		30
		Minimum 800 tie points with terminal strips and power rails, ABS plastic body with nickel-plated phosphor bronze contacts; 2.54 mm pitch, Rated voltage up to 24V and current minimum 1A. Compatible with 20–29 AWG wires, Reusable design with firm grip, self-adhesive backing on rear side, and interlocking capability.		20
10	General Purpose solderable Board (green)	Double-sided tinned perforated PCB made of FR-4 epoxy glass fiber with green solder mask on both sides, Board thickness: 1.6 mm with minimum 35 µm copper cladding on both sides Plated through holes (0.8 mm diameter) in 2.54 mm pitch grid with tinned pads, Suitable for student projects, laboratory experiments, and general circuit prototyping	Required size: 5 cm × 7 cm	30
			Required size: 7 cm × 9 cm	30
			Required size: 9 cm × 15 cm	30
11		Female Berg Strip, 2.54mm pitch, 40 pin single row, Gold plated		50

	Berg Strips	Male Berg Strip, 2.54mm pitch, 40 pin single row, Gold plated	50
12	16x2 LCD display	Alphanumeric display with 16 characters × 2 lines, built-in HD44780-compatible controller, and I2C serial interface (4 pins: VCC, GND, SDA, SCL). Operates at 5V DC, supports backlight	15
13	16x4 LCD display	Alphanumeric display with 16 characters × 4 lines, built-in HD44780-compatible controller, and I2C serial interface (4 pins: VCC, GND, SDA, SCL). Operates at 5V DC, supports backlight	5
14	Data Cable	Shielded, Type A to Type B, 1 meter (Minimum)	5
15	USB Cable	USB A to Mini USB cable, shielded, 1 meter or more	5
16	Battery (Li-Ion)	Battery Pack consisting of 18650 Li-ion cells, voltage- 12 V, Inbuilt protection circuit (overcharge, over-discharge, short-circuit), Connector: Standard DC barrel / JST type Feature: Rechargeable, high capacity, stable performance Desirable: Molicel, panasonic, samsung or equivalent brand/make Desirable: 3S1P, 3S2P configuration required	12
17	Water Pump Module	**Operating Voltage:** 3V–12V DC, **Power Consumption:** 2W – 5W, **Flow Rate:** 10 LPH or Higher	15
18	Piezoelectric Plate	Normal Copper based 2 cm diameter (minimum) **Thickness:** 0.2 – 0.5 mm, **Resonant Frequency:** 3.5 kHz – 6 kHz	30
19	8*8 LED Matrix Module	Dot LED Matrix with Driver IC (preferably MAX7219 or equivalent) ,MCU Control LED Display Module, **Operating Voltage:** 4V – 5.5V DC, **Communication Interface:** SPI (Serial Peripheral Interface)	10
20	Bluetooth module	HM 10, Bluetooth module, Voltage Rating: 5 V, **Bluetooth Version:** Bluetooth 4.0 / 4.2 (BLE – Low Energy)	20

		Communication Interface: UART (Serial Communication), **Minimum Baud Rate:** 9600 baud per sec (Mandatorily configurable via AT commands)		
21	7 Segment LED Display Module	2 digit module , common anode, Red, Green and Blue color, operating voltage : 3.3~ 5.0V, size: 0.56", DIP Package	10 –Red 10- Blue 10- Green	120
		2 digit module , common cathode, Red, Green and Blue color, operating voltage : 3.3~ 5.0V, size: 0.56", DIP Package	10 –Red 10- Blue 10- Green	
		4 digit module , common anode, Red, Green and Blue color, operating voltage : 3.3~ 5.0V, size: 0.56", DIP Package	10 –Red 10- Blue 10- Green	
		4 digit module , common cathode, Red, Green and Blue color, operating voltage : 3.3~ 5.0V, size: 0.56", DIP Package	10 –Red 10- Blue 10- Green	
22	GSM/LTE Module	Module Type: 4G LTE GSM/GPRS Module, LTE Category: LTE Cat-4, Supply Voltage: 5V DC, Interface: UART, SIM Card Support: Micro SIM, GNSS Support: GPS / GLONASS / BeiDou, Communication Protocol: AT Command	10	
23	GPS with compass	GNSS Engine: Compatible with u-blox M10 high-performance receiver or equivalent, Multi-Constellation Support: GPS, Galileo, BeiDou, QZSS, SBAS, Supply Voltage: 1.76 V – 5.5 V, Communication Interfaces: UART, I^2C, SPI, EXTINT, Ultra-low LEAP mode, compass support : HMC5883L / QMC5883L, RTC Support, NMEA, UBX, RTCM protocol.	10	
		Module Type: GNSS + Compass + IMU integrated module, Compatible With: Pixhawk Cube Orange / PX4 / ArduPilot, Communication Protocol: CAN (DroneCAN/UAVCAN), GNSS Chipset: Preferably u-blox M8P (RTK capable) or equivalent, Supported Satellites: GPS (L1C/A), GLONASS (L1OF), BeiDou (B1I), Update	2	

		Rate: Up to 8 Hz, Operating Voltage: 5V (via CAN cable), LED status indicators (GPS lock, RTK status), Built-in RTOS for reliable operation, High noise immunity (CAN communication advantage), Prefereably HERE3 GPS module or equivalent	
24	Laser Module	650 nm wavelength, Semiconductor laser diode, output power: Class II/IIIa, Input Power : 3.3V-5V DC, Brass/Aluminium Housing, GPIO pin for ON/OFF Control	10
25	LDR module	Operating Voltage: 3.3V-5.0V DC, Output type: Analog and Digital from comparator IC, Sensor: photoresistor, spectral peak: ~540nm,	30
26	4x4 Keypad	Operating Voltage: 3.3V~5.0 V, Size: ~70mm x 77mm, material: PET membrane, connector: 8 pin header	10
27	Joy Stick	Operating Voltage: 3.3~5.0V, Interface: Analog and Digital GPIO, Output: Analog (X,Y) + Digital (SW Button)	10
28	Active Buzzer	Operating Voltage: 3.3V~5.0V DC, Diameter: ~12mm, Output: Digital, Size: ~23 × 15 × 12 mm	40
29	Motor driver Module	Dual H- Bridge Motor Driver, Operating Voltage: 5V-35V DC, Peak Current: 2.0A per channel, PWM speed Control, Desirable: L298N IC or Equivalent, flyback diode on module	15
		Quad Half-H bridge Driver , Operating Voltage: 5V-35V DC, Peak Current: 2.0A per channel, PWM speed Control, flyback diode on module, Desirable :L293D or equivalent	15
		BTS7960 high-current half-bridge driver IC module, Continuous Output Current: 43A, PWM Frequency: Up to 25 kHz, Motor Supply Voltage (VM): 5V – 27V DC, Logic Voltage (VCC): 3.3V – 5V	10
30	DC Motor BO series	Operating Voltage: 3V to 12V DC, 150 RPM, Side Shaft BO (Battery operated) Motor, Wheel Included: Diameter 65mm,Width 25mm compatible with BO Series motor	40

31	ESP 8266 Module	ESP 8266 I2C, 32-bit Wi-Fi SoC (System on Chip) with full TCP/IP stack, operating at 3.3V with 80-160 MHz clock speed, 80KB user RAM, and 802.11 b/g/n support	20
32	ESP32- S2 with Camera Module	ESP32-CAM Board and OV2640 or RHYX-M21-45 (2MP) Camera module, 32Mbit Flash, 520KB SRAM +4M PSRAM, 802.11 b/g/n/e/i WiFi support, 2.0 Megapixel Color CMOS UXGA technology, 3.6V ~ 5V supply voltage, 4.2V Bluetooth support	20
33	Wemos D1 R32 module	MCU: ESP32-WROOM-32 / ESP32-WROOM-32D / ESP32-WROOM-32E or equivalent Processor: Dual-core Xtensa LX6, 32-bit Clock Speed: Up to 240 MHz Flash Memory: 4 MB (minimum) SRAM: 520 KB (minimum) Operating Voltage: 3.3 V (5 V input via USB/VIN supported) Wi-Fi: 802.11 b/g/n (2.4 GHz) Bluetooth: Bluetooth v4.2 (BR/EDR + BLE) Interfaces: UART, SPI, I2C, I2S, PWM, ADC, DAC, CAN (TWAI), GPIO GPIO Pins: Minimum 30 programmable GPIO pins USB Interface: Micro-USB / Type-C with USB-to-UART (CP2102 / CH340 or equivalent) Antenna: On-board PCB antenna Board Type: Development Board compatible with breadboard Application: Suitable for IoT, embedded systems, robotics, and student laboratory experiments	6
34	Vibrating Motor	Weight: 10 Grams, Operating Voltage: 3V to 5V, Rated Current : 60mA-100mA,Coin type, Diameter: 8mm-12mm, Thickness: 2.5mm-4mm	10
		Weight: 10 Grams, Operating Voltage: 3V to 5V, Rated Current : 60mA-100mA,Cylinderical type, Length: 10mm-20mm, Diameter: 4mm-6mm	10

35	Crocodile connectors	Rated Current: 1A–10A, Rated Voltage: 5V~30V, Contact Resistance :<10mOhm, Clip Length: 45 mm – 60 mm, Jaw Opening: 5 mm – 8 mm, Spring Type: Steel spring-loaded, body Material: Nickel-plated steel / brass / copper, Insulation: PVC / Plastic sleeve, Contact Material: Copper alloy for good conductivity	Red Color	100
			Black Color	100
36	9V Battery	9-volts DC, 400mAH-600mAH, alkaline type, continuous current : 300mA-500mA, non-rechargeable, battery snap connector with DC Barrel Jack		20
		9-volts DC, 400mAH-600mAH, alkaline type, continuous current : 300mA-500mA, non-rechargeable with battery snap connector		20
37	Hook-up Wires	22 AWG silicone wire (multiple strand)	50 meters red	300 Meters (Total)
			50 meters black	
		24 AWG silicone wire (multiple strand)	50 meters red	
			50 meters black	
		20 AWG silicone wire (multiple strand)	50 meters red	
			50 meters black	
38	Indication Lamp	Operating Voltage: 12~24V , Mounting Hole Diameter: 16 mm / 22 mm, Housing Material: Flame-retardant ABS / Polycarbonate, Lens Type: Dome or flat diffused lens, Rated Current: 10 – 25 mA	5 red color	20 (total)
			5 blue color	
			5 green color	
			5 amber color	

39	Dupont Wire	Male-Male, length : 10-30 cm, Material: Copper conductor with PVC insulation Pitch Compatibility: 2.54 mm standard connectors Feature: Flexible, durable, suitable for breadboard and modules, Rainbow color	1000	
		Male-Female, length : 10-30 cm, Material: Copper conductor with PVC insulation Pitch Compatibility: 2.54 mm standard connectors Feature: Flexible, durable, suitable for breadboard and modules, Rainbow color	600	
		Female-Female, length : 10-30 cm, Material: Copper conductor with PVC insulation Pitch Compatibility: 2.54 mm standard connectors Feature: Flexible, durable, suitable for breadboard and modules, Rainbow color	500	
40	LED	Size: 5mm, Operating Voltage:1.8V-3.3V, Reverse Voltage: 5V(max), Luminous Intensity: 1000 – 8000 mcd, Lens Type: Clear / Diffused, forward Current: 20 mA (max)	1000 red color	5000 (total)
			1000 blue color	
			1000 green color	
			1000 yellow	
			1000 white color	
		Size: 3mm, Operating Voltage:1.8V-3.3V, Reverse Voltage: 5V(max), Luminous Intensity: 1000 – 8000 mcd, Lens Type: Clear / Diffused, forward Current: 20 mA (max)	200 red color	1000 (total)
			200 blue color	
			200 green color	

				200 yellow
				200 white color
		Size: 5mm, Operating Voltage:1.8V-3.3V, Reverse Voltage: 5V(max), Luminous Intensity: **800 – 3000 mcd per color,** Lens Type: Clear / Diffused, forward Current: 20 mA (max), Number of Pins: **4 pins** (R, G, B + common pin), RGB Led		200
41	Timer IC - LM 555	Voltage range - 4.5V to 16V, Package Types: DIP-8, Frequency Range: Up to 500 kHz, DIP-8 Base required		50
42	Programmer for PIC Microcontroller	**Interface:** USB 2.0 to ICSP (6-pin header) **Target Voltage Range:** 2.0 – 5.5 V DC **Programming Method:** ICSP serial programming **Device Support:** PIC10/12/16/18, dsPIC, PIC24 series **Output Current:** ≤ 50 mA to target **Software Compatibility:** MPLAB / MPLAB X IDE		02
43	Diodes	1N4007,**Power Dissipation:** –1 W, Current rating: 1A, **Forward Voltage Drop (VF):** –0.7 V to 1.1 V at 1 A		1000
44	Transistor	**2N3904**(Type: NPN BJT, Collector–Emitter Voltage (VCEO): 40 V, Collector Current (IC): 200 mA, Power Dissipation: 625 mW, Gain (hFE): 100 – 300 (typical))	100	500
		BC547(Type: NPN BJT, Collector Current (IC): 100 mA, Power Dissipation: 500 mW, Gain (hFE): 110 – 800 (high gain variants A/B/C))	100	

		2N3906 (Type: PNP, BJT, Collector Current (IC): −200 mA, Power Dissipation: 625 mW, Gain (hFE): 100 – 300).	100	
		BC557 (Type: PNP BJT, Collector Current (IC): −100 mA, Power Dissipation: 500 mW, Gain (hFE): 110 – 800)	100	
		TIP122 (Type: NPN Darlington Power Transistor, Collector Current (IC): 5 A (continuous), Power Dissipation: 65 W (with heat sink), DC Current Gain (hFE): 1000+ (high gain))	100	
45	Button Switch Set	**Rated Voltage:** Typically up to 12V–250V AC/DC (varies by switch type). **Current Rating:** 0.1A to 3A (depending on individual switch)	Push Button - 20 Toggle Switch - 20 Rotary Switch - 20 Selector Switch - 20 Slide Switch - 20	100
46	Touch sensor Module	Operating Voltage: **2.0 V – 5.5 V DC** Operating Current: **3 µA (low power)** Detection Method: Capacitive touch sensing Touch Area: PCB copper pad Response Time: < 60 ms Module Size: ~15 mm × 11 mm (varies by manufacturer) Mounting: Through-hole header pins		10
47	IR Proximity Sensor module	**Comparator IC:** LM393 dual voltage comparator, IR LED, Size: 5 mm **Operating Voltage:** 3.3V – 5V DC **Operating Current:** ~15–30 mA		20

		Detection Method: IR LED transmitter with APD /phototransistor receiver, Detection range: 2 - 15 cm, Detection angle: 30 - 40°	
48	Humidity Sensor	3.3V – 5V DC, Humidity Range: 0–100% RH, Accuracy: +2–5% RH, Output: Digital signal (I2C), Factory calibrated, fast response, suitable for Arduino/Raspberry Pi applications	10
49	MQ Series Sensor Module Interface: **4-pin** Operating Voltage: **5V DC** Operating Temperature: **−20°C to +50°C**	MQ - 2 Smoke Detection Range: ~300 to 10,000 ppm	5
		MQ-3 Alcohol - Ethanol Sensor Range: ~25 to 500 ppm	5
		MQ-4 Methane Natural Gas Sensor Range: ~200 to 10,000 ppm	5
		MQ-5 Methane Liquefied Gas Sensor Range: ~200 to 10,000 ppm	5
		MQ-6 Liquefied Petroleum Gas Sensor/Buten 01 Range: ~200 to 10,000 ppm	5
		MQ-7 High Sensitivity CO (Carbon Monoxide) Sensor Detector Range: ~20 to 2000 ppm	5
		MQ-8 Hydrogen Gas Sensor Range: ~100 to 10,000 ppm	3
		MQ-135 Air Quality Sensor Range: ~10 to 1000 ppm	5
50	IR Transmitter/ Receiver module	Transmitter: IR LED (5 mm / 940 nm wavelength) compatible with 38 kHz modulation, Receiver: TSOP1738 IR receiver, carrier frequency 38 kHz, operating voltage 2.7V – 5.5V DC, receiving range up to ~10 m, Output: Digital output (active low) from receiver, High sensitivity, noise immunity, suitable for remote control and microcontroller interfacing.	10
51	Ultrasonic Sensor Module	Working Voltage - 3.0V – 5.5V DC, Working current - 15 mA, Working Frequency - 40 Hz, Measuring Range - 1 cm to 4 m, Effectual Angle - <15°, Measuring Angle - 30°, Resolution - 0.3 cm, Accuracy: ±3 mm, Model: Preferably HC-SR04 or compatible equivalent	20

		Operating Voltage: 3.0V – 5.5V DC, Low power consumption Measuring Range: 2 cm – 400 cm, Accuracy: ±3 mm Frequency: 40 kHz ultrasonic, Interface: Trigger & Echo (digital I/O), Preferably US-016 Ultrasonic Distance Sensor Module or equivalent.	10
		Preferably US-100 Ultrasonic Distance Sensor Module or equivalent Operating Voltage: 3.0V – 5.0V DC, low power consumption, Measuring Range: 2 cm – 450 cm, Accuracy: ±1 mm to ±3 mm Interface: Trigger & Echo (TTL) and UART serial mode selectable Operating Frequency: 40 kHz ultrasonic transducer Detection Angle: Approx. 15° or better Features: Temperature compensation, stable output, high reliability, Application: Distance measurement, obstacle detection, robotics and IoT projects.	10
		Ultrasonic Distance (Sonar) Sensor Preferably Maxbotic MB12xx Series or equivalent, range: 20 cm – 7.5 m, Long range (outdoor): 0.5 m – 10 m,Resolution: 1 cm (standard models), Operating Voltage: 2.7V – 5.5V DC, Output Interface: Analog Voltage Output, Pulse Width Output, RS232, TTL Serial, Beam Pattern: Narrow beam (better target isolation), Dead Zone: Very small (typically 20 cm – 50 cm minimum), Update Rate: ~0.5 Hz – 10 Hz,	10
52	Triple Axis accelerometer	3-axis sensing MEMS accelerometer, low profile package, 4 mm × 4 mm × 1.45 mm LFCSP (Lead Frame Chip Scale Package), MPU 6050 module, Single-supply operation: 1.8 V to 3.6 V, Temperature stability, **Sensitivity:** High sensitivity for motion and tilt detection	10
53	Passive Infrared Motion Detector Module	**Sensor Type:** Passive Infrared (PIR) motion detection module, detection range (up to 6 m), with dome shaped/square fresnel lens Power supply: 5V – 12V, **Detection Angle:** –110° to 120° field of view	20

