

G T Road By Pass, Jalandhar-144011, Punjab (India) EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in

Ref. No. NITJ/PUR/167/19/e-Tender No. 89/2019

F	Please find enclosed herewith the following:	Page No.
1.	e-Tender Notice - NITJ/PUR/167/19/e-Tender No. 89/2019 & Schedule for Opening of the e-Tender	2
2.	Annexure-I (Detail regarding Purchase of Internet of Things (IoT), Tender Fee & EMD)	3
3.	Important Note	4
4.	Instruction to Tenderers	5-7
5.	Tender Evaluation	8-10
6.	Terms & Conditions	11-13
7.	Special Conditions For Submitting Bid In Foreign Currency by The Indian Agents/Dealers	14-15
8.	Questionnaires A & B	16-17
9.	Performa for performance statement	18
10.	Annexure 'A' (Specifications of the Equipment)	19-28
11.	Annexure 'B' & 'C' (Format For Performance Bond/ Guarantee & Format For Performance Bond (Bank Guarantee)	29-30
12.	Annexure – 'D' (Format for Manufacturer's Authorization Form)	31
13.	Annexure- 'E' (Declaration Regarding Blacklisting/ Debarring for taking part in Tender)	32
14.	Annexure – 'F' (Certificate of Warranty)	33

Assistant Registrar

Dr. B. R Ambedkar NIT Jalandhar

Email: arpurchase@nitj.ac.in



G T Road By Pass, Jalandhar-144011, Punjab (India)

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THIS DOCUMENT IS FOR REFERENCE ONLY. ONLY E-TENDERS WILL BE ACCEPTED

e-TENDER NOTICE - NITJ/PUR/167/19/e-Tender No.89/2019

National Institute of Technology, Jalandhar invites e-tender for purchase of Internet of Things (IoT) for Wireless & Optical Network Lab of Computer Science & Engineering Department as per detail available at <u>Annexure-I</u> along with Tender Fee & EMD as per details given below:

I	Downloading & Submission of Online e-tender/bids	Start Date:12.12.2019 at 03:00 PM
II	Last date of submission of online bids	End Date : 02.01.2020 upto 03:00 PM
III	Physical submission of Tender Fee and EMD	End Date: 03.01.2020 upto 03:00 PM
IV	Opening of Technical e-Bids (online)	03.01.2020 at 3 PM

Detailed Terms and Conditions are available in e-tender document. The bid document can be downloaded from the CPP Portal.

Complete tender document is available for reference purposes on Institute website www.nitj.ac.in and CPP Portal. Only e-tenders will be accepted.

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Annexure-I

Ref. No. NITJ/PUR/167/19/e-Tender No. 89 /2019

Details regarding Tender Fee and EMD for Purchase of Internet of Things (IoT) for Wireless & Optical Network Lab of Computer Science & Engineering Department, are as under:

Sr. No.	Item/Equipment	Qty.	Tender Fee	EMD
1	Internet of Things (IoT)	01	Rs. 500/-	Rs.17,000.00

Note: The quantity of required equipment/item may vary as per requirement.

^{*}Exemption of Tender fee & EMD will only be given to MSME/NSIC registered bidders.



G T Road By Pass, Jalandhar-144011, Punjab (India) EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in

Important Note

- 1. All corrigenda, addenda, amendments and clarifications regarding this tender document will be uploaded on the website www.nitj.ac.in and CPP Portal and not in the newspaper; Bidders shall keep themselves updated with all such developments.
- 2. In case, the last date of receipt/opening of bids falls on holiday, the bids shall be receipt/opened on the next working day at same time.
- 3. In case, the last date of submission of EMD & Tender fee falls on holiday, the EMD & Tender fee shall be submitted on the next working day at same time.
- 4. Tenderer who have downloaded the tender document form from the institute website, shall submit a declaration along with tender document that I/We have downloaded the Tender Form from the institute website www.nitj.ac.in and I/we have not tempered /modified the tender form in any manner. In case, if the same is found to be tempered/modified in any manner, I/we understand that my/our tender will be summarily rejected and I/we are liable to be banned from doing business with institute.
- 5. Tender fee of Rs.500/- (Non- refundable separate for each category) in the form of DD in favour of Director, DR BR Ambedkar NIT, Jalandhar.
- 6. EMD (refundable separate for each category) in the form of DD in favour of Security- A/c, DR B R Ambedkar NIT, Jalandhar.
- 7. <u>Both EMD and Tender fee are be submitted as per dates mentioned in schedule, failing which e-bids will not considered.</u>
- All the bidders are required to submit the Tender Fee and EMD as per requirement of tender document failing which bids received straightway rejected and bid will be treated invalid.
- Note: If the bidder inadvertenly or otherwise upload the quoted rates in the technical bid, the bid will be straightway rejected and treated invalid.
- If the bidder is exempted for payment of Tender Fee and EMD as NSIC/MSME registered bidders, then bidder is required to submit NSIC/MSME exemption certificate for same. The Certificate must be valid as on last date of submission of bid.

Tenderer must submit a scanned copy (duly signed and stamped) regarding terms & conditions as per our tender documents along-with make/model, specifications, bill of quantity as per required equipment in the technical bid for examine the bid as per our institute tender documents. It is noted that no rate should be depicted in the letter head.