54	Pulse Rate Sensor		Pulse Rate Sensor (finger or earlobe) Working voltage 3-5V DC, Supply Current: ≤ 20 mA, Output Type: Analog/Digital pulse signal, Heart Rate Measurement Range: **40 – 240 BPM** Accuracy: ± 2–3 BPM	5
55	Relay Module	2-Channel	Operating voltage - 5V, Current Rating: 10A per Channel, Compatible with Arduino, Contact Type: **NO (Normally Open), NC (Normally Closed), COM**, Trigger Voltage: 3.3V–5V DC, Rated Load Voltage: 250V AC (max), 30V DC (max)	30
		Single Channel	Operating voltage - 5V, Contact Current Rating: **10A**, Relay Module. Compatible with Arduino, Contact Type: NO (Normally Open), NC (Normally Closed), COM, Trigger Voltage: 3.3V–5V DC, Rated Load Voltage: 250V AC (max), 30V DC (max)	30
		4-channel	Operating Voltage: 5V DC, Relay Rating: 10A, 250V AC (per channel), 30V DC (per channel) Input: TTL compatible control signals, active LOW/HIGH trigger, LED status indicators, screw terminals, isolation for safe switching of AC/DC loads	5
56	Sound microphone module		Operating Voltage: **3V – 5V DC**, Supply Current: ≤ 10–15 mA, Logic Level: TTL compatible, Sensitivity: High sensitivity (≥ 48 dB typical), Frequency Range: **20 Hz – 20 kHz (minimum)**	5
57	Soil Moisture Sensor module		Resistive Type (FC-28 or equivalent) with LM293 comparator, Operating Voltage: 3.3V to 5V, Operating Current: ≤ 20 mA, Output Type: Analog output , Digital output, Logic Level: TTL compatible, Comparator IC: **LM293 or equivalent**	30
58	Capacitive soil moisture sensor module		Capacitive soil moisture sensor module (analog output) Operating Voltage: 3.3V – 5.5V DC Output: Analog voltage proportional to soil moisture level Material: Corrosion-resistant PCB with protective coating.	5

59	Bridge Rectifier Module	Bridge Rectifier Module (WS-04MG or equivalent) Input: AC input up to 12–24V AC Output: DC output (full-wave rectified), up to ~1–2A current Configuration: 4-diode bridge rectifier with PCB mounting.	15
		Single-phase bridge rectifier (W06M/W06MG or equivalent) Input Voltage: Up to 420V AC (max), PIV 600V Output: Full-wave rectified DC output, Current Rating: 1.5A continuous (max).	15
60	Metal Touch Sensor Module	Metal touch sensor module (KY-036 or equivalent), Operating Voltage: **3.3V – 5V DC** Operating Current: ≤ 10–15 mA, Output Type: Digital (High/Low), Logic Level: TTL compatible.	6
61	Rain Drop Sensor Module	Operating Voltage: **3.3V – 5.5V DC**, Operating Current:20 mA (max), Output Type: Analog output, Digital output, Logic Level: TTL compatible Rain Sensitive, LM393 IC included Sensor Plate Size: **Approximately 5 mm × 40 mm or equivalent**	15
62	Flex Sensor	Flex Sensor (FS-L-055-253-MP 80mm or equivalent) Operating Voltage: 3.3V – 5V DC, Nominal Resistance (Straight Position): 10 KΩ (±30%), Resistance (Fully Bent): 30 KΩ – 50 KΩ or higher, Power Rating: ≤ 0.5 W Flex Sensor. Size - 2.2 Inches, Thickness: ≤ 0.5 mm, Bend Angle: Up to 90° or more	6
63	Temperature Sensor Module	LM35 Full range temperature sensor module Voltage Range: 3.3 V to 30V DC. Supply Current: ≤ 60 µA Output Scale: **10 mV/°C, Accuracy/Error: ±0.5°C at 25°C**	6
		Sensor Type: Digital Temperature Sensor (Preferably DS18B20 Temperature Sensor Module or equivalent) Operating Voltage: 3.0V to 5.5V DC Temperature Measurement Range: −55°C to +125°C	10

		Accuracy: ±0.5°C (−10°C to +85°C typical) Resolution: Programmable 9-bit to 12-bit Interface: 1-Wire Digital Interface (Single data pin communication) Output Type: Digital Temperature Output Package Type: TO-92 / Waterproof Probe / Module Board or any equivalent compatible Cable Length (for probe type): Minimum 1 meter Suitable for Arduino, Raspberry Pi, IoT projects and laboratory experiments		
64	Temperature and humidity sensor module	Operating Voltage: 3V-5V, Interface: I2C/SPI,	IC Integrated in module: preferably DHT22 or equivalent compatible	10
			IC Integrated in module: preferably AM2302 or equivalent compatible	15
			IC Integrated in module: preferably BME280 or equivalent compatible	15
65	Force Sensitive Resistor	Preferably FSR402 or equivalent compatible, Force Sensing Range: 0.2N to 20N, Output Type: Analog, Operating Voltage: 3V-5V, Active Sensing Area: 12.7mm appx.		5
		Preferably RP-S40LT or equivalent compatible, Force Sensing Range: 0.1N to 10N, Output Type: Analog, Operating Voltage: 3V–5V, Active Sensing Area: ~8–10 mm (approx.)		5
		Preferably RP-5S-5T or equivalent compatible, Force Sensing Range: 0.5N to 20N, Output Type: Analog, Operating Voltage: 3V–5V, Active Sensing Area: ~5 mm (approx.)		5

66	Color Recognition Sensor	Preferably TCS3200 Sensor module or equivalent compatible, Operating Voltage: 3V-5V, size: 31mm x 24mm appx., SOIC-8 package	10
67	Flow Sensor	Detection type: hall effect sensor, Flow range: 0.3-6L/min, operating voltage: 5-24V, output: digital pulse, pipe size: 1/4 inch or higher,	10
68	IR Sensors Array module for Line Following	No. of IR channels for detection: 8 or higher, Operating Voltage:3.3V-5V DC, TTL Logic, Auto calibration , Detection Distance: 2mm-10mm, UART TX/RX, Sampling Rate: 100 Hz	2
		8-channel IR sensor array module with auto-calibration and PID support Operating Voltage: 3.3V – 5V DC Output: Digital/analog position output, TTL logic compatible Sensing Distance: Adjustable (~1 mm to 15 mm), Auto calibration, PID control compatibility, built-in IR LEDs & sensors, high-speed response, suitable for advanced line follower robots	2
		Preferably Cytron Maker Line Sensor or equivalent 5-Channel IR Array Sensor Type: 5-Channel Infrared Reflective Line Sensor Array Operating Voltage: 3.3 V – 5 V DC (Reverse polarity protection supported) Number of Sensors: 5 IR Reflective Sensors (Array configuration) Output Type: 5 Digital Outputs + 1 Analog Output (Line position) Sensing Distance: 4 mm – 40 mm Detectable Line Width: 13 mm – 30 mm Refresh Rate: Minimum 200 Hz Interface: Digital GPIO and Analog output compatible with Arduino, ESP32, Raspberry Pi or equivalent boards Calibration: Auto-calibration push button with EEPROM storage Indicator: On-board status LEDs for each sensor Application: Line follower robot, AGV, robotics and automation laboratory experiments	

70	RFID Reader module	Integrated MF RC522 or equivalent, Frequency Range: 13.56MHz contactless communication, Current :13-26mA / DC 3.3V-5.0V, Idle Current :10-13mA, Sleep Current: 80μA (max), Peak Current: 30mA, Read range between 20cm to 01m	20
71	RFID Tag	Chip Type : Preferably FM1108 or equivalent compatible, Response frequency: 13.56 MHz, memory : 8kbit or higher, Material: ABS	40
72	RF Module	Operating Frequency: 315 MHz Supply Voltage: 3V – 6V DC Data Input: Digital (TTL compatible) Output Power: 4–16 dBm (RF power), Modulation: ASK/PSK, Data Rate: Up to 10 Kbps, Transmission Range: 50–200 meters, Output: Digital signal.	10
73	Stepper motor	Operating Voltage: 5 V, Step Angle: 5.625 degree, Gear Reduction Ratio: 1:64 or higher, Holding torque: 1.0 N.cm (appx.) or higher, Insulation Class: Class A, Phase Resistance: 50 Ohm appx.	20
		Operating Voltage: 12V, Step Angle: 1.8 degree, Detent torque: 2.8 N.cm (Maximum) Lead Wires: 4, Current: 1.2 A/Phase, Holding Torque: 5.6 kg- cm or higher	10
		Hybrid Stepper Motor (preferably NEMA 17 or equivalent) Operating Voltage: 12V DC Step Angle: 1.8° Phase: 2 Phase Holding Torque: 7.0 kg-cm or higher Rated Current: 1.5–2.0 A / phase Lead Wires: 4 Wire (Bipolar) Shaft Diameter: 5 mm Frame Size: 42 × 42 mm Insulation Class: Class B or better Application: CNC, Robotics, Automation, 3D Printer.	10

		Hybrid Stepper Motor (preferably NEMA 23 or equivalent) Operating Voltage: 12–24V DC Step Angle: 1.8° Phase: 2 Phase Holding Torque: 10 kg-cm or higher Rated Current: 2.0–3.0 A / phase Lead Wires: 4 Wire Shaft Diameter: 6.35 mm Frame Size: 57 × 57 mm Insulation Class: Class B	10
		High Torque Stepper Motor Operating Voltage: 12-24V Step Angle: 1.8° Phase: 2 Phase Holding Torque: 19 kg-cm or higher Rated Current: 2.8 – 4.2 A / Phase Lead Wires: 4 Shaft Diameter: 6.35 mm / 8 mm Insulation Class: Class B	10
		Planetary Geared Stepper Motor Operating Voltage: 12V – 24V Step Angle: 1.8° Gear Ratio: 5:1 to 50:1 Holding Torque: 30–60 kg-cm Phase: 2 Phase Lead Wires: 4 Application: Robotic arm, mobile robot, automation	5
74	Digital Vernier Calliper	150 mm / 6" Digital Vernier Calliper	5
75	Spirit Level	12" Spirit Level	2
76	Stepper Motor driver	Preferably A4988 Stepper Motor Driver Module or equivalent Operating Voltage: 8V – 35V (motor supply), 3V – 5.5V logic Output Current: Up to 2A per phase (with proper heat sinking) Microstepping: Full, 1/2, 1/4, 1/8, 1/16 step resolution, built-in overcurrent & thermal protection, STEP/DIR control (TTL compatible), compact module suitable for Arduino/CNC applications.	10

		Preferably ULN2003 Stepper Motor Driver Module or equvialent Operating Voltage: 5V DC (typical) Output Current: Up to 500 mA per channel Channels: 7-channel Darlington transistor array (commonly used for 4-phase stepper motors). TTL compatible inputs, built-in flyback diodes, LED indicators.	10
		Preferably DRV8825 Stepper Motor Driver Module or equivalent, Operating Voltage: 8.2V – 45V (motor supply), 2.5V – 5.25V logic. Output Current: Up to 2.2A per phase (with proper heat sinking), Microstepping: Full, 1/2, 1/4, 1/8, 1/16, 1/32 step resolution, STEP/DIR control (TTL compatible), overcurrent & thermal protection, adjustable current limiting, suitable for CNC/3D printer applications.	10
77	DC encoder Motor	DC 12V, 100-200RPM, N20 Metal Gear with Encoder type shaft, Load Torque: 0.5 -1.0 Kg-cm, Shaft Type: D-type, Encoder type: optical/ magnetic encoder with hall effect sensors included	10
		DC 12V, 200-300RPM, N20 micro Metal Gear with Encoder type shaft, Load Torque: 0.5 -1.0 Kg-cm, Shaft Type: D-type, Encoder type: optical/ magnetic encoder with hall effect sensors included	10
78	DC motor (GB-37 series)	12V-16V DC Metal Gear Box, 480 RPM (12V), Rated Current: 90 mA or higher, Rated Torque: 200g-cm or higher	20
		12V-16V DC Metal Gear Box, 150 RPM (12V), Rated Current: 90 mA or higher, Rated Torque: 200g-cm or higher, Output Shaft : D-Shaped,	20
		12V-16V DC Metal Gear Box, 200 RPM (12V), Rated Current: 90 mA or higher, Rated Torque: 200g-cm or higher	20
		12V-16V DC Metal Gear Box, 25 RPM (12V), Rated Current: 90 mA or higher, Rated Torque: 2Kg-cm or higher	12
		12V-16V DC Metal Gear Box, 50 RPM (12V), Rated Current: 90 mA or higher, Rated Torque: 1Kg-cm or higher	12

79	Robot Wheel	Robot Wheel: Shaft Diameter – 6 mm Wheel Diameter – 70 mm, Wheel Width – 20 mm, material: ABS plastic, Tread: Rubber Cover or soft rubber grip, Load Capacity: 2 Kg or more		24
		Shaft Diameter: 6 mm Wheel Diameter: 85 mm, Wheel Width: ~25–30 mm Material: ABS plastic Tread: Rubber cover / soft rubber grip Load Capacity: 2 Kg or more		24
		Castor wheel for Robot: Base plate diameter: 38.2mm, Wheel height: 23mm, Mounting hole – Three, 120 Degree apart, 3.4mm diameter, load capacity: 15kg or more, ball material: Steel, cap material: plastic		30
		Mecanum Wheel with coupling, Shaft diameter 6mm, Outer wheel Diameter: 60mm, Thickness: 28mm, Roller material: rubber/ nitrile rubber,		12
		Omni Wheel, Diameter: 100 mm. Total Width: 36 mm. Axial OD: 19 mm. Axial ID: 8 mm. Load capacity: 15-20 kg.		8
80	Servo motors	Preferably RDS3115 MG or equivalent, Dual bearing swash servo motor ,Operating Voltage: 4.8 V – 7.2 V DC, Signal Type: PWM		10
		Preferably MG90S Mini Digital Servo Motor (180 degree rotation) or equivalent, metal gear, Operating Voltage: 4.8 V – 7.2 V DC, Signal Type: PWM		40
		Preferably MG995 Digital Metal Gear Servo (360 degree rotation) or equivalent, Operating Voltage: 4.8 V – 7.2 V DC, Signal Type: PWM		20
		Preferably MG995 Digital Metal Gear Servo (180 degree rotation) or equivalent, Operating Voltage: 4.8 V – 7.2 V DC, Signal Type: PWM		40
81	Servo Motor Driver	**Interface:** I2C , **Voltage for servos:** 5-6 V input, **Logic voltage:** 3.3 V or 5 V compatible, Frequency: 24 Hz – 1526 Hz , Current Rating up to 5A	**Channels:** 8 servo outputs	8
			Channels: 12 servo outputs	8
			Channels: 16 servo outputs	4

82	PIC microcontroller	PIC16 series microcontroller, PIC16F877A or equivalent with base/socket board, Operating Voltage: 4.0V – 5.5V DC Memory: Flash: ~14 KB, RAM: ~368 Bytes, EEPROM: ~256 Bytes, I/O Pins: Minimum 33 programmable I/O pins, ADC channels available, DIP package with base, UART/SPI/I2C support, timers, suitable for embedded system development Check for BOR, Watch Dog TIMER in each PIC	10
		PIC18 series microcontroller, PIC18F4520 or equivalent with base/socket board, Operating Voltage: 4.0V – 5.5V DC, Memory: Flash: ~32 KB, RAM: ~1.5 KB, EEPROM: ~256 Bytes, I/O Pins: Minimum 35 programmable I/O pins, ADC channels available, DIP package with base, UART/SPI/I2C support, timers, suitable for advanced embedded system development.	10
		PIC 8-Bit Microcontroller, PIC16F877A / PIC16F887 or equivalent with base/socket board, Operating Voltage: 4.0V – 5.5V DC, Architecture: 8-bit Microcontroller, Memory: Flash: Minimum 14 KB, RAM: Minimum 368 Bytes, EEPROM: Minimum 256 Bytes, I/O Pins: Minimum 33 programmable I/O pins, ADC: Minimum 8-channel 10-bit ADC, Communication Interfaces: UART/USART, SPI, I2C support, Timers: Timer0, Timer1, Timer2 or equivalent, PWM channels available, DIP package with base, Oscillator: Internal/External oscillator support, Brown-Out Reset (BOR): Available, Watchdog Timer (WDT): Available, Power-On Reset (POR): Available, Sleep/Low power mode support, ICSP programming support, suitable for embedded system development and educational laboratory applications.	
		PIC24 Series 16-Bit Microcontroller, PIC24FJ64GA002 / PIC24FJ128GA010 or equivalent with base/socket board, Operating Voltage: 2.0V – 3.6V DC, Architecture: 16-bit	

		Microcontroller, Memory: Flash: Minimum 64 KB, RAM: Minimum 8 KB, EEPROM: Emulated EEPROM support or minimum 1 KB, I/O Pins: Minimum 21 programmable I/O pins (or higher), ADC: Minimum 10-bit / 12-bit ADC with multiple channels, Communication Interfaces: UART/USART, SPI, I2C support, Timers: Multiple 16-bit timers available, PWM channels available, DIP/TQFP package with compatible base board, Oscillator: Internal/External oscillator support, Brown-Out Reset (BOR): Available, Watchdog Timer (WDT): Available, Power-On Reset (POR): Available, Sleep/Idle low-power modes supported, ICSP/In-Circuit programming support, suitable for embedded system development and educational laboratory applications.	
83	Servo Motor Tester	CCPM 3 channel Servo Tester, Operating Voltage: 4.8V – 6.0V DC (typical 5V), Number of Channels: 3-Channel Servo Output, Supported Servo Types: Analog and Digital Servos, Operating Modes: Manual Mode, Neutral Mode, Automatic Sweep Mode, Control Method: On-board Potentiometer Knob Control, Signal Output: Standard PWM Servo Signal (500µs–2500µs approx.), Frequency: ~50Hz Servo Control Signal, Interface: 3-Pin Servo Headers (GND, VCC, Signal), Power Input: DC barrel jack / header pins, Indicators: Power LED indication, suitable for Servo motor testing, CCPM helicopter servo testing, robotics and automation lab use, Compact PCB module, Plug-and-Play operation, suitable for educational and laboratory applications.	3
		Preferably GT POWER 3-Channel Multi Servo Tester or equivalent, Operating Voltage: 4.8V – 6.0V DC, Number of Channels: 3-Channel Servo Output, Supported Servo Types: Analog and Digital Servo Motors, Operating Modes: Manual Mode, Neutral Mode, Automatic Sweep Mode, Control Method: Rotary Potentiometer Knob Control,	2

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		Signal Output: Standard PWM Servo Signal (500µs – 2500µs approx.), Frequency: ~50Hz Servo Control Signal, Interface: Standard 3-Pin Servo Connectors (GND, VCC, Signal), Power Input: DC Barrel Jack / Battery Input / Header Pins, Indicators: Power LED Indication, Function: Independent 3-channel servo testing and synchronous servo testing, CCPM Helicopter Support: 120° / 140° / 90° CCPM Mode Support, Build Type: Compact Portable Module, Application: Servo motor testing, ESC testing, robotics and automation lab use, Plug-and-Play operation, suitable for educational and laboratory applications.	
84	Decoder IC for RF/IR remote control application	Preferably HT12D/ PT2272 or equivalent Remote Control Decoder IC Operating Voltage: 2.4V – 12V DC (typical 5V) Data Format: 12-bit (8 address bits + 4 data bits) Output: 4 digital data output pins (TTL compatible), High noise immunity, built-in oscillator.	10
85	Encoder IC for RF/IR remote control application	Preferably HT12E or equivalent Remote Control Encoder IC Operating Voltage: 2.4V – 12V DC (typical 5V) Data Format: 12-bit (8 address bits + 4 data bits) Input: 4 data input pins + address pins (TTL compatible), Built-in oscillator, low power consumption	10
86	Lidar	Range up to 40 meters, High frame rate(up to 1000Hz Adjustable), Low power consumption, Higher Accuracy and frequency, Interface – UART/I2C/IO, FOV: 3°(3 degrees), Operating voltage: 5-12 V DC, IP65 Protection	2
87	Intel Depth Real Sense cam	RGB frame resolution: 1920 × 1080, RGB frame rate: 30 fps, RGB sensor resolution: 2 MP, Depth Field of View (FOV): 87° × 58°	1