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EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in

Instructions to Tenderer

- 1. No tender will be accepted in physical form. The bidders shall have to submit their bids online in Electronic Format under Digital Signatures. For participation in the etendering process, the bidders need to register themselves on CPP Portal.
- 2. Bids are to be submitted online and opened online as per time given failing which no tender will be considered..
- 3. Bids will be opened online as per time given schedule.
- 4. Before submission of online bids, bidders must ensure that scanned copies of all the necessary/relevant documents have been uploaded with the bid which should be duly signed and stamped. The duly signed and stamped copies of Terms & Conditions of the tender, reply of the Questionnaire of Plant & Machinery and other documents of the Tender & Annexures must be uploaded, failing which their bids may be rejected.
- 5. NIT JALANDHAR, will not be responsible for any delay in online submission of bids due to any reason whatsoever.
- 6. Bidders should upload the scanned copies of Tender also fees/EMD/Exemption Certificate as specified in the tender documents along with online technical documents. EMD in the form of a Demand Draft in favour of the Security – A/c, Dr B R Ambedkar NIT, payable at Jalandhar (refundable) and Tender Fee in the form of a Demand Draft in favor of the Director, Dr B R Ambedkar NIT, payable at Jalandhar (Non- refundable) should also be submitted in physical form to the following address as per scheduled time given for physical submission of EMD and Tender fee. The Envelope should be super-scribed as EMD and Tender Fee for Tender regarding supply of Internet of Things (IoT) for Wireless & Optical Network Lab (UG/PG Research) of Computer Science & Engineering Department and be sent to following address:-

Kind Attention- Assistant Registrar (Purchase Section) Director. Dr B R Ambedkar National Institute of Technology, G T Road Amritsar By Pass, Jalandhar-144001, Punjab (India).

- 7. The details of EMD specified in the tender document should be same as submitted online (scanned copies). Otherwise tender will be rejected summarily.
- 8. The conditional bids shall not be considered and will be out rightly rejected.

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- 9. The Financial Bid through e-tendering process shall be opened of only those bidders, who will qualify in the technical bid and approved by the Purchase Committee/Technical Experts. The date, time & place of opening of the financial bid(s) will be intimated in due course of time.
- 10. At any time prior to the deadline for submission of bid, the institute may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective tenderer(s), modify the tender document by issuance of an amendment.
- 11. The amendment will be uploaded on Institute website and CPP Portal only. In order to provide reasonable time to prospective tenderer(s), for preparing their bid as per amendment, the institute may, at its discretion extend the deadline for the submission of tender.
- 12. The supplier must upload the original manuals / catalogue of the Equipment/Item and also mention Make/Model of the equipment, otherwise Bid is liable to be rejected.
- 13. The Institute is not liable to pay any interest on EMD. Earnest money deposit shall be forfeited, if the tenderer, withdraws its bid during the period of tender validity. The Earnest money deposit of the tenderer, whose tender has been accepted, will be returned on the submission of performance security @ 5% of the total value of the offer. The performance security will be kept till the warranty period + 02 months more of the Equipment / Machinery/ Instrument. The warranty period will start from the date of satisfactory installation of the Equipment / Machinery/ Instrument duly given by the concerned department. Earnest money deposit of the successful tenderer shall be forfeited, if it refuses or neglects to execute the contract or fails to furnish the required performance security within the time frame as specified by the institute. The EMD(s) of other Bidder(s) whose offer are found according to required specifications/ lowest will be released after finalization of Technical Bids/ Lowest Bid/Purchase.
- 14. The Format of Performance Bank Guarantee bond or Performance Bank Guarantee issued by the bank as per the format given in Annexure "B" & "C".
- 15. Delivery time is the essence of the contract and must be met with.
- 16. Nearest specifications/better specifications can be considered. In case of deviation, complete justification should be furnished with proper documents.
- 17. The Director may accept a tender in part or whole of the quantity offered, reject any tender without assigning any reasons and may not accept the lowest bidder. Further in case of any doubt/dispute, the decision of the Director of the Institute shall be final.
- 18. The offer shall be kept valid for minimum 120 days.

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19. a) Either the Indian agent/ dealer 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.

- b) If an agent/ dealer submits bid on behalf of the Principal/OEM, the same agent /dealer shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.
- c) All offers other than those from the Principal/OEM should be supported by an authority letter from the manufacturer authorizing the dealer /supplier to tender on their behalf as per <u>Annexure-D</u>. In case of manufacturer, a certificate or a copy thereof to the effect that the bidder is a manufacturer of the Equipment / Machinery/ Instrument must be accompanied with the technical bid.
- 20. The supplier will be responsible till the entire stores contracted for, arrive in good condition at destination.
- 21. The tenderer should not have been debarred and/ or blacklisted by any Central Government/ or any State Government Department(s). This must be supported by an affidavit as per format given in **Annexure-"E"**.
- 22. If any information furnished by the bidder is, at any stage found to be incorrect/false/fabricated, the Institute shall have the absolute right to forfeit the EMD, warranty/performance guarantees or/and security deposits, in addition to cancellation of contract, and in accordance with law, such other actions may be taken like black-listing of the bidder etc.

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EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in

TENDER EVALUATION

Institute will evaluate all the proposals to determine whether these are complete in all respects as specified in the tender document. Evaluation of the proposals shall be done in two stages as:

(a) Stage – I (Technical Evaluation):

Institute shall evaluate the technical bid(s) to determine the following like the (i) bid qualifies the essential eligibility criteria or not, the tenderer has submitted the EMD & Tender fee or not, any computational errors have been made or not, all the documents have been properly filled or otherwise, all the documents have been submitted/ uploaded with technical bid or not, the specifications, Make/Model, Catalogue of quoted Equipment / Machinery/ Instrument are as per requirement tender specifications or not, Authorization of Dealer / Distributor/ Exclusive Agent certificate from manufacturer is in order or not, Sales & service policy of equipment / item during warranty period and after warranty period will also be seen, location of their authorized service centre will also be seen for evaluation etc.

After evaluation of technical bid(s), a list of the qualifying tenderer (s)/ bidder s) shall be made. Short-listed tenderer(s) will be informed of the date, time and place of opening of financial bid(s) and they may attend or depute their authorized representative/s to attend the schedule of opening of financial bid(s) on the scheduled date and time, if they wish to do so. The representative(s) should have a letter of authority to attend the price bid(s) opening event.

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PART – II (e-FINANCIAL BID):

- a) Bidders should offer the rates as per the format of BOQ as available on CPP Portal. Detailed bill of material/quantity is also to be provided along with the price breakup of each item as per requirement of the tendered specification of the equipment in the online price bid at CPP Portal.
- Note: The quoted amount as filled in the Annexure(s) of online financial bid and detailed bill of material/quantity provided with price break up of each item in the online financial bid should be tallied and both must be same, otherwise bid will be treated invalid.
- b) Conversion to Single Currency: To facilitate evaluation and comparison, the Institute will convert all the bid prices expressed in the amounts in various currencies to the Indian Rupees as per the TT selling rates of RBI on the date of opening of technical bids.
- c) Custom, GST or any other taxes, Education Cess and other charges must be mentioned in the price bid. The financial evaluation/comparison will be made after including all the above mentioned charges/taxes.

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ARBITRATION:

In case of any dispute or difference arising out in connection with the tender

conditions/job order/Contract, the Institute and the Seller/Service Provider

will address the dispute/difference for a mutual resolution and failing which,

the matter shall be referred for arbitration to a sole Arbitrator to be appointed

by the Institute.

The Arbitration shall be held in accordance with the provisions of the

Arbitration and Conciliation Act, 1996 and the venue of arbitration shall be at

Jalandhar only. The decision of the Arbitrator shall be final and binding on both the parties.

JURISDICTION:

The courts at Jalandhar alone will have the jurisdiction to trial any matter,

dispute or reference between parties arising out of this tender / contract. It is

specifically agreed that no court outside and other than Jalandhar Court shall

have jurisdiction in the matter.

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(Signature & Stamp of Tenderer)

10



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(TERMS AND CONDITIONS (FOR THE SUPPLY OF GOODS, EQUIPMENT /ITEM)

- 1. Rate should be quoted F.O.R NIT Jalandhar.
- 2. a) For Foreign Import goods/ Equipment, the rates will be evaluated on DAP basis alongwith the item/equipment to be supplied in Indian rupees (If any). Therefore, rates should be quoted on DAP basis with separately mentioning of CIF or FOB charges. The complete description viz. make and model of the Equipment / item and name of the manufacturer must be clearly indicated. The equipment should be insured upto NIT, Jalandhar. Institute will provide all the documents regarding custom clearance.
- b) e-Bids found without quoted upto DAP NIT value shall be treated as invalid.
- 3. Where the Equipment / Machinery/ Instrument are composed of several sub units/components, the rate should be quoted for each subunit/component separately. NIT Jalandhar reserves the right to increase or decrease the number of sub units/components and number of Equipment / Machinery/ Instrument according to its requirements.
- 4. The institute being government educational institute is having Excise and Custom duty exemption in terms of government notification No. 51/96-customs Dt. 23-7-1996 and No. 10/97-central excise Dt. 1-3- 1997 as amended from time to time, therefore taxes be quoted accordingly and this must be depicted in Price Bid clearly.
- 5. a) The tenderer(s) who are quoting rates in foreign currency should quote Custom Duty for import (Foreign) goods against Custom Duty Exemption Certificate. The tenders claiming custom duty as extra should specifically give the present rate of Custom Duty as payable against each Equipment /Item. The custom duty so claimed will be reimburse on custom duty receipt basis.
- b) The tenderer(s) who are quoting rates in Indian Rupees, the rates should be quoted inclusive of custom Duty against Custom Duty Exemption Certificate (if any). No custom duty will be paid separately. Only custom duty certificate will be provided.
- 6. GST or any other chargeable duty where applicable must be specifically mentioned, failing which no tax or duty will be allowed at subsequent stage.
- 7. All items shall be indicated both in words as well as in figures. If there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

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8. Payment:

- (a) 100% payment will be made against physical delivery, inspection, installation, training of the Equipment/Machinery/Instrument etc in the institute, receipt of satisfactory working report of the Equipment / Machinery/Instrument etc and receipt of Performance Bank Guarantee @ 5%.
- b) For Import Equipment /Item: 90% of the DAP value of the equipment will be released, through irrevocable Letter of Credit (LC)/ Wire Transfer/ foreign draft/ draft at sight document. Balance 10% of the DAP value will be released after inspection, installation, training and performance bank guarantee of the Equipment / Machinery/Instrument etc in the institute. The payment charged by bidder on account of custom clearance, loading/unloading, transportation, insurance etc. as per price bid and delivery up to NIT, Jalandhar will be reimbursed against actual receipt basis in Indian rupees.

In case of payment through Letter of Credit, all the Bank charges within India will be borne by NIT Jalandhar and all bank charges outside India will be borne by the supplier.

- **9.** Warranty: Rates should be quoted with comprehensive warranty. Besides this, policy regarding after sale service on the expiry of warranty period of Equipment / Machinery/Instrument etc may be explained. The bidders should attach duly signed and stamped certificate of warranty as per <u>Annexure-F</u> with the technical bid.
- 10. Training: In house training (where applicable) after the installation and commissioning of Equipment / Machinery/Instrument etc shall be provided by the supplier.
- 11. **Delivery:** Delivery date will be mentioned in the supply order. The time and date of delivery or dispatch stipulated in a supply order shall be deemed to be the essence of the supply order and if the supplier fails to deliver or dispatch any consignment within the period prescribed for such delivery, the delayed consignment will be accepted subject to penalty as laid down in the supply order, which will be recovered from the pending payments.
- 1. No recovery of penalty will be made, if the delayed supplies are acceptable by extending the delivery period by the Director with our any LD charges.
- 2. Director will allow extension on the request of the supplier by recording in writing that in exceptional circumstances the supply was beyond the control of the supplier and there was no loss to the institute.
- 3. Penalty on account of delay, Director NIT, Jalandhar reserves the right to impose 0.5% (Half) per cent penalty per week on account of delay in supply, if delivery received after expiry of the original delivery period. The total penalty will not exceed 10% of the value of the delayed goods.