		Depth output resolution: Up to 1280 × 720 Depth frame rate: Up to 90 fps	
88	Wheel Hub	8 mm Metal Hub for Mecanum Wheel, Material: Aluminium Alloy / Mild Steel, Bore Diameter: 8 mm, Hub Type: Clamp / Set Screw Type, Mounting: Standard hole pattern for Mecanum wheels, Fixing: Grub screw locking, Surface Finish: Anodized / Anti-corrosion, Suitable for medium to high torque applications, Application: Mecanum wheel mounting for mobile robots and omnidirectional robotic platforms.	15
		6 mm Metal Hub for Mecanum Wheel, Material: Aluminium Alloy / Mild Steel, Bore Diameter: 6 mm, Hub Type: Clamp / Set Screw Type, Mounting: Standard hole pattern for Mecanum wheels, Fixing: Grub screw locking, Surface Finish: Anodized / Anti-corrosion, Suitable for medium to high torque applications, Application: Mecanum wheel mounting for mobile robots and omnidirectional robotic platforms.	10
89	Mounting clamp/holder for ultrasonic sensor module	Mounting clamp/holder for ultrasonic sensor module (preferably for HC-SR04 or equivalent) Material: Durable ABS / PLA plastic Compatibility: Designed to fit standard with HC-SR04 or equivalent Mounting: Provision for screw holes (M2/M3) for easy chassis attachment, Lightweight, firm grip, precise alignment of sensors, suitable for robotics applications.	15
90	Sharp Distance Sensor Module	Distance Sensor (Preferably GP2Y0A21YK0F IR sensor or equivalent), Operating Voltage: 4.5V – 5.5V DC, Current Consumption: 30 mA appx., Measuring Range: 10 cm – 80 cm, Output : Analog / Digital.	8
91	Metal Chassis for Robot Car	4-wheel drive chassis with 1 caster wheel (robotic platform) Sheet Thickness: 1.5 mm, Material: Mild Steel / Aluminium (powder-coated) Motor Fitting Hole Diameter: 13.75 mm, suitable for DC geared motor (preferably with	20

		GB37 series) Compatibility: Suitable for Arduino, Raspberry Pi and robotics applications.		
		2-wheel drive chassis with 1 caster wheel (robotic platform) Sheet Thickness: 1.5 mm, Material: Mild Steel / Aluminium (powder-coated) Motor Fitting Hole Diameter: 13.75 mm, suitable for DC geared motor (preferably with GB37 series) Compatibility: Suitable for Arduino, Raspberry Pi and robotics applications.		20
92	Autonomous Mobile Robotics compatible kit	Servo Motor Bracket	Heavy-duty aluminium mounting bracket compatible with standard servo motors (MG995 / MG996 or equivalent) for robotic arm and mobile robot assemblies	15
		DC Motor Bracket (Metal L-Bracket)	Metallic L-type mounting bracket suitable for DC geared motors (37 mm / 42 mm motors), corrosion-resistant and suitable for robot chassis integration	50
		Flat Building Plate	Aluminium / steel flat plate of size **200 mm × 60 mm**, used as structural base for robotic assembly and sensor mounting	15
		Angle Frame (411 mm)	Structural angle bar **411 mm length**, aluminium alloy or powder-coated steel	25

			used for robotic chassis construction	
		Angle Frame (164 mm)	Structural angle bar **164 mm length**, used for lightweight robotic frame support	25
		L-Bracket	Universal **90° L-type bracket** for frame joining and structural reinforcement in robot chassis	25
		C-Channel Frame (440 mm)	Metal C-channel frame **440 mm length** used for modular robotic chassis assembly	15
		C-Channel Frame (440 mm)	Additional **440 mm C-channel structural member** for modular robot platform construction	15
		C-Channel Frame (40 mm)	Short **40 mm C-channel connector**, used for joining frame components	15
		C-Channel Frame (1000 mm)	Long **1000 mm C-channel beam** used for mobile robot base frame or structural support	15
		C-Channel Frame (164 mm)	Medium size **164 mm C-channel frame** used in modular	15

			robotic platform assembly	
		Rack and Pinion Gear Set	Precision metal **rack and pinion gear pair** used for linear motion transmission in robotic mechanisms	10 pairs
		Emergency Stop Switch (Industrial Grade)	Industrial emergency stop push button switch, **mushroom head type**, rated **220–240V AC**, panel mount with safety lock mechanism	10
93	Humanoid Robot Kit	**Degrees of Freedom (DOF): 17** Robot size: minimum 40 cm (Height) × 23 cm (Width) or larger after assembly Frame material: anodized aluminium alloy structural brackets, thickness approx. 2–3 mm Total actuators: high-torque standard servo motors **(minimum 25)** **Servo Motor Specifications:** Control signal: PWM (3–5 V peak-to-peak square wave) Operating voltage: 4.8–6.0 V DC Operating temperature: –10 °C to +60 °C Operating speed: ≤0.18 sec/60° at 4.8 V, ≤0.14 sec/60° at 6 V (no load) Stall torque: ≥14 kg·cm at 4.8 V, ≥16 kg·cm at 6 V Rotation range: ~180° standard rotation (modifiable) Gear type: all metal gears Bearing type: double ball bearing Servo dimensions: approx. 41 × 20 × 36 mm(appx) Servo spline: 25T metal spline compatible Servo cable length: ≥300 mm **Servo Controller:** 1 × 18-channel PWM servo controller	1

		Microcontroller-based (ATmega328P / Arduino Uno compatible/Raspberry Pi or equivalent) USB interface for PC communication Wireless interface (Bluetooth or equivalent) PWM resolution: ≤ 0.5 µs Control update rate: approx. 50 Hz **Power Supply:** 3 × Rechargeable Li-Po battery pack Nominal voltage: 7.4 V (2S configuration) Battery capacity: ≥1500 mAh Discharge rating: ≥40C **Mechanical Components (Aluminium Servo Brackets):** 20 × Multipurpose aluminium standard servo brackets (approx. 40–45 mm × 20 mm × 35–40 mm) 9 × Short U-shaped aluminium brackets (approx. 35–40 mm × 30–35 mm) 6 × Long U-shaped aluminium brackets (approx. 60–65 mm × 35–40 mm) 6 × Oblique U-shaped aluminium brackets (approx. 45–50 mm × 35 mm) 6 × Interconnect aluminium brackets (approx. 40–45 mm × 20–25 mm) 6 × L-shaped interconnect brackets (approx. 40 mm × 40 mm × 20 mm) 2 × Large U-beam aluminium bracket (approx. 80–90 mm × 40 mm × 35–40 mm) 4 × Robot foot aluminium brackets (approx. 80–100 mm × 40–50 mm) **Bearings:** 20 × miniature ball bearings Typical size: 4 mm (inner diameter) × 8 mm (outer diameter) × 3 mm (thickness) (MR84 or equivalent) **Servo Horns:** 24 × metal servo horns, 25T spline compatible **Electrical Accessories:** 12 × servo extension cables (3-pin standard connector), 1 × USB programming cable (Type-A to Type-B or equivalent) **Mechanical Accessories:** 2 × complete screw, nut, washer, and spacer set	

		for servo and bracket assembly, M2–M3 stainless steel fasteners.	
94	3D Printer and tools	Preferably P1S model of Bambu lab or equivalent compatible Printing / Molding Technology: FDM – fused filament deposition process Properly enclosed in a metallic box with glass sides Build / Printing Volume: approximately 250 × 210 × 210 mm (X × Y × Z) Supported File Formats: STL, OBJ, AMF, 3MF, G-code Compatible Filament Materials: 1.75 mm diameter filament, including PLA, ABS, PETG, TPU, and PVA (or equivalent materials) Nozzle Diameter: 0.4 mm standard nozzle, interchangeable with 0.2 mm, 0.6 mm, 0.8 mm, and 1.0 mm nozzles Nozzle Temperature: more than 250 degree Celsius Heated Bed Temperature: Range 40-100 degree Celsius Heated Print Bed: magnetic removable flexible build plate for easy part removal Layer Resolution: typically 0.05 mm – 0.35 mm layer height depending on nozzle and settings Extruder Type: direct drive filament extrusion system Filament Feeding System: automatic filament loading with sensor-based filament detection Integrated touchscreen display for printer control and monitoring Integrated camera for monitoring with 1280 x 720/0.5fps (preferably) Time-lapse Supported Connectivity: USB, SD card / USB drive, Wi-Fi/ Wireless Connectivity, Control Interface: integrated LCD display Calibration Features: automatic or assisted bed leveling and calibration system Safety Features: thermal runaway protection and power recovery function	1

		Filament run-out sensor for automatic print pause when filament ends Automatic filament loading and unloading function Repair Kit - with spare springs, screws, keys, tweezers, nozzle cleaning kit etc.		
95	Battery Charger	Supported Battery Cells: 2S to 6S LiPo batteries , Li-ion, Li Hv , and Li Fe battery (7.4V to 22.2V nominal) Charging Current: Adjustable, up to 5A Charging Modes: CC/CV (Constant Current / Constant Voltage) and balance charging Input Voltage: AC 100–240V Safety Features: Overcharge protection, short circuit protection, temperature monitoring, reverse polarity protection Compatibility: Suitable for drone and RC applications Display/Indicators: LCD display showing charging status, battery voltage, and current Connector Type: Standard XT60 / JST / EC3 Cooling: Built-in fan or heat dissipation system Additional Features : Charge memory, storage mode for long-term battery maintenance, automatic cutoff		4
96	Filament for 3D printer	Filament Type: FDM / FFF 3D printing thermoplastic filament Filament Diameter: 1.75 mm ±0.02 mm Spool Weight: 1 kg filament spool Filament Roundness: high dimensional consistency for uniform extrusion Low warping and shrinkage characteristics Vacuum sealed with desiccant to prevent moisture absorption	White Colour	2
			Black Colour	2
			Yellow Colour	2
			Grey Colour	2
			Orange Colour	2

97	Filament Storage Box	Compatible Filament storage box, Airtight filament storage box compatible with 1.75 mm, 1 kg spool, Material: Transparent ABS / Polycarbonate body with rubber sealing gasket, Storage Condition: Vacuum-sealed / airtight design with provision for desiccant (silica gel), Moisture Control: Humidity control support (<20–30% RH), moisture-resistant to prevent filament degradation, Spool holder with smooth rotation, filament outlet port, reusable desiccant compartment, suitable for PLA/ABS/PETG filaments.		10
98	Dremel Kit	Dremel Rotary Tool Kit, 130–200 W, Variable Speed 5,000–35,000 RPM, 220–240 V AC Supply, 3.2 mm Collet with Multiple Collets, Including Minimum 100 Accessories for Cutting, Grinding, Drilling, Polishing and Engraving, Flexible Shaft Attachment with Carry Case, Suitable for Electronics, Robotics and Laboratory Fabrication Work.		2
99	DC-DC Buck Convertor	Input voltage: 3-40V Output voltage: 1.5-35V(Adjustable) Output current: Rated current: 2A or higher Switching Frequency: 150 KHz Conversion efficiency: 92%(highest) Adjustment Method: Onboard potentiometer for output voltage tuning, Preferably with LM2596HVS IC or equivalent		15
100	DC-DC Boost Converter	DC-DC Step-Up (Boost) Converter Module Input Voltage: 2V – 24V DC (typical) Output Voltage: Adjustable up to 5V – 28V DC Output Current: Up to 2A (with proper heat dissipation), High efficiency 90% (Minimum), onboard potentiometer for voltage adjustment, overcurrent/thermal protection, compact design suitable for embedded applications Based on MT3608 / XL6009 / LM2577 or equivalent IC		15
101	General PCB Board (Green)	General Purpose PCB Board (Green) Double Sided Tinned	**Size:** 5×7 cm	30
			Size: 7×9 cm	30

		Material: FR-4 Glass Epoxy Laminate **Board Thickness:** 1.6 mm **Copper Thickness:** 30 µm or more **Hole Pitch:** 2.54 mm grid **Hole Diameter:** ~1 mm **Board Type:** Universal / Perf board / Strip board	**Size:** 10×15 cm	30
102	Graphical Liquid Crystal Display	Supply Voltage (VDD): ±3.0 V to 5.5 V Maximum Clock Frequency: 2 MHz Display Resolution: 128 × 64 pixels Viewing Direction: 12 O'Clock Active Viewing Area: 70.0 mm × 38.8 mm (L × W)		5
103	Voice Recognition Module	Operating Voltage: 4.5 V to 5.5 V DC Operating Current: < 40 mA Communication Interface: 5V TTL level UART Analog Interface: 3.5 mm mono-channel microphone connector with onboard microphone pin interface Recognition Accuracy: Up to 99%		5
104	Micro USB to USB Type-A cable	Data Transfer Rate- 480 Megabits Per Second or higher, compatible with mobile phones and laptop.,1 m length		5
105	Mini USB to USB Type-A cable	Compatible with external HDDS and Card readers, at least 1 m length		5
106	Real Time Clock	Preferably with DS 3231 or equivalent compatible, Operating voltage :3.3 – 5 .5 V, I²C real time clock Module, RAM Size- 4GB, Memory Storage Capacity- 32KB		5
107	Insulation tape	Material: **PVC (Polyvinyl Chloride) insulating film** Adhesive Type: **Pressure-sensitive rubber-based adhesive**		30

		Width: **Typically 18–20 mm** Length: **10–20 meters per roll**	
108	Op-Amp IC (LM 358/LM 741)	Type: **Dual Operational Amplifier (2 op-amps in one IC)** Package: **DIP-8 / SOP-8** Supply Voltage Range: **3V to 32V (single supply) or ±1.5V to ±16V (dual supply)** Input Offset Voltage: **~2 mV (typical)** Input Bias Current: **~20 nA (typical)**	30
109	MOSFET (IRFZ44N)	Type: **N-Channel** **Mounting: Through hole** Drain–Source Voltage (VDS): **20V – 100V (typical lab range)** Gate–Source Voltage (VGS): **±20V (maximum rating)** Continuous Drain Current (ID): **100mA to 30A (model dependent)** Power Dissipation (PD): **0.5W to 60W (with heat sink for high current types)** On-Resistance (RDS(on)): **Low resistance (few mΩ to few Ω) for efficient switching** Gate Threshold Voltage (VGS(th)): **1V – 5V**	30
110	Regulator LM317 IC	Input Voltage: 0-40V or higher Output Current- Excess of 1.5 A Output Adjustable between 1.2 V and 37 V Internal Thermal Overload Protection	20
111	Rotary Encoder with Decoder Module	**Operating Voltage:** 3.3 V – 5 V DC, **Logic Level:** TTL compatible digital outputs, **Rotation:** 360° continuous rotation with detents, PCB module with header pins for easy breadboard or jumper wire connection	5
112	OLED Display	Display Type: Monochrome OLED (Self-illuminating, Blue), Display Size: 0.96 inch diagonal, Resolution: 128 × 64 pixels (128 columns × 64 rows), Communication Interface: I2C and SPI, Operating Voltage: 3.3 V – 5 V DC, Driver Controller: SSD1306 or equivalent compatible controller	10
113	TFT LCD Display Module	TFT LCD with 4-Wire Resistive Touch Screen, 2.8 Inches (Diagonal), **Resolution:** 320 × 240 Pixels (QVGA), **Driver IC:** ILI9341 or Equivalent (Arduino Supported), SPI Serial Interface (Arduino Compatible),	5

		3.3V – 5V DC, 16-bit (65K Colors), XPT2046 / Equivalent (SPI Interface), **SD Card Slot:** On-board MicroSD Card Slot **Backlight:** LED Backlight with Control Pin	
114	3.3V DC-DC Multi-Output Voltage Regulator Module	Module Type: DC-DC Step-Down Power Conversion Module (Multi-Output), Input Voltage Range: 6 V – 12 V DC, Output Voltages: Regulated 3.3 V DC output, Regulated 5.0 V DC output, Direct DC input pass-through output, Output Current Capacity: Up to 500 mA – 1 A	5
115	USB Extension Data Cable	USB Extension Cable, Type-A Male to Type-A Female, High-Speed USB 2.0/3.0, Double Shielded, 5V Operation, Minimum 1 Meter Length, Gold/Nickel Plated Connectors, Compatible with Arduino, Raspberry Pi and Embedded Development Systems.	2
116	Face Shield with Replaceable Polycarbonate Visors	**Reusable Protective Face Shield, Visor Material: Optical grade GP Polycarbonate, Visor Thickness: 0.8- 1mm (anti-scratch, high impact resistance), Head Support: Adjustable elastic headband for universal fit Replaceable Visor: Interchangeable polycarbonate visor system Additional Accessories: Supplied with five (05) extra polycarbonate visors**	15
117	CMOS IR camera	**High Definition 1000TVL or higher, CMOS Image Sensor: 1/2" COMS Sensor, Horizontal Resolution: 1000TVL or higher, Lens: 2.1mm (M12) FOV155° (4:3), Signal System: PAL / NTSC Switchable Min. Illumination: 0.001Lux@1.2F, Connector Type: 3-pin JST-ZH or Molex**	3
118	Portable SMPS	**Preferably LRS-150-12 or equivalent, Portable Switched Mode Power Supply (SMPS), Output Voltage: 12 V DC regulated output, Output Power Rating: Minimum 600 Watts, Output Ports: Minimum 4 DC output ports (parallel distribution), Input Voltage: 100–240 V AC, 50/60 Hz universal input, Output**	2

			Current Capacity: Up to 50 A, Waterproof Rating: Waterproof / weather-resistant enclosure (IP65 or higher preferable)		
			Preferably LRS-50-5 or equivalent, Portable Switched Mode Power Supply (SMPS), Output Voltage: 5 V DC regulated output, Output Power Rating: Minimum 250 Watts, Output Ports: Minimum 4 DC output ports (parallel distribution), Input Voltage: 100–240 V AC, 50/60 Hz universal input, Output Current Capacity: Up to 50 A, Waterproof Rating: Waterproof / weather-resistant enclosure (IP65 or higher preferable).		1
			Preferably LRS-600-24 or equivalent, Portable Switched Mode Power Supply (SMPS), Output Voltage: 24 V DC regulated output, Output Power Rating: Minimum 600 Watts, Output Ports: Minimum 4 DC output ports (parallel distribution), Input Voltage: 100–240 V AC, 50/60 Hz universal input, Output Current Capacity: Up to 25 A, Waterproof Rating: Waterproof / weather-resistant enclosure (IP65 or higher preferable).		1
119	Hacksaw	Frame	Hand Hacksaw Frame, and blade capacity, Frame Material: Heavy-duty steel frame with corrosion-resistant finish, Blade Compatibility: Suitable for standard 6 inches (150) and 12-inch (300 mm) hacksaw blades	Frame Size: 6 inches (150 mm)	2
				Frame Size: 12 inches (300 mm)	2
		Blade	Material –High carbon steel (HCS)	Size: 6 inches	15
				Size: 12 inches	15