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- **12. Installation**: Supplier has to install the Equipment / Machinery/ Instrument within two to three weeks from the receipt of the Equipment / Machinery/Instrument etc in NIT Jalandhar.
- 13. Spares and Accessories, wherever required should be quoted separately and clearly, even if these are not asked for.
- **14. Site Preparation**: The supplier shall inform NIT Jalandhar about the site preparation, if any, needed for the installation, immediately after receipt of the supply order. Supplier must provide complete details regarding space and all infrastructural requirements needed for the Equipment / Machinery/Instrument etc which NIT Jalandhar should arrange before the arrival of Equipment / Machinery/Instrument etc to ensure its early installation and smooth operation thereafter. The supplier may offer his advice and render assistance to NIT Jalandhar in the preparation of the site and other pre installation requirements.
- **15.** The total scope of work includes the supply, installation, satisfactory commissioning and testing of the Equipment / Machinery/Instrument etc by the supplier, training at NIT Jalandhar, method development and validation for parameters as mentioned in specifications at **Annexure-A**. The supplier will complete installation & Commissioning of Machine within two to three weeks from the date of receipt of Equipment / Machinery/Instrument etc of NITJ.
- **16.** Details about the service center for the quoted Equipment / Machinery/Instrument etc. in India may be mentioned.

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SPECIAL CONDITIONS FOR SUBMITTING BID IN FOREIGN CURRENCY BY THE INDIAN AGENTS/DEALERS:

- 1. The Tenderer should submit the following documents/information while quoting:
 - a) Foreign Principal's Performa invoice/quote indicating the commission payable to the Indian Agent and nature of after sales service to be rendered by the Indian Agent.
 - b) Copy of Agency agreement with the Foreign Principal and the Indian Agent, precise relationship between them and their mutual interest in the business.
 - c) Agency Commission will be paid in only Indian Currency.
 - d) Compliance of the tax laws by the Indian Agent.
- 2. The following information/documents are to be submitted wherever applicable.
 - Product Literature.
 - The earliest delivery period and country of origin of the Stores.
 - Banker's name, address, telephone/fax Nos. &e-Mail ID of the Contractor.
 - The approximate net and gross weight and dimensions of packages/cases.
 - Recommended spares for satisfactory operation for a minimum period of one year.
 - Details of any technical service, if required for erection, assembly, commissioning and demonstration.
- 3. The FOB/FCA and C & F prices quoted should be inclusive of all taxes, levies, duties arising in the tenderer's country.
- 4. Samples, if called for, should be sent free of cost.
- 5. The offer should be accompanied with with a certification that the quoted item/items has/have not been restricted or canalized under ITC (HS) classification of Import & Export items.
- 6. The authority of person signing the tender, if called for, shall be produced.
- 7. Instructions/ Operation Manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents/ correspondence should be in English language only.
- 8. It is expressly agreed that the acceptance of the Stores Contracted for, is subject to final approval in writing by the Purchaser.
- 9. Part shipment is not allowed unless specifically allowed by the Institute.
- 10. Inspection/ Test Certificate (if required) should be provided.

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Acceptance

We	read	and	accept	the	instructions	to the
tenderer, terms & conditions and all oth shall Comply with them strictly.	ner do	cumer	nts as m	entior	ned in the ter	nder and
Name of Bidder			Signatu	re		
Address			Seal of	firm:		
			Date:			



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EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in

Questionnaires A & B

QUESTIONNAIRE FOR PLANT & MACHINARY

Note: Please submit the reply in detail and also enclose the necessary documents with proof where required as per Questionnaire. These documents must be submitted in the technical bid document.

Please state that you have submitted your quotations as per procedure mentioned below:-



Bids consisting of technical details bringing out clearly in a separate sheet ,the deviation in the specifications if any from that of tender enquiry specifications along with commercial terms and tender form.

- 1. Please attach list dully signed by you, for such spare parts and tools which are absolutely essential for proper maintenance and operation of machine for a period of two years giving full particulars of spare and tool with a price of each spare parts and tools separately.
- 2. Please confirm that you have adequate servicing and spare parts facilities in India in respect of Equipment / Machinery/ Instrument tendered by you or that you should arrange to provide such facilities simultaneously.
- 3. Please indicate that you guaranteed that before going out of production of spare parts, you will give adequate advance notice to the purchaser so that the institute may order his requirements of spares in one lot ,if he so desire.
- 4. Please indicate that you guaranteed that if you go out of production of spare parts, then you will make available prints, drawings of the spare parts and specifications of the material at no cost if and when required in connection with Equipment / Machinery/ Instrumentto enable the purchaser to fabricate or procure spare parts from other sources.
- 5. Please confirm that you undertake to enter into a rate contact with the purchaser to supply spare parts on an agreed basis for an agreed period.
- 6. Status:
 - a) Indicate whether you are ISU or SSI
 - b) Are you registered with Government e-Marketing (GeM) for the item quoted? If so indicate whether there is any monetary limit or registration.
 - c) If you are a small scale unit registered with NSIC under single point registration scheme whether there is monetary limit.
- 7. a) If you are registered either with NSIC or with Government e-Marketing (GeM), please State whether you are registered with Directorate of industries of the state government concerned.
 - b) If so, confirm whether you have attached a copy of the certificate, issued by Director of industries.
- 8. Please indicate:-

Name & Full Address of your Banker

9. Please indicate whether you agree to submit advance samples if called upon to do so within the specified period of 21 days.

Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY G T Road By Pass, Jalandhar-144011, Punjab (India)



EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in

- 10. Business name and constitution of firm:
 - i)The Indian company Act.1956
 - ii)Indian partnership Act.1932
 - iii)Any act, if not, who are the owner/partners (please give full name and address)
- 11. Whether the tendering firm is / are:
 - i) Manufacturers authorized agents
 - ii) Holders stock of the stores tendered for
 - iii) NBI manufacturer's agents please enclose with tender the copy of manufacturer's authorization.
- 12. Please state whether the inspection clause is acceptable to you
- 13. Here state specifically:
 - i) Whether the price quoted by you is to the best of your knowledge and belief is not more than the price usually charged by you on stores of the same natures, class of description to any private purchase either foreign or as well as government purchaser. If not state the reason thereof if any also indicates the margin of Difference.
 - ii) In respect of indigenous items for which there is a controlled price fixed by law, the price quoted shall not be higher than that the controlled price and rates available on DGS&D/ Government e-Marketing (GeM) contract. The reason thereof should be stated.
- 14. State whether business dealing with you has been banned by Ministry /Department of supply or any other Govt. Department.
- 15. Please confirm that you have read all the instruction carefully and have complied with accordingly.

(Signature of Tenderer)

()
1. Full Name & Address of the person signing	/
()
2. Whether signing as proprietor /partners	



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PROFORMA FOR PERFORMANCE STATEMENT (For the Period of last 3 years)

Sr.No.	Order (full placed address of purchaser)	Order No. & dated	Description and Qty. of Stores ordered	Value of Order	Has the Equipment/Item been satisfactory commissioned



G T Road By Pass, Jalandhar-144011, Punjab (India) EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in

Annexure-A

Technical Specifications

S.No	Items	Qty
1	IOT Sensor Node / Mote – 1	25
_	Device should be with 16 bit Microcontroller	
	Should support UART, SPI, I2C interface	
	Clock Speed of 16 MHz, Minimum 16 GPIO Pins	
	Should have 8 channel 10 bit ADC for analog signal interface	
	Should be based on RISC architecture	
	Should contain 16KB Flash and 512 bytes of SRAM	
	Capable of Programming minimum 3 different Low Power Modes	
	On board JTAG emulator for programming	
	Should have USB interface for connecting with PC	
	 Should support Open source GUI for development IDE 	
	Should support Open source GOT for development in E Should have interface for connecting Sub1GHz RF communication module	
	 Sensor node should be capable of re-programming 	
	 Sensor Node should be capable of plugging Booster pack on top of it 	
	School Node should be capable of plagging Booster pack on top of it Should Support Simple link protocol	
2	IOT Sensor Node / Mote – 2	25
4	Device should be with USB 2.0 enabled 16 bit Microcontroller	
	• Should support UART, SPI, I2C interface (minimum 4 Serial interface)	
	Clock Speed of 25 MHz, Minimum 35 GPIO Pins Should have 12 showed 12 bit ADC for analysis signal interface.	
	Should have 12 channel 12 bit ADC for analog signal interface Should be based on DISC architecture.	
	Should be based on RISC architecture Should contain 128KB Flock and SKB of SBAM	
	Should contain 128KB Flash and 8KB of SRAM Canalla of Programming minimum 5 different Law Bayes Madas	
	Capable of Programming minimum 5 different Low Power Modes On heard ITAC and the formula to the formula t	
	On board JTAG emulator for programming Should have HSP interfered for programming The state of the sta	
	Should have USB interface for connecting with PC CHI for the Application of the PC CHI for the PC CHI for the Application of the PC CHI for the PC CHI fo	
	Should support Open source GUI for development IDE	
	• Should have interface for connecting Sub1GHz RF, Wi-Fi, BLE, Zigbee module	
	Sensor node should be capable of re-programming	
	Sensor Node should be capable of plugging Booster pack on top of it	
2	Should Support Simple link protocol TOTAL A CONTROL TOTAL TOTAL	
3	IOT Sensor Node / Mote – 3	25
	Device should be with 32-bit ARM Cortex-M4-based microcontrollers Output Device should be with 32-bit ARM Cortex-M4-based microcontrollers Device should be with 32-bit ARM Cortex-M4-based microcontrollers	
	Should support 8 UART, 4 SPI, 6 I2C interface Should support 8 UART, 4 SPI, 6 I2C interface Should support 8 UART, 4 SPI, 6 I2C interface	
	Should have 2 CAN Modules, provision for RS485- Modbus RTU Can be a control of the con	
	Clock Speed of 80 MHz, Minimum 35 GPIO Pins	
	• Should have 12 channel 12 bit ADC for analog interface, Motion control PWM	
	Should contain 256 KB Flash, 32 KB of SRAM and 2KB EEPROM	
	Capable of supporting Thumb and Math Instructions	
	On board JTAG emulator for programming	
	• Should have USB 2.0 Host/Device/OTG + PHY	
	Should support Open source GUI for development IDE	
	• Should have interface for connecting Sub1GHz RF, Wi-Fi, BLE, Zigbee module	
	Sensor node should be capable of re-programming	
	Sensor Node should be capable of plugging Booster pack on top of it	
	Should Support Simple link protocol	
4	IOT Sensor Node / Mote – 4	25
	Device should be with Energy efficient 32-bit ARM Cortex-M4-based MCU	
	Should support 4 UART, 8 SPI, 4 I2C interface	