120	Long Nose Pliers with Return Spring	Size: 4.5-inch, Jaw Type: Straight, narrow long nose suitable for precision gripping and circlip handling, Material: High-grade hardened steel for durability and wear resistance, Corrosion-resistant coated or polished surface, Handle: Insulated, non-slip ergonomic grip (PVC or rubber coated) Spring Mechanism: Built-in return spring for ease of repetitive operation		10
121	Bent Nose Wire Stripping and Cutting Plier	Wire Stripping and Bent Nose Plier, Size: 4–5 inches, Jaw Type: Bent nose precision jaws for gripping and accessing, Material: High-grade hardened steel, Anti-corrosion coated, Handle: Ergonomic insulated non-slip handles (PVC/rubber grip), Spring Mechanism: Return spring for easy repetitive operation, Hardened cutting edges for copper and soft wire cutting		10
122	Needle Nose Pliers with Side Cutter	Size: 4 inch to 6 inch, Jaw Type: Long, narrow needle nose jaws for precision gripping and access to confined spaces, Material: High-grade hardened alloy steel, Integrated side cutters for soft wire cutting, Anti-corrosion coated or polished surface finish, Handle: Ergonomic insulated non-slip handles (PVC/rubber grip), Spring Mechanism: Return spring for easy repetitive operation		10
123	Tweezer Set	Non-Magnetic Tweezer Set, Tweezer Length: 6 inch, Material: Non-magnetic stainless steel or equivalent anti-static alloy, Anti-corrosion, matte or polished surface, ESD-safe design, Smooth edges and precision tips to prevent damage	Tip Type: Straight fine-point tip	2
			Tip Type : Curved precision tip	2
			Tip Type : Flat tip	2
			Tip Type : Ultra Fine needle tip	2
			Tip Type: Angled tip	2
			Tip Type : Broad tip	2
124	Allen Key Set	Size : 1.5 mm, 2 mm, 2.5 mm, 3 mm, 4 mm, 5 mm, 6 mm, 8	Size: 1.5 mm	2
			Size: 2 mm	2
			Size: 2.5 mm	2

		mm, 10 mm, Key Type: L-shaped hex keys, Material: High-grade hardened chrome vanadium steel or equivalent alloy steel, Corrosion-resistant black oxide or chrome-plated finish, Precision-machined hex ends for accurate fit and reduced fastener wear	Size: 3 mm	2
			Size: 4 mm	2
			Size: 5 mm	2
			Size: 6 mm	2
			Size: 8 mm	2
			Size: 10 mm	2
125	Electric Drill Machine with Multi-Function Modes	**Power Rating:** 500 W, **Operational Modes:** Hammer drilling, Screw driving, Clockwise and Anti-clockwise rotation, **Chuck Capacity:** 1 mm – 10 mm, **Speed Control:** Variable speed control for precision drilling in different materials, Overload protection, insulated handle, and sturdy chuck design, **Additional Accessories:** Adjustable knife, wrench, and other standard accessories for drill maintenance and bit adjustment		1
	Drill Bits	Masonry	4 mm	2
			5 mm	2
			6 mm	2
			8 mm	2
			10 mm	2
		Metal	2 mm	2
			3 mm	2
			4 mm	2
			5 mm	2
			6 mm	2
		Wood	4 mm	2
			5 mm	2
			6 mm	2
			8 mm	2
	Drilling Station	Drill Press, Drill Holder and Rotary Tool, Compatible with the provided portable drilling machine and standard rotary tools, Heavy-duty		1

		metal/steel body with corrosion-resistant finish, Mounting Base: Rigid base with provision for bench mounting and work piece clamping, Drill Holder: Adjustable clamp to securely hold drills, Adjustable depth stop for precise and repeatable drilling		
126	Spanner Set	Combination Spanner Set (Open-End and Ring-End),, Spanner Type: Combination type with one open end and one ring end per spanner, Material: High-grade chrome vanadium steel or equivalent alloy steel, Mirror polished or satin chrome finish for corrosion resistance, Precision-machined jaws for accurate fit and reduced fastener slippage, Quantity: 12 pieces	Size: 6 mm	1
			Size: 7 mm	1
			Size: 8 mm	1
			Size: 9 mm	1
			Size: 10 mm	1
			Size: 11 mm	1
			Size: 12 mm	1
			Size: 13 mm	1

			Size: 14 mm		1
			Size: 15 mm		1
			Size: 17 mm		1
			Size: 19 mm		1
127	Vice Normal	Jaw Width: 100 mm, Jaw Opening: Suitable for holding up to 100 mm, Material: High-strength cast iron or forged steel body, Mounting: Table/bench mountable base with bolt holes for secure fixing, Flat stable base for vibration-free clamping, Handle: Steel handle with rotating grip for easy tightening and loosening			2
128	Screw Driver	Blade Material: High-grade hardened steel, Tip Type: Precision-machined magnetic tips for accurate fit and secure fastening, Handle: Ergonomic insulated non-slip handles (PVC or rubber grip), Chrome-plated or	Head: PH0	Flat Head: 1.4 mm	1
				Flat Head: 2 mm	1
				Flat Head: 2.4 mm	1
				Flat Head: 3 mm	1
			Head: PH1	Flat Head: 1.4 mm	1

		anti-corrosion coated shafts, Supplied in compact holder/case for organized storage and portability		Flat Head: 2 mm	1
				Flat Head: 2.4 mm	1
				Flat Head: 3 mm	1
129	Micro chisel Set	Micro Chisel Set for fine carving, engraving, **Material:** High-grade hardened alloy steel / chrome vanadium steel with corrosion-resistant finish, types. **Tip Size:** 1 mm to 5 mm, anti-slip handle made of PVC / rubber / high-impact plastic for comfortable grip and control.**Length:** Overall tool length **130 mm – 160 mm** **Blade Hardness:** Minimum HRC 52–58 or equivalent	Type: flat	Tip Size: 1 mm	1
				Tip Size: 2 mm	1
				Tip Size: 3 mm	1
				Tip Size: 4 mm	1
				Tip Size: 5 mm	1
			Type: round	Tip Size: 1 mm	1
				Tip Size: 2 mm	1
				Tip Size: 3 mm	1
				Tip Size: 4 mm	1
				Tip Size: 5 mm	1
			Type: pointed	Tip Size: 1 mm	1
				Tip Size: 2 mm	1
				Tip Size: 3 mm	1
				Tip Size: 4 mm	1
				Tip Size: 5 mm	1
			Type: Diamond	Tip Size: 1 mm	1
				Tip Size: 2 mm	1
				Tip Size: 3 mm	1

				Tip Size: 4 mm	1
				Tip Size: 5 mm	1
			Type: half-round	Tip Size: 1 mm	1
				Tip Size: 2 mm	1
				Tip Size: 3 mm	1
				Tip Size: 4 mm	1
				Tip Size: 5 mm	1
130	Adjustable Wrench	Material: Drop-forged chrome vanadium steel / alloy steel with hardened and tempered jaws, Chrome plated / satin finish for corrosion resistance, **Length:** 200 mm – 250 mm, **Jaw Capacity:** Adjustable jaw opening up to 25 mm – 30 mm minimum.			2
131	Self-Adjusting Wire Stripper and Cutter	Automatic Wire Stripper, Cutter, Self-Adjusting Spring Mechanism, 0.5–6 mm^2 Wire Capacity, Hardened Carbon Steel / Chrome Vanadium Steel, Anti-Rust Finish, Ergonomic Insulated Handle, Suitable for Electrical and Electronics Laboratory Work			10
132	Ball Peen Hammer with Wooden Handle	**Ball Pein Hammer, Weight: 500 g (±10%),** High-Grade Forged Carbon Steel Head, Wooden Handle (Hickory/Ash Wood or Equivalent) with Smooth Finish for Firm Grip, **Head Design: One Flat Striking Face and One Ball Pein End,** Anti-Rust Polished Finish, **Dimensions: Approx. 35 × 10 × 10 cm (L × W × H),** Suitable for Mechanical, Electrical, and Workshop Applications.			5
133	C clamp	**Jaw Size: 4 inch (Approx. 105 mm)** opening capacity, **Material:** High-strength drop forged steel / cast steel body, **Spindle/Screw:** Hardened steel threaded screw with smooth turning mechanism, **Handle Type:** Tommy bar / sliding T-handle, Powder coated / anti-rust coated body for corrosion resistance			5

134	Steel shaft claw hammer	**Claw Hammer, Weight: 500 g (±10%)**, Head Material: High-Quality Forged Carbon Steel, Handle Material: Steel Shaft with Rubber/PVC Grip, **Head Design: One Flat Striking Face and One Curved Claw End for Nail Pulling and Prying**, Anti-Slip Rubberized Ergonomic Handle, Polished / Anti-Rust Coated Hammer Head for Corrosion Resistance, **Dimensions: Approx. 35 × 10 × 10 cm (L × W × H) or Equivalent Standard Size**, Suitable for Workshop, Laboratory, and General Maintenance Work.		5
135	Steel ruler	Scale Ruler 30 cm		10
136	Screwdriver set	40 Piece Multi-Purpose Screwdriver Set, Including Slotted, Phillips, Torx, Hex, Pozidriv and Special Precision Bits, Chrome Vanadium Steel, Hardened Anti-Rust Finish, Ergonomic Handle, Suitable for Electronics, Robotics and Laboratory Applications.		10
137	Air Blower	Electric Air Blower, 600 W or Higher, 220–240 V AC Supply, Air Flow Minimum 2.5 m^3/min, Lock-On Switch, Detachable Nozzle, Vacuum Function with Dust Bag (Preferred), Portable Handheld Design, Suitable for Electronics Laboratory and Workshop Cleaning Applications.		1
138	File set	Hand File Set, 200 mm (8 inch), 20–24 Teeth per cm, High Carbon Steel, Hardened and Tempered, Anti-Rust Finish, Ergonomic PVC Handle, Suitable for Workshop, Laboratory and Project Work.	Flat -1 Half Round -1 Round -1 Square -1 Triangular -1 Knife Edge Files -1	6 (Total)
139	Mini File set	Mini File Set, 100–150 mm Length, Flat, Half Round, Round, Square, Triangular and Knife Edge Files, 25–32 Teeth per	Flat- 1 Half Round -1 Round -1 Square -1 Triangular -1 Knife Edge Files- 1	6 (Total)

		cm, High Carbon Steel, Hardened and Tempered, Anti-Rust Finish, Ergonomic Handle, Suitable for Precision Electronics and Laboratory Work.		
140	Anti-static / ESD protective mat	A3 Size with Marked Pattern and Grids (18" X 12"), Thickness: 2–3 mm minimum Surface Resistivity (Top Layer): $10^6 - 10^9$ Ω/sq Bottom Layer Resistivity: $10^5 - 10^8$ Ω/sq		20
141	Plastic Storage Drawer/Organiser	Plastic Storage Drawer Organizer, 60 Drawers, Industrial Grade ABS/Polypropylene Body, Transparent Removable Drawers with Label Slots, Wall Mountable/Desktop Type, Approx. 50 × 16 × 40 cm, Durable and Suitable for Storage of Electronic Components and Small Parts in Laboratory and Workshop.		2
142	Pegboard	Wall-Mounted Pegboard Tool Storage System, Size 3 ft × 2 ft (Approx. 900 × 600 mm), Minimum 1.0–1.5 mm Thick Powder-Coated Mild Steel / CRCA Sheet, Load Capacity 20–30 kg, Each Hook Capacity 1–2 kg, Standard Peg Hole Design, Supplied with Assorted Hooks and Mounting Hardware, Suitable for Laboratory and Workshop Tool Organization.		2
143	Hot glue gun	Hot Glue Gun, 100 W Minimum, 220–240 V AC Supply, Operating Temperature 230–280°C, Compatible with 0.5-inch (11 mm) Glue Sticks, High-Quality Brass/Copper Nozzle with Heat-Resistant Stainless Steel Tip, Anti-Drip Design, Heat-Resistant Plastic Body with Thermal Shielding, Built-in Metal Stand, Power Cable Minimum 1.5 m, Suitable for Laboratory and Project Work.		10
		0.5-inch (11 mm) Glue Sticks		200

144	Soldering Iron and supporting Kit	Preferably FX-888D or equivalent, Digital Temperature Controlled Soldering iron, 60W, 220–450°C Adjustable, Digital Display, Ceramic Heating Element, Copper Tips with Nickel/Chrome Coating, Stand and Accessories, Suitable for Electronics, Robotics and Laboratory Work.		2
		Analog Temperature Controlled Soldering iron, 60W, 220–450°C Adjustable, Rotary Knob Control, Ceramic Heating Element, Copper Tips with Nickel/Chrome Coating, Stand and Accessories, Suitable for Electronics, Robotics and Laboratory Work. Preferably 936A-II or equivalent		2
		Desoldering Pump		2
		Desoldering Copper Braid 1.5m × 2mm wick		25
		Sn/Pb 60/40 Solder Wire 250 gm (RSA)		15
		Copper Tips with Nickel/Chrome Coating	Bevel,	10
			Chisel,	10
			Conical	10
		Flux Paste 100g		15
145	Adapters	DC Power Adapter, 5V 2A Output, ≥10W Power Rating, SMPS Based Compact Design, Input 100–240V AC, Voltage Regulation ±5%, Ripple ≤100 mV, DC Barrel Connector 5.5 mm × 2.1 mm Center Positive, Nickel/Gold Plated Connector, Cable Length Minimum 1.2 m, With Over Voltage, Over Current and Short Circuit Protection, Suitable for Electronics and Laboratory Applications.		15
		DC Power Adapter, 12V 2A Output, ≥24W Power Rating, SMPS Based Compact Design, Input 100–240V AC, Voltage Regulation ±5%, Ripple ≤120 mV, DC Barrel Connector 5.5 mm × 2.1 mm Center Positive, Nickel/Gold Plated Connector, Cable Length Minimum 1.2 m, With Over Voltage, Over Current and Short Circuit Protection, Suitable for Electronics and Laboratory Applications.		15
146	Soldering Rework station	Digital Soldering Station with Hot Air Rework, Model: YIHUA 8786D / YIHUA 898D+ / Quick 706W+ or equivalent, Soldering Iron Power: 60–75W, Input Voltage: 220-240V AC,		5

		Temperature Range: 180°C–480°C, Ceramic Heating Element, Lightweight Pencil Iron, High-Purity Copper Tips (900M/T18 Compatible), Integrated Hot Air Rework Tool with Brushless Fan, Air Flow: Minimum 120 L/min, Digital Temperature Control, Anti-Static Protection, suitable for PCB, SMD and electronics laboratory applications.			
		High-Purity Copper Tips with Iron/Nickel/Chrome Coating (900M/T18 Series Compatible)	Conical,		2
			Chisel		2
			Bevel,		2
			Knife,		2
			Fine Tip		2
		Stainless Steel Nozzles, Round Air Nozzles	3mm		1
			5mm		1
			8mm		1
147	Digital Clamp Meter (Portable)	Preferbly DT36T or equivalent, Digital Clamp Meter (Portable), AC/DC Current: Up to 600A, AC/DC Voltage: Up to 600V/1000V, Resistance Measurement, Continuity and Diode Test, Digital LCD Display with Backlight, Clamp Jaw Opening: Minimum 25-30 mm, Auto Range, Overload Protection, CAT II/CAT III Safety Rating, Portable Handheld Design, Supplied with Test Leads, Battery and Carry Case, Suitable for Laboratory and Electrical Applications.			7
148	Nuts and Bolts	Assorted Nuts and Bolts Set for Robotics Lab, Sizes: M4×12 mm, M4×20 mm, M5×16 mm, M5×25 mm, M6×20 mm, Metric	M4×12 mm,	Head Type : Hex	50
				Head Type : Phillips	50
				Head Type : Socket	50

		Thread, Zinc Plated / Stainless Steel Material, Matching Nuts and Washers Included, Supplied in Plastic Storage Organizer Box, Suitable for Robotics and Project Laboratory Applications.	M4×20 mm,	Head Type : Hex	50
				Head Type : Phillips	50
				Head Type : Socket	50
			M5×16 mm,	Head Type : Hex	50
				Head Type : Phillips	50
				Head Type : Socket	50
			M5×25 mm,	Head Type : Hex	50
				Head Type : Phillips	50
				Head Type : Socket	50
			M6×20 mm	Head Type : Hex	50
				Head Type : Phillips	50
				Head Type : Socket	50
149	Cable Tie	Nylon Self-locking Cable Tie - Length :100mm Pack of 500,			10
		Nylon Self-locking Cable Tie - Length :200mm Pack of 250,			10
		Nylon Self-locking Cable Tie - Length :300mm Pack of 150,			10
150	Sandpaper Sheets Set	Sandpaper Sheets Set, Aluminium Oxide / Silicon Carbide Abrasive, Flexible Paper/Cloth Backing, Dry and Wet Type, Standard Size 9 × 11 inch, Suitable for Robotics and Project Laboratory Applications.	Grit Size: 80		10
			Grit Size: 100		10
			Grit Size: 120		10
			Grit Size: 200		10
			Grit Size: 300		10

			Grit Size: 500	10
			Grit Size: 800	10
151	Bulb Holders	Regular Bulb holder, Type : B22 Material : plastic		10
152	Three Pin Plug	Three Pin Plug Top, 220–240V AC, 6A Rated Current, Flame Retardant ABS/Polycarbonate Body, Brass Pins with Nickel Plating, Rewireable Type with Cable Grip, ISI Marked, Shock Resistant Design, Suitable for Laboratory and Workshop Applications.		10
153	Electric Wires	Electric Wire, 1.5 sq mm, Single Core, Multi-Strand Flexible Copper Conductor, 99.9% Pure Copper, PVC Insulated (FR/FRLS), Red Color, 1100V Grade, ISI Marked, High Flexibility, Suitable for Laboratory and Robotics Project Applications.		1 roll (90 Meters minimum)
		Electric Wire, 1.5 sq mm, Single Core, Multi-Strand Flexible Copper Conductor, 99.9% Pure Copper, PVC Insulated (FR/FRLS), Black Color, 1100V Grade, ISI Marked, High Flexibility, Suitable for Laboratory and Robotics Project Applications.		1 roll (90 Meters minimum)
		Electric Wire, 1.5 sq mm, Single Core, Multi-Strand Flexible Copper Conductor, 99.9% Pure Copper, PVC Insulated (FR/FRLS), Green Color, 1100V Grade, ISI Marked, High Flexibility, Suitable for Earthing and Laboratory Robotics Project Applications.		1 roll (90 Meters minimum)
154	USB TO DC jack cable	USB to DC Jack Cable, USB Type-A Male to DC Barrel Plug 5.5 mm × 2.1 mm, 5V Output, 2A Current Capacity, Multi-Strand Copper Cable, PVC Insulated, Cable Length Minimum 1 Meter, Molded Connectors with Strain Relief, Suitable for Power Bank and Laboratory Electronics Applications.		10
155	Safety goggles	Polycarbonate Safety goggles Clear lens with no tint Cover half upper face with adjustable strap		30
156	LED Bulb B22	Operating voltage :230V, Wattage : 9W		10
157	Safety Gloves	Safety Gloves, Nitrile/PU Coated Polyester Fabric, Anti-Slip Palm Grip, Breathable Back,		30 Pairs