	Clock Speed of 48 MHz, Minimum 35 GPIO Pins	
	Should have 16 channel 14 bit ADC for analog interface	
	Should contain 256 KB Flash and 64 KB of RAM	
	Capable of Programming minimum 5 different Low Power Modes	
	Power consumption: 80uA/MHz active and 660nA RTC standby operation	
	Advanced Encryption Standard (AES256) Accelerator, CRC, DMA, HW MPY3	
	 Capable of supporting Thumb and Math Instructions 	
	On board JTAG emulator for programming	
	 Should support Open source GUI for development IDE 	
	 Should support Open source GOT for development IDE Should have interface for connecting Sub1GHz RF, Wi-Fi, BLE, Zigbee module 	
	 Should have interface for connecting SubTGHz KP, WI-14, BLE, Zigoce module Sensor node should be capable of re-programming 	
	 Sensor Node should be capable of plugging Booster pack on top of it 	
	 Sensor Node should be capable of plugging Booster pack on top of it Should Support Simple link protocol 	
5	IOT Wireless Sensor Node -1 (BLE)	3
3		3
	32-bit ARM Cortex-M3 processor What As MH- Challe Street	
	Up to 48-MHz Clock Speed 120 VP of the System Programme 11 Floring	
	128KB of In-System Programmable Flash OND of CD ANG CO. 1	
	8KB of SRAM for Cache ONE OF THE PROPERTY OF THE PROPERT	
	20KB of Ultralow-Leakage SRAM No. 1714 Co. 14 France B. 1	
	2-Pin cJTAG and JTAG Debugging	
	Ultralow-Power Sensor Controller Classification Sensor Controller C	
	 Should Run Autonomous From the Rest of the System 	
	o 16-Bit Architecture	
	 2KB of Ultralow-Leakage SRAM for Code and Data Efficient Code Size Architecture, Placing Drivers, Bluetooth® Low 	
	Energy Controller, IEEE 802.15.4 MAC, and Boot loader in ROM	
	Built in 10 sensors including support for light, digital microphone, magnetic	
	sensor, humidity, pressure, accelerometer, gyroscope, magnetometer, object	
	temperature, and ambient temperature	
	BLE interface to push sensor data to cloud	
	In built support for cloud connectivity	
	Should Support Simple link protocol	
6	IOT Wireless Sensor Node -2 (BLE + SUB 1GHz)	3
•	Dual-Band (Sub-1 GHz and 2.4 GHz) Wireless Microcontroller	
	32-bit ARM Cortex-M3 processor	
	Up to 48-MHz Clock Speed	
	128KB of In-System Programmable Flash	
	8KB of SRAM for Cache	
	20KB of Ultralow-Leakage SRAM	
	2-Pin cJTAG and JTAG Debugging	
	Ultralow-Power Sensor Controller	
	Should Run Autonomous From the Rest of the System	
	o 16-Bit Architecture	
	 2KB of Ultralow-Leakage SRAM for Code and Data 	
	o Efficient Code Size Architecture, Placing Drivers, Bluetooth® Low	
	Energy Controller, IEEE 802.15.4 MAC, and Boot loader in ROM	
	• In built 10 Low-power MEMS sensors for sensing motion, temperature,	
	humidity, pressure, light, magnetic field, and sound	
	• Programmable Output Power up to +15 d Bm (Sub-1 GHz) and +9 dBm at 2.4	
	GHz (Bluetooth low energy)	
	Should Support Simple link protocol	
7	IOT Wireless Sensor Node -3 (Wi-Fi)	3
	 Device should be ARM Cortex M3 or above with 32 bit MCU 	
	Integrated in depended Network processor for the communication activity	
	Should support IEEE 802.11 Wi-Fi on 2.4 GHz	
	In built TCP/IP Stack and support for IPV4	
	 Should support 8 simultaneous TCP/UDP sockets 	
1	Should have built in crypto engine for hardware security	i

	Radio should have provision with minimum 10 different channel	
	Connectivity security with WPA, WPA2 or WEP methods	
	SimpleLink Wi-Fi, internet-on-a chip solution with integrated MCU	
	Onboard inverted-F antenna with RF connector for conducted testing	
	Onboard 1-MB serial flash memory	
	AAA battery connector interface	
	In built 9 low-power MEMS sensors Infrared Thermopile Sensor, Pressure	
	Sensor, Humidity Sensor, Light Sensor, Gyroscope, accelerometer, and	
	compass for easy integration in IoT application • Should Support Simple link protocol	
	Should Support Shriple link protocol	
8	IOT Wireless Sensor Node -4	10
	Dual-Band (Sub-1 GHz and 2.4 GHz) Wireless Microcontroller	
	• 32-bit ARM Cortex-M3 processor	
	Up to 48-MHz Clock Speed	
	128KB of In-System Programmable Flash	
	8KB of SRAM for Cache ONLY OF THE CACHE ONLY ONLY OF THE CACHE ONLY OF THE CACHE	
	20KB of Ultralow-Leakage SRAM	
	2-Pin cJTAG and JTAG Debugging	
	Ultralow-Power Sensor Controller	
	Should Run Autonomous From the Rest of the System	
	 16-Bit Architecture 2KB of Ultralow-Leakage SRAM for Code and Data 	
	 2KB of Ultralow-Leakage SRAM for Code and Data Efficient Code Size Architecture, Placing Drivers, Bluetooth® Low 	
	Energy Controller, IEEE 802.15.4 MAC, and Boot loader in ROM	
	Access all I/O signals with the Booster Pack TM plug-in module connectors	
	Should Support Simple link protocol	
9	IOT Wireless Sensor Node -5	10
	Connect to the cloud with Bluetooth low energy with smart phone	
	Access all I/O signals with the Booster Pack plug-in modules I/O interface	
	On-board emulator with a USB serial port	
	Code Composer Studio IDE open source support	
	Includes 1 MB external Flash for support of multiple protocols	
	Up to 5 dBm output power	
	Should support BLE, ZigBee/6LoWPAN	
	Should Support Simple link protocol	
10	IOT Gateway - 1	25
	Device should be ARM Cortex M3 or above with 32 bit MCU	
	Integrated in depended Network processor for the communication activity	
	Should support IEEE 802.11 Wi-Fi on 2.4 GHz	
	On board Chip Antenna and provision for UFL connector	
	In built TCP/IP Stack and support for IPV4	
	Should support 8 simultaneous TCP/UDP sockets	
	Should have built in crypto engine for hardware security	
	Radio should have provision with minimum 10 different channel	
	 Connectivity security with WPA, WPA2 or WEP methods 	
	Capability of hosting on board HTTP server	
	Should have built in Embedded Internet protocols	
	• Should support UART, SPI, I2C, SD/MMC, Fast Parallel, I2S/PCM interface	
	Clock Speed of 80 MHz, Minimum 25 GPIO Pins	
	Should have 4 channel 12 bit ADC for analog signal interface	
	Should contain 2MB Flash and 256KB of RAM on the board	
	On board JTAG emulator for programming	
	Should have USB interface for connecting with PC	
	Should support Open source GUI for development IDE	
	Should have interface for connecting Sub1GHz RF, BLE, Zigbee modules	
	On board Temp sensor and Accelerometer sensor	

	should be capable of re-programming			
	should be capable of plugging Booster pack on top of it			
	Should Support Simple link protocol			
11	IOT Gateway - 2	5		
	 Device should be ARM Cortex M3 or above with 32 bit MCU 			
	 Integrated in depended Network processor for the communication activity 			
	• Should support IEEE 802.11 Wi-Fi on 2.4 GHz			
	On board Chip Antenna and provision for UFL connector			
	• In built TCP/IP Stack and support for IPV4 and IPV6			
	Should support 8 simultaneous TCP/UDP sockets			
	Should have built in crypto engine for hardware security Output Description:			
	• Radio should have provision with minimum 10 different channel			
	Connectivity security with WPA, WPA2 or WEP methods Out of the security with WPA, WPA2 or WEP methods Out of the security with WPA, WPA2 or WEP methods			
	Capability of hosting on board HTTP server Should have heit in Fully did different protection.			
	Should have built in Embedded Internet protocols Should average IVA DT. SDI 12C. SD AMC. Foot Parallel 12S /DCM. interface.			
	• Should support UART, SPI, I2C, SD/MMC, Fast Parallel, I2S/PCM interface			
	 Clock Speed of 80 MHz, Minimum 25 GPIO Pins Should have 4 channel 12 bit ADC for analog signal interface 			
	TARD'T THE TARGET CRANE TO AND THE TARE			
	 IMB inbuilt Flash and 256KB of RAM and up to 32MB on board Flash Memory On board JTAG emulator for programming 			
	 Should have USB interface for connecting with PC 			
	 Should support Open source GUI for development IDE 			
	 Should support open source GoT for development in Ex Should have interface for connecting Sub1GHz RF, BLE, Zigbee modules 			
	 On board Temp sensor and Accelerometer sensor 			
	 should be capable of re-programming 			
	 should be capable of plugging Booster pack on top of it 			
	Should Support Simple link protocol			
12	IOT Gateway - 3	10		
	Device should be 32 bit ARM Cortex M4 with Floating point MCU			
	 In built TCP/IP Stack and support for IPV4 and IPV6 			
	 Integrated 10/100 Ethernet MAC+PHY, 8x 32-bit timers 			
	 Crypto acceleration hardware blocks for IOT Security 			
	 Connectivity security with WEP method 			
	 Should have built in Embedded Ethernet protocols 			
	 Should support UART, SPI, I2C, SD/MMC, interface 			
	 MODBUS interface over Ethernet / 485 			
	Clock Speed of 120 MHz, Minimum 60 GPIO Pins			
	• Should have 20 channel 12 bit ADC for analog signal interface			
	1MB inbuilt Flash and 256KB of SRAM and 6KB EEPROM			
	On board JTAG emulator for programming On the state of the state			
	Should have USB interface for connecting with PC Should support Open source CLU for development IDE			
	Should support Open source GUI for development IDE Should have interface for connecting Sub1GHz PE, RIF, Zighee modules.			
	 Should have interface for connecting Sub1GHz RF, BLE, Zigbee modules should be capable of re-programming 			
	 should be capable of re-programming should be capable of plugging Booster pack on top of it 			
	 Should Support Simple link protocol 			
13	IOT Gateway - 4	3		
	Device should be 32 bit ARM Cortex M4 with Floating point MCU	-		
	QVGA color display with resistive touch screen			
	In built TCP/IP Stack and support for IPV4 and IPV6			
	• 10BASE-T/100BASE-TX controller with internal PHY			
	 MODBUS interface over Ethernet / 485 			
	 USB Micro-AB connector for Host/Device/OTG 			
	 microSD card slot 			
	 Quad SSI to 512 Mbit flash 			
	 EM connector for wireless applications 			
	 Crypto acceleration hardware blocks for IOT Security 			
	Connectivity security with WEP method			

	Should have built in Embedded Ethernet protocols	
	• Should support UART, SPI, I2C, SD/MMC, interface	
	 Clock Speed of 120 MHz, Minimum 60 GPIO Pins 	
	• Should have 20 channel 12 bit ADC for analog signal interface	
	 1MB inbuilt Flash and 256KB of SRAM and 6KB EEPROM 	
	 On board JTAG emulator for programming 	
	• Should have USB interface for connecting with PC	
	Should support Open source GUI for development IDE	
	• Should have interface for connecting Sub1GHz RF, BLE, Zigbee modules	
	• should be capable of re-programming	
	should be capable of plugging Booster pack on top of it	
	Should Support Simple link protocol	
14	IOT Communication Module- 1	13
	low-power wireless transceiver CC110L	
	• 1.8 to 3.6 V operation	
	 Low power consumption 	
	 SPI interface between RF module and MSP430 	
	 Prototyping area 	
	 Footprints for adding a microcontroller, pushbutton switch, and LED for 	
	standalone operation	
	 Low-power temperature sensor application 	
	 Star network topology with one hub node and up to four sensor nodes 	
	 Graphical User Interface provides network control and displays key radio parameters. 	
	 Ability to change radio settings locally and/or remotely 	
	Remote control feature to turn on/off Launch Pad green LED	
	 Node ID, operating state, and radio settings restored at power-up 	
	 Should Support Simple link protocol 	
15	IOT Communication Module- 2	5
13	Wi-Fi Network Processor in QFN package	3
	Bluetooth low energy module BoosterPack kit using the ARM Module with	
	integrated antenna	
	 Includes software examples 	
	 Pre-certified for FCC/IC, CE, and ARIB radio standards 	
	 Debug interface for development of any Bluetooth low energy application 	
	 Bluetooth 4.2 specification certified 	
	Should Support Simple link protocol	
16	IOT Processor Module 1	10
	Processor: Octavo Systems OSD3358 1GHz ARM® Cortex-A8	
	 Processor: Octavo Systems OSD3358 IGHz ARM® Cortex-A8 512MB DDR3 RAM 	
	• 4GB 8-bit eMMC on-board flash storage	
	3D graphics accelerator	
	NEON floating-point accelerator	
	• 2x PRU 32-bit microcontrollers	
	Should support LINUX based OS Debion with Cloud OIDE on Node is vy/Rene Souint library.	
	Debian with Cloud9 IDE on Node.js w/ BoneScript library Third party sympost for Android and Ulyunty Third party sympost for Android and Ulyunty	
	Third party support for Android and Ubuntu USD alignet for proving the communications.	
	USB client for power & communications USB boot	
	USB host OR 11h/g/p and Plustooth 4.1 plus PLE	
	 802.11b/g/n and Bluetooth 4.1 plus BLE HDMI 	
	• 2x 46 pin headers	
	• 12 bit ADC minimum 6 channels for analog interface • Should Support Simple link protocol	
17	Should Support Simple link protocol IOT Processor Module 2	3
1/	1O1 110cessor Module 2	3
	Device should be with USB 2.0 enabled 16 bit Microcontroller	
	• 128KB Flash / 8KB SRAM	