		Elastic Wrist Cuff, Abrasion Resistant, Flexible and Comfortable, Reusable Type, Free Size, Suitable for Robotics, Electronics and Laboratory Applications.	
158	Anti-static safe wrist discharge band	Anti-Static Wrist Strap, Adjustable Elastic Band, Conductive Fabric with Stainless Steel/Carbon Threads, 1 MΩ Safety Resistor, Coiled Cord 1.5–2 m, 10 mm Snap Connector, Alligator Clip/Banana Plug Grounding, Surface Resistance Range: 1MΩ–1 GΩ, Suitable for ESD Safe Electronics and Robotics Laboratory Applications.	30
159	Desktop	Processor - i7 or higher Generation – 12th or higher Number of Cores per Processor -12 or higher Processor Base Frequency - (GHz) 2.5 or higher Cache (MB)-12 or higher Graphic card capacity-Dedicated 2 GB or higher Operating System (Factory Pre-Loaded)-Windows 11 OS Certification- Microsoft windows Type of RAM-DDR5 RAM Size (GB)-16 or higher RAM Speed (MHz)-4800 Mhz or higher RAM Expandability up to 128 GB (using spare DIMM Slots in GB) Graphics Card (GPU) – minimum 4 GB Capacity of each SSD (TB)-1 TB or higher Wireless Connectivity-Yes (inbuilt) Type of Wireless Connectivity-Wi-Fi 802.11ac Number of Ethernet Ports -1 Type of Ethernet Ports-10/100/1000 on board Integrated Gigabit Port LED Backlit Monitor Size (INCHES)-23.8 or higher Monitor Resolution (PIXELS)- full HD 1920 x 1080 On Site OEM Warranty (Year)-5 or higher DP port -1, HDMI -1, Audio out Port with microphone support, PCIe slot -2, USB port – minimum 4 (out of this Port Connectivity minimum 2 USB 3.1), USB port – 2 on front, Type C port -1, M2 PCIe slot – 1 Keyboard-Wired Keyboard from the same OEM as Desktop with embossed OEM Logo	5

		Mouse-Wired Mouse from the same OEM as the Desktop with an embossed OEM Logo Power Supply-90% Efficient Power Supply Compliance-RoHS, Energy Star, EPEAT Gold Registered, TCO Certified	
160	Return measuring Tape	Return measuring tape 5Metres *19mm	5
161	Digital Pen electric Tester	Voltage tester	2
162	Dual Temperature Heat Gun	Power Rating: 1800 Watts Input Voltage: 220 – 240 V AC Frequency: 50 – 60 Hz Air Output Temperature Range: (approx.) 350°C – 600°C High air velocity for fast and uniform heating	2
163	Soldering Helping hand	Base Size: Approx. 120–150 mm diameter or equivalent Arm Length: 150–200 mm adjustable arms Magnifier Diameter: 75–100 mm Clips: Spring-loaded metal alligator clips Joints: 360° rotation and flexible articulation	5
164	Flight controller With power module and Accessories	Processor (Core): STM32F427 Cortex-M4 (32-bit) Clock Speed: 168 MHz, RAM: 128–256 KB, Flash Memory: 2 MB, STM32F103 co-processor (failsafe backup), MPU6000 – Accelerometer + Gyroscope, L3GD20 / L3GD20H – Gyroscope, LSM303D – Accelerometer + Magnetometer, MS5611 / MS5607 – Barometer (altitude), Operating Voltage: 4.8V – 5.4V, Power Consumption: ~100 mA @ 5V, UART (Serial ports), I2C, SPI, CAN Bus, Micro USB (for programming), Supports: ArduPilot, PX4 firmware, Radiolink, Ground Control Software: Mission Planner, QGroundControl , compatible power module, Input voltage: up to ~18V (3S–4S LiPo), Output: 5.3V regulated, Max current: ~2.25A, Current sensing: up to ~90A, Voltage & current feedback to Pixhawk, Safety Switch + Buzzer, 2.4G Telemetry Radio for Pixhawk	1
		Main Processor: STM32H753VI (ARM Cortex-M7), Clock Speed: 400 MHz, Flash: 2 MB, RAM: 1 MB, Failsafe Co-Processor: STM32F103 (Cortex-M3), Dedicated for redundancy & safety, IMUs (Triple Redundant): Accelerometer + Gyroscope (3 units), Compass: Integrated (via IMU) + external GPS compass	1

		support, vibration isolation for 2 IMUs + 1 reference IMU, Input Voltage: 4.1V – 5.7V, Current Consumption: ~2.5A, Power Rating: ~14W, PWM Outputs: 14 channels, 8 Main (with failsafe), 6 Auxiliary, GPS Support: Dual GPS ports Compass: External compass supported, Desirable ADS-B (carrier) board: Detects nearby aircraft (1090 MHz receiver), Flight Controller Dimensions: ~38.25 × 38.25 × 22.3 mm, Carrier Board Dimensions: ~94.5 × 44.3 × 17.3 mm, Preferably Cube orange module, Desirable: power module with accessories and connector cables, buzzer	

Annexure-B

2. List of Items Required for Drone Assembly demonstration
Specifications for Quad Copter:

Sr. No.	Item Name	Technical Description/Specification	Quantity
1	Quad Drone Frame	Lightweight and durable quadcopter frame of size (450mm motor to motor diagonal minimum) Battery Strap included for 3S/4S lipo battery Integrated PCB (Printed Circuit Board) for simplified power distribution Modular design with battery straps Frame weight in range (290g maximum) High-strength composite material in the body Payload support Motors support: 2212 to 2216 class (800KV-1000KV) Propellers support: 9 to 10 inches Compatible with a wide range of flight controllers and electronics	3
		Frame Size Class: 5-inch (propeller size compatibility) Wheelbase: 210 mm – 230 mm (typical: ~225–226 mm) Frame Type: True X / Wide X / Deadcat (DC) Frame Height: ~30 mm – 40 mm Material: 3K Carbon Fiber (T300/T700 grade typical) Arm Thickness: 5 mm (standard freestyle durability) Top Plate Thickness: 2 mm – 2.5 mm Bottom Plate Thickness: 2 mm – 2.5 mm Middle Plate (if any): ~2 mm Replaceable Arms: Yes (individual arm design for	1

		easy repair) Flight controller Mounting compatibility: 30.5 × 30.5 mm (standard stack) and 20 × 20 mm (mini stack) Motor Size Support: 22xx / 23xx / 24xx series (e.g., 2207, 2306, 2307 Propeller Size: 5-inch (e.g., 5×4×3, 5×4.3×3)	
2	BLDC Motors	Motor Type: Outrunner Brushless DC (BLDC) Stator Size / Class: 2212 or 2216 KV Rating: 920KV or compatible Configuration: 12N14P Magnet Grade: N45SH or N52SH High-Strength Neodymium Stator Laminations: 0.2mm to 0.35mm Japanese Kawasaki Silicon Steel Continuous Current: 10A or lower Magnetic Flux Density: High-Remanence (B_r) Materials Bearing Type: Desirable EZO (Japan) or NMB (Japan) Stainless Steel or compatible Winding Material: High-Temperature Oxygen-Free Copper (OFC) Battery Compatibility: 3S to 4S LiPo (11.1V – 14.8V) Maximum Continuous Current: 15A to 18A (for 60 seconds) No-Load Current (at 10V): 0.5A appx. 3S Performance (11.1V): 800g – 850g Thrust (Using 1045 or 1047 Propellers) 4S Performance (14.8V): 1000g – 1100g Thrust (Using 9045 or 9443 Propellers)	16
		Motor Type: Brushless DC Motor (Outrunner) Configuration: 12N14P (12 stator slots, 14 magnets) Stator Size: 2207/2306/2307 Shaft Diameter: 5 mm Mounting Pattern: 16 × 16 mm (M3 screws) Motor Weight: ~28 g – 35 g (including wires) KV Rating (RPM/V): 2300-2700KV (4S LiPo) Max Current: ~25 A – 40 A Magnets: N52H High-temperature neodymium magnets Stator Material: Silicon steel laminations Winding: Single/multi-strand copper winding Air Gap: Precision minimized for efficiency Application: 5-inch FPV Freestyle / Racing Drone	6
3	Electronics Speed Controller	Brushless Motor Electronic Speed Controller Firmware: Desirable BLHeli / BLHeli_S / BLHeli_32 or compatible Control Protocol: PWM / OneShot125 / OneShot42	16

		/ multishot / DShot compatible Continuous Current Rating: 30A or more Power leads pre-soldered Signal cable with standard servo connector BEC Output Burst Current Rating: Range from 35–40A (10 seconds) Input Voltage Range: 2S to 6S LiPo (7.4V – 22.2V) Heat Dissipation: Aluminium heatsink/high thermal conductivity thermal pads High-quality PCB with conformal coating EMI protection Tested for UAV applications CE, RoHS compliance	
4	Flight controller with accessories for UAVs and Drones	Processor (Core): STM32F427 Cortex-M4 (32-bit) Clock Speed: 168 MHz, RAM: 128–256 KB, Flash Memory: 2 MB, STM32F103 co-processor (failsafe backup), MPU6000 – Accelerometer + Gyroscope, L3GD20 / L3GD20H – Gyroscope, LSM303D – Accelerometer + Magnetometer, MS5611 / MS5607 – Barometer (altitude), Operating Voltage: 4.8V – 5.4V Power Consumption: ~100 mA @ 5V, UART (Serial ports), I2C, SPI, CAN Bus, Micro USB (for programming), Dimensions: Preferable 82 x 50 x 16 mm Supports: ArduPilot, PX4 firmware, Radiolink, Pixhawk etc. Ground Control Software: Mission Planner, Q Ground Control, Compatible power module included: Input voltage: up to ~18V (3S–4S LiPo), Output: 5.3V regulated, Max current: ~2.25A, Current sensing: up to ~90A, Voltage & Current feedback for Flight Controller, Safety Switch + Buzzer included, 2.4G Telemetry Radio included	1
		Flight Controller Stack (FC+ESC): Processor (MCU): F4 / F7 / H7 processor (Preferably F7) Gyroscope (IMU): MPU6000 / ICM42688 / BMI270 (Prfersbly MPU6000) UART Ports: 4 – 8 (for GPS, VTX, Receiver, Telemetry) I2C Support: Yes (for compass, sensors) SPI Support: Yes (gyro & high-speed peripherals) USB Port: Type-C / Micro USB (for configuration) Receiver Support: SBUS, CRSF (Crossfire), ELRS, IBUS, DSMX	1

		OSD (On-Screen Display) – AT7456E chip or ntegrated Betaflight / INAV / Ardupilot compatibility LED strip & buzzer support Current sensor & voltage monitoring Input Voltage: 3S – 6S LiPo (via ESC) BEC Outputs: 5V (2–3A), 9V / 10V (for VTX/camera) 4-in-1 ESC: Continuous Current Rating: 35A – 55A, Burst Current: 50A – 65A (10 sec) Input Voltage: 3S – 6S LiPo Firmware: BLHeli_S / BLHeli_32 (preferred) / AM32 Protocols Supported: DShot300 / DShot600 (standard) DShot1200 (high-end)	
5	GPS module with compass	Compatible with u-blox M10 high-performance receiver or equivalent, Multi-Constellation, Preferably SE100 Module High Positional Accuracy or equivalent compatible Built-in digital compass (magnetometer typically RM3100 or IST8310r) for accurate heading information GNSS support: GPS, GLONASS, Galileo, and BeiDou Acquisition Time: Cold start: 26s; Hot start: 1s Positioning accuracy: ≤ 1.5 meters (Circular Error Probable (CEP)) Update rate: Minimum 5 Hz (up to 10 Hz preferred) Integrated external GPS antenna EMI-shielded module for interference-free operation Compatible with standard flight controllers 2.4 GHz or 5.8 GHz remote control system Minimum range: 1 km Real-time telemetry link Ground control station compatibility USB/Radio telemetry module, Stand of alloy material for GPS module	2
6	Remote Control Transmitter with receiver	Operating Frequency: 2.4 GHz -2.480GHz ELRS/Crossfire RF Protocol: S.BUS / PPM / CRSF (Crossfire) Number of Channels: 08-10 Channels Transmission Range: ≥ 800 meters (open field) RF Power: As per Indian Govt. standard norms Model Memory: Support for multiple model storage Display: LCD screen for parameter monitoring and	1

		configuration Power Supply: Rechargeable battery pack (Li-ion / Li-Po / AA cells as applicable) Trainer Port / Simulator Support: Required Firmware Upgrade Capability: USB or compatible interface, Operating Voltage: 4.0V – 8.4V Preinstalled with EdgeTX firmware Batteries included 18650 **Compatible Receiver**	
		Operating Frequency: 2.4 GHz ISM Band/868/915 MHz (Long Range) Protocol: S.BUS / PPM / CRSF (Crossfire) Number of Channels: 08-10 Channels Transmission Range: ≥ 800 meters (open field) RF Power: As per Indian Govt. standard norms Model Memory: Support for multiple model storage Display: LCD screen for parameter monitoring and configuration Power Supply: Rechargeable battery pack (Li-ion / Li-Po / AA cells as applicable) Trainer Port / Simulator Support: Required Firmware Upgrade Capability: USB or compatible interface, Operating Voltage: 4.0V – 8.4V Batteries included 18650 **Compatible Receiver**	1
7	Battery	Battery Type: Lithium Polymer (LiPo) Rechargeable Battery Pack Nominal Capacity: 5200 mAh or higher Configuration: 3S (Cells in Series) Nominal Voltage: 11.1 V Fully Charged Voltage: 12.6 V Discharge Rating: 40C Continuous / 80C Burst Connector Type: XT60 / XT90 (or equivalent standard connector) Balance Plug: JST-XH compatible balance connector Form Factor: Rectangular hard/soft case suitable for drone mounting Battery Internal Resistance per cell: 2.5 mΩ or less Approximate Weight: ≤ 350 grams Operating Temperature Range: -10°C to +60°C Cycle Life: Minimum 300 charge–discharge cycles Compliance: CE/RoHS/UN38.3 or equivalent safety certifications	2

		Battery Type: Lithium Polymer (LiPo) Rechargeable Battery Pack Nominal Capacity: 5200 mAh/higher Configuration: 4s (Cells in Series) Nominal Voltage: 14.8 V Fully Charged Voltage: 16.8 V Discharge Rating: 40C Continuous / 80C Burst Connector Type: XT60 / XT90 (or equivalent standard connector) Balance Plug: JST-XH compatible balance connector Form Factor: Rectangular hard/soft case suitable for drone mounting Battery Internal Resistance per cell: 2.5 mΩ or less Approximate Weight: ≤ 450 grams Operating Temperature Range: -10°C to +60°C Cycle Life: Minimum 300 charge–discharge cycles Compliance: CE/RoHS/UN38.3 or equivalent safety certifications	1
		Battery Type: Lithium Polymer (LiPo) Rechargeable Battery Pack Nominal Capacity: 1400 mAh/higher Configuration: 4s (Cells in Series) Nominal Voltage: 14.8 V Fully Charged Voltage: 16.8 V Discharge Rating: 70C Continuous / 120C Burst Connector Type: XT60 (or equivalent standard connector) Balance Plug: JST-XH compatible balance connector Form Factor: Rectangular hard/soft case suitable for drone mounting Battery Internal Resistance per cell: 2.5 mΩ or less Operating Temperature Range: -10°C to +60°C Cycle Life: Minimum 300 charge–discharge cycles Compliance: CE/RoHS/UN38.3 or equivalent safety certifications	1
8	Battery Checker	•Supports 2S to 6S LiPo batteries (7.4V to 22.2V nominal voltage) •Real-time monitoring of individual cell voltages •Display of total pack voltage and per-cell voltage •Visual and/or audible low-voltage alerts	3
9	FPV Camera	High Definition 1000TVL or higher, Image Sensor: 1/2" CMOS Sensor, Horizontal Resolution: 1000TVL or higher Lens: 2.1mm (M12) FOV155° (4:3) Signal System: PAL / NTSC Switchable Min. Illumination: 0.001Lux@1.2F, Connector Type: 3-pin JST-ZH or Molex	2

10	Audio Video Transmitter module with antenna	600mW/48 CH with up to 1km (open area), Frequency control: built-in frequency and phase lock loop, Transmitter module connector: Female RP-SMA, Antenna connector: Male RP-SMA, Supply Voltage: 7-24 V, Current: 220 mA max., Compatible Antenna included 48 CH compatible with all FPV 5.8GHz receivers	1
		Output Power (W): PIT/25mW/200mW/400mW/800mW, Frequency of operation: 5.8GHz, Operating Voltage: 5V@250–750mA, video input impedance(ohm): 75, Antenna connector: MMCX MMCX Straight 5.8GHz Antenna with Gain: 2.8dBi appx. compatible with all FPV 5.8GHz receivers	1
11	Battery charger	Supported Battery Cells: 2S to 6S LiPo batteries (7.4V to 22.2V nominal) Charging Current: Adjustable, up to 5A Charging Modes: CC/CV (Constant Current / Constant Voltage) and balance charging Input Voltage: AC 100–240V Safety Features: Overcharge protection, short circuit protection, temperature monitoring, reverse polarity protection Compatibility: Suitable for drone and RC applications Display/Indicators: LCD display showing charging status, battery voltage, and current Connector Type: Standard XT60 / JST / EC3 Cooling: Built-in fan or heat dissipation system Additional Features : Charge memory, storage mode for long-term battery maintenance, automatic cutoff	1
12	Audio Video Receiver	5.8G UVC OTG Android/iOS Audio Video Phone Receiver, RF Range 5645–5945 GHz or similar, C-type USB connector cable	1
		5.8G 48CH Wireless AV Receiver, Operating Voltage: 12VDC, Working current: 200mA max, Video format: NTSC/PAL auto, Control Range: Approx 5 KM, 48 channels, Cover A, B, E, F, H bands and L bands, Power off memory for last channel and band, Dual Independent video and audio signal outputs	1
13	Propeller	Length: 10" Pitch: 4.5" Shaft Diameter: 9.5 mm. Total Length: 10 inch / 250 mm.	10 Pairs (CW+CCW)

		Material: ABS/Carbon Nylon Clockwise and Counter-Clockwise (Both Configuration Required) **Suitable for the BLDC Motors required at Sr. No.2**		
		Propeller Type: Tri-blade (3 blades) Propeller Size: 5 inch class Typical Format: 5×4×3 / 5×4.3×3 / 5×4.5×3 Material: Polycarbonate (PC)/ Glass-filled nylon 5 mm center hole (standard) Clockwise and Counter-Clockwise (Both Configuration Required)		10 Pairs (CW+CCW)
14	WATT Meter & Power Analyzer Module	Battery Compatibility: 2S to 6S LiPo / Li-ion / LiHV (7.4V to 26.1V max) Voltage Display: High-contrast LCD or OLED Digital Display Measurement Resolution: 0.1V per cell Current Measurement Range: 0A to 90A (Continuous) Low-Voltage Alarm Audible Alert: Twin Piezo Buzzers (up to 85dB) Main Battery Interface: XT60 or XT90 gold-plated connectors Operating Temperature: -10°C to 80°C		1
15	Miscellaneous Items/Consumables for assembly of drone (Packet consisting of the mentioned items)	XT60 Male Connector with 12AWG Silicone Wire (red and black)	1 piece, with cable length 0.3 metre	2 sets
		Plastic Landing gear for Quadcopter Color: Black or white Material: ABS Plastic Length: ~190mm Ground Clearance: 150 mm Compatibility: Q450 and S500 Frames	1 set (4 legs)	
		Silicon wire multi-strand 16 AWG	1 metre	
		Silicon wire multi-strand 18 AWG	1 metre	
		Silicon wire multi-strand 22 AWG	1 metre	
		Silicon wire multi-strand 24 AWG	1 metre	
		Double sided tape(20m)	5 nos	
		Allen Key Bolt with Nut M2 Size, alloy steel material	50 nos	

		Allen Key Bolt with Nut M2.5 Size, alloy steel material	50 nos	
		Allen Key Bolt with Nut M3 Size, alloy steel material	50 nos	
		Allen Key Bolt with Nut M4 Size, alloy steel material	50 nos	
		Heat shrink tube 12 AWG	1 metre	
		Heat shrink tube 14 AWG	1 metre	
		Heat shrink tube 16 AWG	1 metre	
		Heat shrink tube 20 AWG	1 metre	
		Heat shrink tube 22 AWG	1 metre	
		Heat shrink tube 24AWG	1 metre	
		Solder Wire (Lead-free, 0.8–1.0 mm diameter, rosin core)	250gms	
		Electrical Tape (PVC, high voltage, 10 m roll)	2 nos	
		Cable Ties (Reusable or Nylon, 3–4 mm width, length 100 mm)	150 nos	
		T Handle allen Key 1.5mm, alloy steel material	1 no.	1 set
		T Handle allen Key 2.0 mm, alloy steel material	1 no.	
		T Handle allen Key 2.5 mm, alloy steel material	1 no.	
		T Handle allen Key 3.0 mm, alloy steel material	1 no.	
		T Handle allen Key 4.0 mm, alloy steel material	1 no.	
		Analog-controlled Variable Temperature Solder Iron 60 Watts, 220V AC Input Voltage	1 no.	

Specifications for Hexa Copter:

Sr. No.	Item Name	Technical Description/Specification	Quantity
1	Hexa Drone Frame	Lightweight and durable hex copter frame designed for multi-rotor UAVs of size (550mm or more motor to motor diagonal) Battery Strap included for 4S Lipo Integrated PCB (Printed Circuit Board) for simplified power distribution Modular design with battery straps Frame weight in range (400 gms or lower) High-strength composite material in the body Payload support Motors support: 2212 to 3016 class (800KV-1000KV)/Higher class Propellers support: 9 to 11 inches Compatible with a wide range of flight controllers and electronics	3
2	BLDC Motors	Motor Type: Outrunner Brushless DC (BLDC) Stator Size / Class: 2814 or 3016 KV Rating: 800KV to 880KV or compatible Configuration: 12N14P Magnet Grade: N45SH or N52SH High-Strength Neodymium Stator Laminations: 0.2mm to 0.35mm Japanese Kawasaki Silicon Steel Magnetic Flux Density: High-Remanence (B_r) Materials Bearing Type: EZO (Japan) or NMB (Japan) Stainless Steel Winding Material: High-Temperature Oxygen-Free Copper (OFC) Operating Current: 10A or lower Battery Compatibility: 4s to 6S LiPo (14.2V – 22.2V) Maximum Continuous Current: 18A to 25A (for 60 seconds) No-Load Current (at 10V): 0.5A appx. 4S Performance (14.8V): 1100g – 1200g Thrust (Using 9045 or 9443 Propellers)	18
3	Electronics Speed Controller	Brushless Motor Electronic Speed Controller Firmware: BLHeli / BLHeli_S / BLHeli_32 or compatible Control Protocol: PWM / OneShot125 / OneShot42 / multishot / DShot compatible Continuous Current Rating: 40A or more Power leads pre-soldered Signal cable with standard servo connector BEC Output	18

		Burst Current Rating: Range from 50–60A (10 seconds) Input Voltage Range: 2S to 6S LiPo (7.4V – 22.2V) Heat Dissipation: Aluminium heatsink/high thermal conductivity thermal pads High-quality PCB with conformal coating EMI protection CE, RoHS compliance	
4	Flight controller With accessories for UAVs and Drones	Processor (Core): STM32F427 Cortex-M4 (32-bit) Clock Speed: 168 MHz, RAM: 128–256 KB, Flash Memory: 2 MB, STM32F103 co-processor (failsafe backup), MPU6000 – Accelerometer + Gyroscope, L3GD20 / L3GD20H – Gyroscope, LSM303D – Accelerometer + Magnetometer, MS5611 / MS5607 – Barometer (altitude), Operating Voltage: 4.8V – 5.4V Power Consumption: ~100 mA @ 5V, UART (Serial ports), I2C, SPI, CAN Bus, Micro USB (for programming), Dimensions: Preferable 82 x 50 x 16 mm Supports: ArduPilot, PX4 firmware, Radiolink, Pixhawk etc. Ground Control Software: Mission Planner, Q Ground Control, Compatible power module included: Input voltage: up to ~18V (3S–4S LiPo), Output: 5.3V regulated, Max current: ~2.25A, Current sensing: up to ~90A, Voltage & Current feedback for Flight Controller, Safety Switch + Buzzer included, 2.4G Telemetry Radio included	2
5	GPS Module with Compass	Compatible with u-blox M10 high-performance receiver or equivalent, Multi-Constellation , Preferably SE100 Module High Positional Accuracy or equivalent compatible Built-in digital compass (magnetometer typically RM3100 or IST8310r) for accurate heading information GNSS support: GPS, GLONASS, Galileo, and BeiDou Acquisition Time: Cold start: 26s; Hot start: 1s Positioning accuracy: ≤ 1.5 meters (Circular Error Probable (CEP)) Update rate: Minimum 5 Hz (up to 10 Hz preferred) Integrated external GPS antenna EMI-shielded module for interference-free	2

		operation Compatible with standard flight controllers 2.4 GHz or 5.8 GHz remote control system Minimum range: 1 km Real-time telemetry link Ground control station compatibility USB/Radio telemetry module, Stand of alloy material for GPS module	
6	Remote Control Transmitter with receiver	Operating Frequency: 2.4 GHz -2.480GHz ELRS/Crossfire RF Protocol: S.BUS / PPM / CRSF (Crossfire) Number of Channels: 08-10 Channels Transmission Range: ≥ 800 meters (open field) RF Power: As per Indian Govt. standard norms Model Memory: Support for multiple model storage Display: LCD screen for parameter monitoring and configuration Power Supply: Rechargeable battery pack (Li-ion / Li-Po / AA cells as applicable) Trainer Port / Simulator Support: Required Firmware Upgrade Capability: USB or compatible interface, Operating Voltage: 4.0V – 8.4V Preinstalled with EdgeTX firmware Batteries included 18650 **Compatible Receiver**	2
7	Battery	Battery Type: Lithium Polymer (LiPo) Rechargeable Battery Pack/Li Ion Battery Pack Nominal Capacity: 6000 mAh/higher Configuration: 4s (Cells in Series)/higher Nominal Voltage: 14.8 or higher Fully Charged Voltage: 12.6 V/16.2V Discharge Rating: 40C Continuous / 80C Burst Connector Type: XT60 / XT90 (or equivalent standard connector) Balance Plug: JST-XH compatible balance connector Form Factor: Rectangular hard/soft case suitable for drone mounting Approximate Weight: ≤ 550 grams Operating Temperature Range: -10°C to +60°C Battery Internal Resistance per cell: 2.5 mΩ or less Cycle Life: Minimum 300 charge–discharge cycles Compliance: CE/RoHS/UN38.3 or equivalent safety certifications	2

8	Battery Checker	•Supports 2S to 6S LiPo batteries (7.4V to 22.2V nominal voltage) •Real-time monitoring of individual cell voltages •Display of total pack voltage and per-cell voltage •Visual and/or audible low-voltage alerts •Ability to measure real-time current draw •Estimation of remaining battery capacity (mAh) and state-of-charge (%)	2
9	3 axis Gimbal with a camera	Axes: 3 (Pitch, Roll, Yaw) Stabilization accuracy: ±0.01° Motor type: Brushless gimbal motors Control board: STM32 / STorM32 / AlexMos type Camera sensor: 1/2.7" CMOS Photo resolution: 12 MP/compatible Video resolution:1080p @ 25–30 fps 4K (advanced models) Field of view: 90°–120° wide-angle Video output: HDMI / IP stream (RTSP) / Analog AV (for FPV) Operating voltage: 7.4 V – 24 V typical Control Interface: PWM/UART/SBUS/CAN/Ethernet	2
10	Audio Video Transmitter	1000mW/48 CH with up to 1km (open area), Frequency control: built-in frequency and phase lock loop, Transmitter module connector: Female RP-SMA, Antenna connector: Male RP-SMA, Supply Voltage: 7-24 V, Current: 220 mA, 48 CH is compatible with all FPV 5.8G receivers	1
11	Battery charger	Supported Battery Cells: 2S to 6S LiPo batteries (7.4V to 22.2V nominal) Charging Current: Adjustable, up to 5A Charging Modes: CC/CV (Constant Current / Constant Voltage) and balance charging Input Voltage: AC 100–240V Safety Features: Overcharge protection, short circuit protection, temperature monitoring, reverse polarity protection Compatibility: Suitable for drone and RC applications Display/Indicators: LCD display showing charging status, battery voltage, and current Connector Type: Standard XT60 / JST / EC3 Cooling: Built-in fan or heat dissipation system Additional Features : Charge memory, storage mode for long-term battery maintenance, automatic cutoff	1

12	AV Reciever Goggles	AV Reciever Goggles Frequency band: 5.8 GHz (typical FPV band) Frequency range: ~5645 MHz – 5945 MHz Channels: 40CH / 48CH / up to 150CH Receiver type: Diversity receiver (two antennas for better signal) Screen size: 4.3" – 5" LCD / OLED Aspect ratio: 4:3 or 16:9 Brightness: ~300 cd/m² for outdoor visibility Typical FOV: 40° – 52° Battery: built-in Li-ion / LiPo Typical capacity: 2000 mAh Adjustable headband IPD adjustment: 58–71 mm for eye distance	1
	LCD Monitor for Video	7 Inches LCD FPV Monitor 5.8G 40CH with DVR & In-build Battery, Built-in 5.8Ghz Dual diversity receiver automatically for best reception, Built-in 2CH 5.8Ghz AV output and 1CH AV input, Built-in high-performance Li-POLYMER Battery: 2000mAH/7.4V Work status OSD display: RSSI indication; Battery indicator; Channel indication, A key to automatic signal search, Support English menu, **Format: JPEG, AVI, or equivalent** Screen size:7", Screen type: TFT LCD, Screen/long life, LED backlight, Resolution: 800*480, Brightness: 600cd/m², View Angle:140/120degree (Horizontal/Vertical), Size:180mm x 120mm x 25mm (Note: Sunshield height:110mm) Working Voltage: DC 7~16V Power Consumption: max 650 mA @12V Battery charging current: 850mA @12V (max) Working temperature: -10℃~+ 65 ℃ Connectors: RP-SMA female (outer needle) Antennas Connectors:RP-SMA male (inner hole) Support up to 32GB, Class 10 SD Card	1
13	Propeller	Length: 10" **Pitch: 4.5"** Shaft Diameter: 9.5 mm. Total Length: 10 inch / 250 mm. Material: ABS/Carbon Nylon **Suitable for the BLDC Motors required at Sr. No.2**	10 Pairs (CW+CCW)
		Diameter: 9.4 inches, Pitch: 4.3 inches Length: 230mm Material: Carbon Nylon/ABS **Suitable for the BLDC Motors required at Sr. No.2**	10 Pairs (CW+CCW)

14	Miscellaneous Items/Consumables for assembly of drone (Packet consisting of the mentioned items)	XT60 Male Connector with 12AWG Silicone Wire (red and black)	1 piece, with cable length 0.3 metre	2 sets
		Plastic Landing gear for Hexacopter Color: Black or white Material: ABS Plastic Length: ~190mm Ground Clearance: 150 mm Compatibility: S500 Frames	1 set (6 legs)	
		Silicon wire multi-strand 16 AWG	1 metre	
		Silicon wire multi-strand 18 AWG	1 metre	
		Silicon wire multi-strand 22 AWG	1 metre	
		Silicon wire multi-strand 24 AWG	1 metre	
		Double sided tape(20m)	5 nos	
		Allen Key Bolt with Nut M2 Size, alloy steel material	50 nos	
		Allen Key Bolt with Nut M2.5 Size, alloy steel material	50 nos	
		Allen Key Bolt with Nut M3 Size, alloy steel material	50 nos	
		Allen Key Bolt with Nut M4 Size, alloy steel material	50 nos	
		Heat shrink tube 12 AWG	1 metre	
		Heat shrink tube 14 AWG	1 metre	
		Heat shrink tube 16 AWG	1 metre	
		Heat shrink tube 20 AWG	1 metre	
		Heat shrink tube 22 AWG	1 metre	
		Heat shrink tube 24AWG	1 metre	
		Solder Wire (Lead-free, 0.8–1.0 mm diameter, rosin core)	250gms	

		Electrical Tape (PVC, high voltage, 10 m roll)	2 nos	
		Cable Ties (Reusable or Nylon, 3–4 mm width, length 100 mm)	150 nos	
		T Handle allen Key 1.5mm, alloy steel material	1 no.	1 set
		T Handle allen Key 2.0 mm, alloy steel material	1 no.	
		T Handle allen Key 2.5 mm, alloy steel material	1 no.	
		T Handle allen Key 3.0 mm, alloy steel material	1 no.	
		T Handle allen Key 4.0 mm, alloy steel material	1 no.	
		Analog-controlled Variable Temperature Solder Iron 60 Watts, 220V AC Input Voltage	1 no.	

Annexure-C

3. List of Raw materials and tools required in BEEE Lab

S.No.	Item Description	Specifications	Qty	Unit
1	Wire Stripper with Cutting Edge	(Length: 6 inch), Insulated Handle, High grade alloy steel, Rust Proof	4	Nos
2	Diagonal Plier	(Length: 6 inch), Insulated Handle, High grade alloy steel, Rust Proof	4	Nos
3	Automatic wire stripper	(Length: 22mm), Self adjusting, High grade alloy steel, Rust Proof	4	Nos
4	Snap Rubber Grip Hand-held Paper Cutter (Knife)	(Length: 6 inch), Replaceable blade	4	Nos
5	Self Adjusting Automatic Wire Stripper Cutter Pliers Hand Crimping Tool	Plastic and cushion grip handle, High grade alloy steel, Rust Proof Built-in crimper crimps 22-10 AWG (0.5-6.0MM2), self-adjusting jaws ideal for copper and aluminium cables from 10-24AWG (0.2-6MM2),	4	Nos
6	Self-Adjusting Ratcheting Crimper Pliers, Terminals Crimper	AWG 22-16(0.5-1.5mm²), High grade alloy steel, Rust Proof	4	Nos
7	Heat Shrink Sleeve	Black, Dia. 1mm	5	Mtr
8	Heat Shrink Sleeve	Black, Dia. 2mm	5	Mtr
9	Heat Shrink Sleeve	Black, Dia. 4mm	5	Mtr

10	Heat Shrink Sleeve	Black, Dia. 6mm	5	Mtr
11	Heat Shrink Sleeve	Black, Dia. 10mm	5	Mtr
12	PVC Wire Red	1.5 Sqmm Single Core, heat resistant, multi strand, copper	200	Mtr
13	PVC Wire Yellow	1.5 Sqmm Single Core, heat resistant, multi strand, copper	200	Mtr
14	PVC Wire Blue	1.5 Sqmm Single Core, heat resistant, multi strand, copper	200	Mtr
15	PVC Wire Black	1.5 Sqmm Single Core, heat resistant, multi strand, copper	200	Mtr
16	Two Core PVC cable	1.5 Sqmm, heat resistant, multi strand, copper	50	Mtr
17	Three Core PVC cable	1.5 Sqmm, heat resistant, multi strand, copper	50	Mtr
18	Hot Air Gun	Copper element, Air flow rate: upto700 l/s Operating temperature - 400 and 600 degree C. Power - 2000 Watt, Length of Cable: 1.0 meter (Min.)	1	Nos
19	Pin Type Thimbles	Size: 1.5 Sqmm Contact Material Brass Insulation Material Vinyl	500	Nos
20	Ring Type Thimbles	Size: 1.5 Sqmm Contact Material Brass Insulation Material Vinyl	500	Nos
21	Wire Connector with terminals	Connector Type: Male Size: 1.5 Sqmm Contact Material: Brass Housing Material: Vinyl	500	Nos
22	Wire Connector with terminals	Connector Type: Female Size: 1.5 Sqmm Contact Material: Brass Housing Material: Vinyl	500	Nos
23	Universal (Perforated) PCB	Single Sided, Board Size:5"x7", Hole Pitch: 2.54mm, FR-4, copper tinned required	50	Nos
24	Helping Hand for PCB Assembly	Multifunctional manually controlled Magnifier (Magnifying Glass with 12X(minimum) magnification), crocodile clamp based holding, Soldering Iron Stand, LED Light	4	Nos
25	Solder Iron	Input: 230V AC, 30W, flat tip	10	Nos
26	Solder Wire 50gms	Wire Grade 60-40, SWG: 22 gauge, lead free	10	Nos
27	Solder Flux	Suitable for soldering for PCB/Wires, rosin	10	Nos
28	Painting Brush	Size: 2 inch	10	Nos

29	Solder Iron Stand with spoung	Material: Stainless Steel Finish: Powder Coated	10	Nos
30	Safety Goggles for Eye Protection	Frame material: Plastic Size: Standard Vision/lens: Transparent	10	Nos
31	Safety Gloves	Material: Cotton Glove Size: 11 Length: 240mm washable	25	Pair
32	Safety Gloves	Material: PVC Thickness: 1.2mm Glove Size: 11 Length:240mm washable	10	Pair
33	Insulated Electrical Tape	Material: PVC, Length: 6m, width:17mm, Thickness: standard	20	Nos
34	Bread Board	840 Point, pitch: 2.54 mm, material: Insulated or PVC	10	Nos
35	Single Strand Wire (Black) (Hook up wire)	Insulation: PVC, material: copper	100	Meter
36	Single Strand Wire (Red) (Hook up wire)	Insulation: PVC, material: copper	100	Meter
37	Single Strand Wire (Green) (Hook up wire)	Insulation: PVC, material: copper	100	Meter
38	Glue Stick	Transparent, size: 11mm x 165mm	50	Nos
39	Glue Gun	40 Watt (Minimum)	4	Nos
40	Diode	IN4148, IN4007	200 Each	Nos
41	Zener Diode	5.1V, 1Watt (1N 4733)	100	Nos
42	POT	1K and 10K Type: linear	10 Each	Nos
43	LED	5mm Red and Green Color	100 Each	Nos
44	Transistor	BC547, BC557	50 Each	Nos
45	JFET	BFW11 or equivalent	10	Nos
46	IC Base	3, 4, 8,12,14,16 Pin	50 Each	Nos
47	Integrated Circuits (IC's)	555, 741, 7400, 7402, 7404, 7408, 7411, 7420, 7421, 7432,7447, 4026, 4033	10 Each	Nos
48	Voltage Regulators	7805, 7809, 7812, 7815, 7905, 7909, 7912, 7915	10 Each	Nos
49	Capacitors Ceramic/Polyester	Capacity: .001, .01, .22, .47 microfarads, Voltage: 50V	100 Each	Nos
50	Capacitors Electrolyte	Capacity: 1, 47, 100 microfarads,	30	Nos

		Voltage: 50 V	Each	
51	Resistances, 1/4Watt, 1%	10, 100, 680, 1K, 4.7K, 10K, 47K, 100K, 220K, 470K, 1M ohms.	100 Each	Nos
52	Resistances, 1/2Watt, 1%	10, 100, 680, 1K, 4.7K, 10K, 47K, 100K, 220K, 470K, 1M ohms.	100 Each	Nos
53	Resistances, 1Watt, 1%	10, 100, 680, 1K, 4.7K, 10K, 47K, 100K, 220K, 470K, 1M ohms.	100 Each	Nos
54	Stainless Steel Insulated Tweezer	150mm, straight	4	Nos
55	Transformer	Input 230V, Output 6-0-6 V, 200 mA	10	Nos
56	Transformer	Input 230V, Output 12-0-12 V, 200 mA	10	Nos
57	ESD Wrist Band	Antistatic, Length: 40 cm (minimum)	10	Nos
58	Desolder Wire	Copper Braided wick, width: 0.1 inch	10	Nos
59	Desolder Pump	Vacuum type, manually button controlled	5	Nos
60	Switch SPST	6A, 250V, ON/OFF type	20	Nos
61	Socket	6A, 250V, 5 pin type	10	Nos
62	PVC box	8M, 6"x6"	2	Nos
63	PVC box	4M, 3"x5"	4	Nos
64	DIP Switch 4 Position	50V DC, 500mA, standard mounting	20	Nos
65	DIP Switch 8 Position	50V DC, 500mA, standard mounting	20	Nos
66	Analog AC Voltmeter	Range: 0-500V AC 72 mm square Size, Highly precise readings	2	Nos
67	Analog AC Ammeter	Range: 0-30A AC 72 mm square Size, Highly precise readings	2	Nos
68	Analog DC Voltmeter	Range: 0-30V DC 72 mm square Size, Highly precise readings	2	Nos
69	Analog DC Ammeter	Range: 0-3A DC 72 mm square Size, Highly precise readings	2	Nos
70	Tactile Switch 4 pin	SPST type	50	Nos

71	Digital Multimeter	Display Minimum:3.5-digit Backlit Display Yes Auto Power Off Yes (configurable) DC Voltage: 600 mV → 600 V AC Voltage: 600 mV → 1000 V Current: DC/AC 10 A Resistance, Continuity & Diode Resistance 600 Ω → 60 MΩ Continuity Beeper < ~50 Ω , with audible buzzer Diode Test: Yes Data Hold Yes Low Battery Indication Yes	4	Nos
72	PCB (Fully Copper cladded)	Single sided, 8"x8"	100	Nos
73	Hand drill bit	1mm	50	Nos
74	Hand drill	Suitable for PCB, Hand Operated, Having a handle that provides an easy handle grip. Drilling cap. 0.1mm to 2.0 mm. Total length: 7.5 inches (Aprrox.)	10	Nos

Annexure-D

4. Lab Kits required for labs under Skill Department of Industry 4.0

S.No.	Name of Item	Specification	Qty
1	Kit for Ohm's law	• The setup shall allow verification of: R∝L, R∝ρ and R∝1/A • Wire: Single strand copper wire 0.25 sq.mm. and .50 sq.mm: 50 mtr each • Variable DC Regulated Power Supply: 0–12 V, 1 A (Minimum) • Measuring Instruments: Digital Voltmeter 0–12 V or higher • Digital Ammeter: Range: 0–1 A • Rheostat: Resistance Range: 0–100 Ω (approx.), Current Rating: ≥ 1 A • Measuring Instruments for Dimensions: Micrometer Screw Gauge, Meter Scale 1 Mtr Length • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams.	1 Set

		• Accessories: User Manual, Set of patch cords, set of Power cords	
2	Kit for Op-Amp as Schmitt Trigger and VCO.	• IC Type: LM741 / LM358 (or equivalent) • Number of op-amps: Minimum 2 • Power supply: ±12 V or ±15 V DC • Configuration: Non-inverting Schmitt Trigger • Positive feedback network using precision resistors • Adjustable reference voltage using potentiometer • Facilities to measure: Upper Threshold Voltage and Lower Threshold Voltage **VCO Section** • Op-amp based VCO • Comparator + Integrator configuration • Control Voltage Input: Range: 0–10 V DC • External and/or on board variable control • Frequency Range: Approx. 100 Hz to 10 kHz (selectable via RC network) • Output Waveforms: Square wave, Triangular wave • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	1 Set

3	Kit for Measurement Q-Point and note the variation of Q-Point by changing out of resistance in potential divider circuit electronics.	The set up allow students to: • Measure the Q-Point of a BJT in a Fixed Bias Circuit. • Study variation of Q-Point by increasing base resistance in fixed bias. • Measure the Q-Point of a Potential Divider Bias Circuit. • Study variation of Q-Point by changing resistance values in potential divider bias. Specification • Transistor Type: NPN Bipolar Junction Transistor • Regulated DC Power Supply: 0–12 V DC (fixed taps at 5 V, 9 V, 12 V preferred), Current Rating: ≥ 500 mA • Biasing Circuits (On-board): (i) **Fixed Bias Circuit, and (ii) Potential Divider Bias Circuit** • Measurement Instruments: Digital Voltmeter Range: 0–12 V DC, Digital Ammeter Range: 0–200 mA • Toggle switches or rotary switches for Selecting bias circuit (Fixed /Potential Divider), Changing resistance values, Potentiometers with calibrated knobs for smooth variation • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	1 Set

4	Kit for Implement R-C oscillator circuits and Implement phase shift oscillator circuits	**Two sections:** RC Oscillator section and Phase-Shift Oscillator section **Components pre-mounted:** • Resistors (1%, metal film) for RC network • Capacitors (±5% or better) for RC network • Transistors (e.g., NPN/PNP) or Op-Amp ICs (e.g., LM741) **RC Oscillator Module** • RC network with at least 3 RC stages • Feedback loop and amplifier section • Gain control potentiometer **Phase-Shift Oscillator Module** • 3-stage RC phase-shift network • Transistor or op-amp based amplifier • On-board frequency selection resistors/ capacitors • Kit must Plot the frequency response curve of phase shift oscillator. **Regulated DC Power Supply:** +5 V / +12 V (adjustable or selectable), Current capacity: ≥ 500 mA **Transistor / IC:** Common NPN transistor or standard op-amp and Easy replacement sockets for IC/Transistor • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cord	1 Set
5	Kit for the Measurement of resistance and inductance of coil using RLC Bridge.	Measurement Capabilities • Resistance (R): 0.1 Ω to 20 kΩ (or higher) • Inductance (L): 10 µH to 10 H (approx.) • Capacitance (C): 50 pF to 500 µF Accuracy & Resolution • Resistance accuracy: ±1% or better • Inductance accuracy: ±2% or better • Calibration: In-built calibration control Display: Digital Display: LCD / LED Frequency Source: 1 kHz or selectable frequencies (e.g., 50 Hz, 400 Hz, 1 kHz) Controls: Fine ± coarse tuning and Function Select: R, L, C • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of	1 Set

		terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	
6	Kit for the Measurement of impedance using Maxwell Induction Bridge.	• Bridge: Maxwell Induction • Variable Power DC supply: 0-15V • Waveform Provided: Sine or Cosine • Fixed Resistance: 10M ,1M ,100K ,10K ,1K ,100 & 10Ω available through Selector Switch • Fixed Capacitance: Fixed Capacitance of 100µf, 10µf, 1µf, 100nf, 10nf, 1nf & 100nf available through Selector Switch • Potentiometer: 1K & 10K, helical 10 turn pot mounted with dial for easy measurement • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	1 Set
7	Kit to Plot the frequency response curve of Wein bridge Oscillator	Wein bridge oscillator • Variable Power DC supply: 0-15V • Waveform Provided: Sine or Cosine • Fixed Resistance: 10M ,1M ,100K ,10K ,1K ,100 & 10Ω available through Selector Switch • Fixed Capacitance: Fixed Capacitance of 100µf, 10µf, 1µf, 100kpf, 10kpf, 1kpf & 100pf available through Selector Switch • Potentiometer: 1K & 10K, helical 10 turn pot mounted with dial for easy measurement • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	1 Set
8	Kit for the Use of IC 555 as multi-vibrator and observe the output at different duty cycles.	• On Board Circuit: Astable Multivibrator circuit, Monostable Multivibrator circuit, Bistable Multivibrator circuit, Crystal Oscillator circuit. • Waveform: Low Frequency Square Wave • Fixed DC power supply: +5V/500mA • AC Power Supply: 15-0-15 V • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH	1 Set

		• Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	
9	Kit for Speed measurement using inductive pickup/proximity sensor.	• Motor: variable speed, at least 1000 rpm • Sensor type: Inductive • Speed Indicator: Range: 0 to 9999 rpm • Speed Controller: Solid State • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	1 Set
10	Kit for Measurement temperature using thermocouple, RTD and Thermistor.	Temperature Sensors: • N.T.C. Thermistor: 10 Nos • Platinum R.T.D.: 10 Nos • J/K Type Thermocouple: 10 Nos • IC based Temperature Sensor: 5 Nos • Variable resistor (50W, 10 W): 2 each • Signal Conditioning Circuitry: Instrumentation Amplifier • 2 Amplifiers (upto 100X amplification power): DC Amplifier, Comparator, Electronic Switch • Input Circuits: Rotary & Slide Potentiometers • Output Circuits: Relay, Buzzer • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	1 Set
11	Kit for the Measurement of displacement using LVDT & Capacitive transducer.	• Measurement Range: 20 mm (±10 mm) • Excitation Frequency: 4 KHz (approximately) • Excitation Voltage: 4 V (approx.) Voltage (peak to peak) • Sensitivity: 10 mV DC/ mm • Signal conditioner output: 0.1 V DC or Maximum Displacement	1 Set

		• Display: 3½ Digit LED with Polarity Indicator • Analog meter: Micrometer scale range 25 mm, least count:0.01mm • Operating Power Supply: 230 V ±10%, 50/60 Hz • Enclosure: Insulated powder coated Metal/ Bakelite/ Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	
12	Kit for the Measurement of weight using strain gauge.	• Strain Gauge: 4 nos. (Minimum) • Gauge factor: 2.1 • Bearable weight: 500 gm or higher • Cantilever material: Stainless Steel/ compatible material • Operating Voltage (DC): +5 V to 12 V • Display: Suitable LCD/LED • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	1 Set
13	Kit for the Determination of the characteristics of Pressure Sensor and Piezoelectric Force Sensor	**Pressure Sensor Module** • Type: Strain gauge based / Piezo resistive pressure sensor (industrial grade) • Pressure Range: 0 to 5 bar (minimum) • Output Type: Analog voltage output • Supply Voltage: 5 V / 12 V DC • Port: Compatible with air pressure source (to be provided with kit) **Piezoelectric Force Sensor Module** • Type: Piezoelectric disc / force sensor • Force Range: 0 to 50 N (desirable) or suitable lab range • Output: readable voltage/current or both embedded in kit **Signal Conditioning Unit** • Low-noise operational amplifier based circuitry • Display: Suitable • Operating Power Supply: 230 V ±10%, 50/60 Hz • Operating Conditions: 0-50°C, 80% RH • Enclosure: Insulated powder coated Metal/Bakelite/Wooden with clear marking of	1 Set

		terminals and diagrams. • Accessories: User Manual, Set of patch cords, set of Power cords	

Annexure-E

5. Specification of PCB Prototyping Machine

S.No.	Name of Item	Specification	Quantity

1	**PCB Prototyping Machine**	• Capacity of Machine for Fabrication of PCB: Single and Double Side
		• Tool Change Operation: Manual
		• Operations Performed by Machine: Engraving, Drilling & Routing (Cutting)
		• Surface Inspection Feature to check uniformity of Surface: Yes
		• Depth sensing and adjustment: Automatic
		• Resolution (X/Y): 3.125 Micrometer (min)
		• Working Area (X/Y/Z) (mm): 220x330x120 (min)
		• Minimum Width Line & Space in mm: 0.1mm (4 mil) & 0.15mm (6 mil),
		• Drilling (mm): 0.2 -3.175 (8-125 mil),
		• Maximum Drilling Cycles/ Min: 58,
		• File format supported: Gerber, DXF, and Exelon Drill output and any other compatible format.
		• Feeding Height: 120 mm (minimum)
		• Repositioning accuracy: 0.01-0.02mm (min)
		• Operating Temperature: 20 – 50 degrees Celsius
		• Operating Humidity: 80%
		• The capability of processing various materials: FR4, Copper clad, Acrylic, and/or other suitable materials
		• Machine Cabinet: User safety and Acoustic cabinet, Panel door having Emergency Stop Button,
		• Vacuum Cleaner: A portable Vacuum cleaner with suction and blower functions
		• Desktop Computer with minimum Specifications: Dual-core Processor with 2.9GHz frequency, 1TB 7200rpm SATA hard drive, 20-inch screen, Keyboard and Mouse.
		• Machine Operating and G-Code Conversion Software:
		  • G Code Convertor Software – Copper CAM (Perpetual License Software)
		  • Machine Operating Software – Mach3 Mill (Perpetual License Software)
		  • Surface Levelling Software - Auto leveller
			1 set

		• Installation and Commissioning included • Warranty: Minimum 1 Year and AMC support	
		Miscellaneous: • Double-Sided Copper Clad: 10 x 15 cm (Glass Epoxy FR4 PCB) -20 Pcs, • Single Side Copper Clad: 10 x 15 cm (Glass Epoxy FR4 PCB) - 20 Pcs. • Drill Bit: 0.2-1.2mm (20 Nos) • Engraving Bit: 0.1 – 0.3mm (20 Nos) • Routing Bit: 2mm and 3mm (5 Nos each)	1 set

University reserved the right to enhance or mitigate the quantity without any notice.

Note: All the accessories (in all respect) which shall be required to run the machine has to be supplied along with the machine.

OTHER REQUIREMENTS: The bidders will have to fulfil the following general requirements:

1. Bidder shall ensure that the routine work should not hamper during installation and commissioning.
2. Monitoring and inspection: Monitoring and inspection shall be done by Representative of SVSU at site.
3. Supplier should ensure that all the safety measures has to be installed as per the existing statutory compliances while designing the lab.
4. It is mandatory for all bidders to provide installation, equipment training of 10 days to the faculty members on handling and usage of equipment, after the delivery of the equipment, at no additional charge.
5. It is mandatory for all bidders to provide 3 years of comprehensive warranty at no additional charge (including for 3D printers). If the university requires repairing of equipment's, then the bidder should provide a replacement till the time the equipment is fully repaired.
6. Bidders should clearly indicate the timeline for delivery of packages, installation and training. The delivery time should not be more than 6 weeks.
7. The bidders should maintain a supply chain of consumables and other items for 10 years.
8. The bidders should be in position to provide the AMC after warranty period for next two years at reasonable price, if required by the university.
9. The bidders should indicate both itemized prices and package wise pricing and provide detailed specification and brand name of all the equipment.
10. The bidder should provide all required documents for verification by the university at the time of purchase of equipment. Authorized signatory must sign the documents.

11. The bidders should have a mechanism for proper disposal of e-waste.

12. In case the bidders are third party bidders or channel partners, they should ensure timely availability of all equipment and associated services to the university, to avoid any delay or inconvenience to the university.

13. The Bidder must ensure the quality of the supplied item and requisite services are satisfactory and up to mark. If the same is not found satisfactory for whatsoever reason, the supplier shall be blacklisted and necessary administrative action shall be taken against them.

14. The bidders found involved any malpractice, misleading university, and cheating would be blacklisted immediately.

15. The bidder should provide Sun board 30 poster related to tinkering and Mobile robot lab various packages with no additional cost (Content will be finalized by both parties). Thickness: 3 to 5mm, Size: 3 to 4 feet.

The bidder will have to sign with seal of firm on each & every page of this tender as a token of acceptance to our terms & conditions & submit along with technical bid.

I have also enclosed all relevant documents in support of my claims, (as above) in the following pages.

Signature of Bidder

Name: .....

Designation:.....

Organization Name: .....

Contact No.: .....

ANNEXURE – III

<< Organization Letter Head >>

BID SUBMISSION

Online Bid Submission:

Online system shall be followed, i.e.

(i) Please note that in any case if price-bid/Financial Offer submitted manually then bid shall not be accepted.

(ii) Only those proposals will be considered for opening, who have submitted their BID online by due date/time (as specified in Bid Data Sheet).

The Online bid complete in all respect. The following checklist is for the convenience of the bidders. Kindly check the following points before submitting the bids.

Sr. No.	Content	Document Submitted (Yes/No)	Page Number as per numbering given to the technical bid documents uploaded on the portal (If Applicable)
1.	Whether the all pages of the proposal has been signed with seal of firm by idder/authorized signatory?		
2.	Have submitted the Scanned copy (PDF format)of the technical proposals on e-rocurement Portal?		
3.	Have submitted the Company Registration & associated Documents on e- rocurement Portal?		
4.	Have submitted copy of PAN, GST, TAN Registration etc. on e-Procurement Portal?		
5.	Have submitted EMD and TENDER+ E-Service charges on e-Procurement Portal?		

Sr. No.	Content	Document Submitted (Yes/No)	Page Number as per numbering given to the technical bid documents uploaded on the portal (If Applicable)
6.	Have all the pages of proposal (Technical Proposal) been properly numbered and signed by authority/ authorized person only?		
7.	Have you checked the eligibility Criteria and Submitted the relevant documents as proof on e-Procurement Portal?		
8.	Have submitted the authority letter for signing the proposal on behalf bidder on e-Procurement Portal?		
9.	Have submitted the authority letter for use of digital signature on e-Procurement Portal?		
10.	Have submitted the Notice Inviting Quotation with schedule and disclaimer		
11.	Have submitted the Instructions to Bidders		
12.	Have submitted the Terms and Condition as per Annexure - I		
13.	Have submitted the Technical Specification and Compliance Sheet as per Annexure – II		
14.	Have submitted the Details of Bid Submissions as per Annexure - III		
15.	Have submitted the Organization Declaration Sheet as per Annexure – IV		

Sr. No.	Content	Document Submitted (Yes/No)	Page Number as per numbering given to the technical bid documents uploaded on the portal (If Applicable)
16.	Have submitted the List of Government organizations/ Department/PSU and Private Organizations where the same products have been supplied (in last three years) along with their contact number(s) as per Annexure-V Note: The bidder(s) are required to submit proper proof (like Purchase Order/Work Order and Performance Report) duly attested by Gazetted Officer or Notary and client to support/ proving the claim.		
17.	Have submitted the offered Model of OEM must be working in Indian Conditions, without any Problems. Minimum 2 performance reports with Purchase Order/Work Order duly attested by Gazetted Officer or Notary to be submitted as per Annexure-V		
18.	Have submitted the List of application specialist / Supporting / Service Engineer and Nearest Address of service branch who have the technical competency to handle and support the quoted product during the warranty period as per Annexure - VI.		
19.	Have submitted the Details of Electronic Fund Transfer/RTGS Transfer (Annexure VIII)		

Sr. No.	Content	Document Submitted (Yes/No)	Page Number as per numbering given to the technical bid documents uploaded on the portal (If Applicable)
20.	Have submitted the Manufacturer's Authorization Form (Annexure-IX)		
21.	Have submitted the Training Requirement (Annexure–X)		
22.	Financial Proposal Document (Annexure-XI)		
23.	Have submitted the Affidavit regarding Authenticity and correctness of information/documents as per Annexure - XII		
24.	Have submitted the Affidavit regarding delisting/blacklisting, demobilization etc. as per Annexure - XIII		
25.	Have submitted the Affidavit regarding completion of supply and installation & commissioning of Machine/Lab Equipment's etc. in running condition within stipulated time frame as per Annexure - XIV		
26.	Have submitted the Technical supporting documents in support of all claims made at Annexure-II		
27.	Whether the TENDER document has been signed by bidder/authorized signatory and submitted on e-Procurement Portal?		
28.	Whether the TENDER corrigendum (if any) has been signed by bidder/authorized signatory and submitted on e-Procurement Portal?		

Sr. No.	Content	Document Submitted (Yes/No)	Page Number as per numbering given to the technical bid documents uploaded on the portal (If Applicable)
29.	Have submitted the audited statement and Financial Assessment Copy/Income Tax Return Copy showing their net balance / Profit for last three financial years for financial eligibility.		
30.	All documents to be submitted by the firms should be duly attested by gazetted officer/notary public in case these are copies of the original documents. No unattested documents will be entertained.		
31.	Have submitted the financial bid as per BOQ.		-------

(Signature with Seal of the Bidder)

Name: .....

Designation:.....

Organization Name:.....

Contact No.: .....

ANNEXURE - IV

<< Organization Letter Head >>

DECLARATION SHEET

We,_____hereby declare that all the information and statements made in this Proposal are true and accept that any misleading information contained in it may lead to our disqualification. I have gone through the specifications, conditions and stipulations in details and agree to comply with the requirements and intent of specification.

This is certified that our organization has been authorized (Copy attached) by the OEM to participate in Tender. We further certify that our organization meets all the conditions of eligibility criteria laid down in this tender document. Moreover, OEM has agreed to support on regular basis with technology
/ product updates and extend support for the warranty.

We, further specifically certify that our organization has not been Black Listed/De Listed or put to any Holiday by any Institutional Agency/ Govt. Department/ Public Sector Undertaking in the last three years.

Name & Address of the Bidder/ Manufacturer /authorized dealer/ distributors/agent	
Phone	
Fax	
E-mail	
Contact Person Name	
Mobile Number	
GST Number	
TIN Number	
PAN Number	
(On-line payment of Tender Fees) UTR No. (For Tender Fee)	
(On-line payment of EMD) UTR No. (For EMD)	

Attachments:

1. Power of Attorney in the name of authorized representative to be enclosed.
2. Affidavit(s).

(Signature with Seal of the Bidder)

Name: .....

Designation: .....

Organization Name: .....

Contact No.: .....

ANNEXURE - V

<< Organization Letter Head >>

LIST OF GOVERNMENT ORGANIZATION/DEPARTMENT/PSU

List of Government Organizations/Department/PSU for whom the Bidder has under taken such work during last three years (must be supported with work orders).

Note: The bidder(s) are required to submit proper proof (like Purchase Order/Work Order) duly attested by Gazetted Officer or Notary and client to support/ proving the Claim.

Sr. No.	Name of the organization	Name of Contact Person	Contact No.

Signature of Bidder

Name: .....

Designation: .....

Organization Name: .....

Contact No.: .....

<< Organization Letter Head >>

LIST OF PRIVATE ORGANIZATION

List of Private Organizations for whom the Bidder has under-taken such work during last three years (must be supported with work orders) Note: The bidder(s) are required to submit proper proof (like Purchase Order/Work Order) duly attested by Gazetted Officer or Notary and client to support/ proving the claim.			
Sr. No.	Name of the organization	Name of Contact Person	Contact No.

Signature of Bidder

Name: .....

Designation: .....

Organization Name: .....

Contact No.: .....

<< Organization Letter Head >>

LIST OF PERFORMANCE REPORT

List of Performance Report for whom the Bidder has under-taken such work in Indian Conditions, without any Problems during last three years (must be supported with work orders)

Note: The bidder(s) are required to submit proper proof (like Purchase Order/Work Order) duly attested by Gazetted Officer or Notary and client to support/ proving the claim.

Sr. No.	Name of the organization	Name of Contact Person	Contact No.

Signature of Bidder

Name: .....

Designation: .....

Organization Name: .....

Contact No.: .....

ANNEXURE - VI

<< Organization Letter Head >>

LIST of application specialist / supporting / Service Engineer

Name of application specialist / Service Engineer who have the technical competency to handle and support the quoted product during the warrantyperiod.		
Name and Address of the organization	Name of Contact Person	Contact No.

S. No.	Nearest Address of service branch	Nearest Address of spares branch

Signature of Bidder

Name: .....

Designation: .....

Organization Name: .....

Contact No.: .....

ANNEXURE - VII

FORMAT FOR PERFORMANCE BANK GUARANTEE

(To be typed on Non-judicial stamp paper of the value of Indian Rupees of One Hundred) (TO BE ESTABLISHED THROUGH ANY OF THE NATIONAL BANKS (WHETHER SITUATED AT PALWALOR OUTSTATION) WITH A CLAUSE TO ENFORCE THE SAME ON THEIR LOCAL BRANCH AT PALWALOR ANY SCHEDULED BANK (OTHER THAN NATIONALISED BANK) SITUATED AT PALWAL. BONDS ISSUED BY CO-OPERATIVE BANKS ARE NOT AC-CEPTED.)

To,
The Registrar
Shri Vishwakarma Skill University,
Palwal, Haryana
India

LETTER OF GUARANTEE

WHEREAS Shri Vishwakarma Skill University, Palwal(Buyer) have invited

Tendersvide Tender No.: ..... dated: ..... For purchase of

.....

and whereas the said tender document requires that any eligible successful Bidder (seller)wishing to supply the equipment /machinery etc. in response thereto shall establish an irrevocable Performance Guarantee Bond in favour of **"Shri Vishwakarma Skill University"** in the form of Bank Guarantee for Rupees

.....and This Guarantee shall expire no later than 60days beyond the date ofcompletion of contract period. NOW THIS BANK HEREBY GUARANTEES that in the event of the said Bidder (seller) failing to abide by any of the conditions referred in tender document / purchase order / performance of the equipment / machinery, etc. this bank shall pay to Shri Vishwakarma SkillUniversity, Palwalon demand and without protest or demur Rupees .....

This bank further agrees that the decision of SVSU, Palwal(Buyer) as to whether the saidBidder (Seller) has committed a breach of any of the conditions referred in tender document / purchase order shall be final and binding.

We, ... (name of the bank & branch) hereby further agree that the guarantee herein contained shall not be affected by any change in the constitution ofthe Bidder (Seller) and/ or Shri Vishwakarma Skill University, Palwal(Buyer).

Notwithstanding anything contained herein:

1. Our liability under this Bank Guarantee shall not exceed Rupees. ..... (Indian Rupees only).
2. This Bank Guarantee shall be valid up to ..... (date).

3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if Institute serve upon us a written claim or demand on or before
..... (date).

This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office at ..... situated at
..... (Address of local branch).

Yours truly,

Signature and seal of the guarantor:

Name of Bank:

Address:

Date:

Instruction to Bank: Bank should note that on expiry of Guarantee Period, the Original Guarantee will not be returned to the Bank. Bank is requested to take appropriate necessary action on or after expiry of bond period.

ANNEXURE - VIII

<< Organization Letter Head >>

MANDATE FORM FOR ELECTRONIC FUND TRANSFER/RTGS TRANSFER

Date: / /

The Registrar
Shri Vishwakarma Skill University,
Palwal.

Sub: Authorization for release of payment / dues from Shri Vishwakarma Skill University, through Electronic Fund Transfer/RTGS Transfer.

1. Name of the Party/Firm/Company/Institute:
2. Address of the Party:

   Line 1: .....

   Line 2: .....

   City: .....

   Pin Code: .....

   E-Mail ID: .....

   Mob No: .....

   Permanent Account Number (PAN NO.): .....

3. Particulars of Bank

Bank Name		Branch Name	
Branch Place		Branch City	
Pin Code		Branch Code	
MICR No.			
(9 Digit number appearing on the MICR Bank of the Cheque supplied by the Bank, please attach aXerox copy of a cheque of your bank for ensuring accuracy of the bank name, branch name and code number)			
IFS Code:(11-digit alphanumeric code)			
Account Type	Saving ☐	Current ☐	Cash Credit ☐
Account Number			

DECLARATION

I hereby declare that the particulars given above are correct and complete. If any transaction delayed and not effected for reasons of incomplete or incorrect information I shall not hold Registrar, Shri Vishwakarma Skill University, responsible. I also undertake to advise any change in the particulars of my account to facilitate updating of records for purpose of credit of amount through NEFT/RTGS Transfer.

Place: .....

Date: .....

Signature & Seal of the Authorized Signatory of the Party

Certified that particulars furnished above are correct as per our records

Bankers Stamp: Date:

.....

Signature of the Authorized Official from the Bank

N.B: Please fill in the information in CAPITAL LETTERS, computer typed; please TICK wherever itis applicable.

ANNEXURE - IX

<< Manufacturer Letter Head >>

MANUFACTURERS' AUTHORIZATION FORM

[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer.
Date: [insert date (as day, month and year) of Bid

Submission] Tender No.: [insert number from Invitation for

Bids]

To: [insert complete name and address of Purchaser]

WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of [insert type of goods manufactured], having factories at [insert full address of Manufacturer's factories], do hereby authorize [insert complete name of Bidder] to submit a bid the purpose of which is to provide the following Goods, manufactured by us [insert name andor brief description of the Goods], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with the Terms and Conditions, with respect to the Goods offered by the above firm.

Signed: [insert signature(s) of authorized representative(s) of the Manufacturer]

Name: [insert complete name(s) of authorized representative(s) of the

Manufacturer]Title: [insert title]

Duly authorized to sign this Authorization on behalf of: [insert complete name of Bidder]

Dated on ..... day of .....[insert date of signing]

Annexure – X

<< Organization Letter Head >>

Training Requirement

1.	Product Description	..... **(Tender Name)**
2.	No. of Attendees	University staff and students
3.	No. of Days	10 days or as per the requirement
4.	Type of Training	Operational Training and Maintenance Training (Mechanical, Electrical and Electronics)

Proper Training of 1 weeks (full day) or as per the requirement has to be given by the qualified engineer of the firm to the university staff and students without any additional cost.

Signature of Bidder

Name: .....

Designation: .....

Organization Name: .....

Contact No.: .....

Annexure – XI

<< Organization Letter Head >>
Financial Proposal (to be submitted online

only) Financial Proposal

To
The Registrar,
Shri Vishwakarma Skill University,
Haryana, Dudhola, Palwal(Haryana).

Sub: Financial Bid /proposal for "_____"

Dear Sir,

We are pleased to quote/submit our financial proposal for the "_____".
I/We_____organization here with enclose the Financial Proposal for selection of my/our firm for that tender. For TENDER, **our Financial Proposal submitted in BOQ on online procurement portal**.
Our financial proposal shall be binding upon us subject to the modifications resulting from contract negotiations, up to expiration of the validity period of the Proposal, i.e. 180 days from the last date notified for submission of the proposal.

1. Delivery Mode: - Delivery at University, at site or at that place to be informed by the SVSU.
2. Delivery Period: Within maximum of 06 weeks from the date of placement of purchase order.
3. Terms of payment: For Indigenous supplies, 100% payment shall be made by the Purchaser against delivery, inspection, successful installation, commissioning and acceptance of the equipment at SVSU, Palwal Campus in good condition and to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee as specified in tender terms and conditions.

NOTE: Financial Proposal must be submitted online in BOQ format only. If financial bid submitted manually than bid shall not be accepted in any circumstances.

Signature: .....

Name:.....

Business Address: .....

.....

Affix Rubber Stamp: .....

Place: .....

Date: .....

Annexure – XII

Affidavit regarding Authenticity and correctness of information/documents

||SPECIMEN AFFIDAVIT||

(On Non Judicial Stamp of Rs. 100/-)

To
The Registrar,
Shri Vishwakarma Skill University,
Haryana, Dudhola, Palwal(Haryana).

In response to the Tender No. ..... for ..... (Name of the Tender) dated ..... for quoting against the Tender as an owner/Director/Proprietor of M/s .....

I/we ..... who is/are ..... (status in the firm/company) and competent for submissions of the affidavit on behalf of M/S .....

(Organization/Manufacturer/authorized dealer/distributors/agent) do hereby solemnly affirm an oath and state that:

I/we am/are fully satisfied for the correctness of the certificates/records submitted in support of the following information in bid documents which are being submitted in response to notice inviting e-tender No. .....

We also agreed to buyer for Integrity Pact terms and conditions as applicable from time to time as per government rules.

I/we am/are fully responsible for the correctness of following self-certified Information/ documents and certificates:

1. That the self-certified information given in the bid document is fully true and authentic.
2. That:
    1. The proof of online deposit of EMD and cost of TENDER/bid document + E-service charges and other relevant documents provided are authentic.
    2. Information regarding financial qualification and annual turnover is correct.
    3. Information regarding various technical qualifications is correct.

Signature with Seal of the Deponent (Bidder)

I/we,_____above deponent do hereby certify that the facts mentioned in above are correct to the best of my knowledge and belief. Verified today_____(dated) at___(place).

Signature with Seal of the Deponent (Bidder)

Note: Affidavit duly notarized in original shall submit in the Office of Shri Vishwakarma Skill University, Haryana, Dudhola, Palwal(Haryana) on Technical Presentation day/date.

Annexure – XIII

Affidavit regarding delisting/blacklisting, demobilization etc.
||SPECIMEN AFFIDAVIT||

(On Non Judicial Stamp of Rs. 100/-)

To
The Registrar,
Shri Vishwakarma Skill University,
Haryana, Dudhola, Palwal(Haryana).

In response to the Tender No. ..... for .....

(Name of the Tender) dated ..... for quoting against the Tender as an owner/Director/Proprietor of M/s .....

I/we _____ who is/are_____ (status in the firm/company) and competent for submissions of the affidavit on behalf of M/S_____ (Organization/Manufacturer/authorized dealer/ distributors/agent) do hereby solemnly affirm an oath and state that:

The firm/agency should not be black-listed/de-listed/debarred/ demobilized for poor or unsatisfactory performance from any project by Govt. of India/Any other State Govt./Haryana Govt. or its Departments/agencies etc.

Signature with Seal of the Deponent (Bidder)

I/we,_____above deponent do hereby certify that the facts mentioned in above are correct to the best of my knowledge and belief. Verified today_____(dated) at____(place).

Signature with Seal of the Deponent (Bidder)

Note: Affidavit duly notarized in original shall submit in the Office of Shri Vishwakarma Skill University, Dudhola, Palwal(Haryana) on Technical Presentation day/date.

Annexure – XIV

Affidavit regarding completion of supply and installation & commissioning of Machine/Lab Equipment's etc. in running condition within stipulated time frame

||SPECIMEN AFFIDAVIT||
(On Non Judicial Stamp of Rs. 100/-)

To
The Registrar,
Shri Vishwakarma Skill University,
Dudhola, Palwal(Haryana).

In response to the Tender No. ..... for ....(Name of the Tender) dated ..... for quoting against the Tender as an owner/Director/Proprietor of M/s .....

I/we _____ who is/are_____ (status in the firm/company) and competent for submissions of the affidavit on behalf of M/S_____ (Organization/Manufacturer/authorized dealer/ distributors/agent) do hereby solemnly affirm an oath and state that:

We further certify that our organization meets all the conditions of eligibility criteria laid down in this tender document. Moreover, OEM has agreed to support on regular basis with technology / product updates and extend support for the warranty.

We hereby declare that our firm will supply the Machine/Lab Equipment's etc. as per Technical Specification and installation & commissioning of the Machine/Lab Equipment's in respective lab(s) in working condition within the time frame as enumerated in the tender document.

we/I further declare that if any delay is found in delivery/installation and the offer is not accepted partially or fully by our firm(s) the performance security or EMD furnished as per the tender document is liable to be forfeited and no objection of being blacklisted in these circumstances.

Signature with Seal of the Deponent (Bidder)

I/we,_____above deponent do hereby certify that the facts mentioned in above are correct to the best of my knowledge and belief. Verified today _____(dated) at____(place).

Signature with Seal of the Deponent (Bidder)

Note: Affidavit duly notarized in original shall submit in the Office of Shri Vishwakarma Skill University, Dudhola, Palwal(Haryana) on Technical Presentation day/date.

ANNEXURE - XV

(AN AGREEMENT BETWEEN SHRI VISHWAKARMA SKILL UNIVERSITYAND THE SUPPLIER) *

Shri Vishwakarma Skill University (SVSU), Enacted under Government of Haryana Act No.25 of 2016 having its Dudhola, Palwal, Haryana represented through its authorized signatory ..... **(Name of Registrar)**, Registrar (which expression shall unless repugnant to the context or meaning there off includes its successors and assigns) here in after referred to as **SVSU** or Owner or the **First Party**. And Firm Name..... having its office at ....., through its authorized signatory **(Name & Post)**, (which expression shall unless repugnant to the context or meaning there off includes its successors and assigns) here in after referred to as execution Manufacturers/Authorized Dealers/ Distributors/Agent or the **Second Party.**

Whereas SVSU has invited Tender No..... for ..... (Name of the Tender) dated and M/s .....(Firm Name) submitted its proposal in this regard. SVSU after considering its negotiation offer has decided to engage .....
(Firm Name) as executing agency for Tender No..... for .....(Name of the Tender) dated .....
.....

Firm Name... .....(execution **Agency**) is hereby agreed to take the Tender No. ..... for.....(Name of
the Tender) at the quoted negotiation rates, terms and conditions contained the TENDER, Work Order/Purchase Order and duly communications of the above said work.

Now, therefore, in consideration of the mutual covenants herein contained, it is hereby agreed between the parties as follows: -

The agreement shall come into force immediately and shall remain valid until the final completion of the job or cancelled by the Bidder (The Registrar, Shri Vishwakarma Skill University, Haryana) as per the time schedule described in the tender document.

All the terms and conditions and Technical specifications contained in the Tender No..... for ..... (Name of the Tender) dated.....shall be the part of this agreement.

Firm Name..... (execution **Agency**) hereby declare that I shall remain bound and abide by the rates, terms and conditions and technical specifications of the aforesaid as well as TENDER, Work Order/Purchase Order and due communications of the above said work.

In Witness Whereof, the parties here to have caused this agreement to be signed in their respective names as of this day and year first above written.

Signed by

Buyer: SVSU, Palwal	**Bidder:**
Signature with seal	**Signature with seal**
Date & Place	**Date & Place**

In presence of (Witnesses)

1.	1.
2.	2.

***Note-This Contract is to be signed on Rs. 100/- Non Judicial Stamp paper within15 days after receiving purchase Order/Work Order from buyer.**

(Please put the initials at each page)

ANNEXURE – XVI

MODEL CLAUSE AND CERTIFICATE

Model Clauses for Tenders

I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

II. "Bidder" (including the term 'tenderer', 'consultant', 'Vendor', 'Supplier' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder from a country which shares a land border with India" for the purpose of this order means: -

a. An entity incorporated, established or registered in such a country; or

b. A subsidiary of an entity incorporated, established or registered in such a country; or

c. An entity substantially controlled through entities incorporated, established or registered in such a country; or

d. An entity whose beneficial owner is situated in such a country; or

e. An Indian (or other) agent of such an entity; or

f. A natural person who is a citizen of such a county; or

g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

IV. The beneficial owner for the purpose of (iii) above will be as under:

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation-

a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five percent of shares or capital or profits of the company;

b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholder's agreements or voting agreements;

2. In case of a partnership firm, the beneficial owner is the natural persons(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical

person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individual;

4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. The successful bidder shall not be allowed to sub-contract works to any contractor or product origin from a country which shares a land border with India unless such contractor/manufacturer is registered with the Competent Authority.

Validity Registration:

In respect of tenders, registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder was validly registered at the time of acceptance of order, registration shall not be relevant consideration during contract execution.

Model Certificate for Tenders

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]''

Model Certificate for Tenders for Works involving possibility of Sub-contracting "I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with

the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"