	• Full-Speed USB 2.0	
	16-Bit RISC Architecture up to 25-MHz	
	3x Timer_A Blocks, 1x Timer_B Block	
	• 2x USCI (UART/SPI/I2C) Blocks, 16Ch 12-Bit ADC12_A, 12Ch Comp_B, 63	
	USB Development Platform	
	5-pad capacitive touch strip	
	microSD Card Slot	
	• 102x64 grayscale, dot-matrix LCD with backlight.	
	Integrated EM headers	
	Should Support Simple link protocol	
18	IOT Connectivity Module- 1	10
	Wi-Fi Network Processor in QFN package	
	 Wi-Fi CERTIFIED™ at the chip level by the Wi-Fi Alliance™ 	
	2 20-pin stackable connectors	
	On-board chip antenna with option for U.FL-based testing	
	 Power from on-board LDO using USB OR 3.3V from MCU LaunchPad 	
	• 2 push buttons	
	• 4 LEDs	
	Jumper with 0.1 Ohm resistor for current measurement	
	• 0.8 megabit serial flash	
	 40 MHz crystal, 32 KHz crystal and oscillator 	
	U.FL and chip antenna	
	• USB	
	 4 Layer PCB with 6 mm spacing and track width 	
	Should Support Simple link protocol	
19	IOT Connectivity Module- 2	10
	Frequency: 2.4GHz ISM.	
	• Protocol: BLE 4.0.	
	Max transmitting power: max. 4dBm.	
	Modulation System: GFSK.	
	Serial Baud Rate: 1200 to 115200 bps.	
	Reference Distance: 80 meters.	
	• Speed - 1Mbps (Max)	
20	IOT Connectivity Module - 3	10
	• 802.11 b/g/n	
	Wi-Fi Direct (P2P), soft-AP	
	Integrated TCP/IP protocol stack	
	Integrated TR switch, balun, LNA, power amplifier and matching network	
	Integrated PLL, regulators, DCXO and power management units	
	• +19.5dBm output power in 802.11b mode	
	• Power down leakage current of <10uA	
	Integrated low power 32-bit CPU could be used as application processor	
21	IOT Wi-Fi Debugger	2
	FTDI debug support	
	Enables enumeration SPI & GPIO for SimpleLink Studio for CC31xx	
	Enumerates COM port for flashing	
	Enables network processor logger output (TX only)	
	• 2 USB ports	
	BoosterPack headers	
22	IOT BLE Debugger	2
	FTDI debug support	
	 Enables enumeration SPI & GPIO for SimpleLink Studio for CC26XX 	
	Enumerates COM port for flashing	
	BoosterPack headers	
	The Debugger DevPack should include a USB power connection, making	
		1

	it easy to power SensorTag during debugging	
23	IOT Audio Booster Pack 1	5
	Audio Capacitive Touch Booster Pack	
	Booster Pack board should have ultra-low-power DSP for crystal clear	
	playback and recording of MP3 audio and video files	
	• microSD card pre-programmed with the DSP function code MP3 playback,	
	record and music storage (file storage) • Mini-USB cable for connection with a computer to power up the system	
	 Mini-USB cable for connection with a computer to power up the system Stereo single-jack headset connector 	
	Demo headset with integrated microphone	
	Pre-programmed MCU with the ACTBP host demo application	
	Should Support by a user interface for OLED display and MP3	
	playback/record application APIs	
	Capacitive touch scroll wheel, proximity sensor and on-board LEDs	
	Should Support by a complete capacitive touch software library	
	USB mass storage device capability for the microSD card OLED 1: 1	
	OLED display (monochrome, 96×16 pixels) Should Support Simple link protocol	
24	Should Support Simple link protocol IOT Audio Booster Pack 2	5
		3
	Wi-Fi Audio Booster Pack	
	• 1 Microphone	
	• 1 audio 3.5 mono jack	
	 2 audio 3.5 mm stereo jack (in and out) Onboard speaker connector using terminal blocks (stereo) 	
	Onboard audio codec (TLV320AIC3254)	
	Onboard class-D audio power amplifier (TPA2012D2)	
	Should Support Simple link protocol	
25	IOT Sensor Booster Pack 1	5
	OPT3001 Ambient light sensor	
	PCB footprint to add TI TMP007 Infrared temperature sensor	
	Bosch BMI160 Inertial Measurement Unit (IMU) sensor – accelerometer and	
	gyroscope	
	Bosch BMM150 Magnetometer	
	Bosch BME280 Environmental sensor - pressure, ambient temperature and	
	humidityShould Work with Sensor Node	
	 Should Work with Sensor Node Should Support Simple link protocol 	
26	IOT Sensor Booster Pack 2	3
	Grove Starter Kit for Sensor Node The Grove Hiltersonia Bangara The Grove Hiltonia	
	 1x Grove - Ultrasonic Ranger 1x Grove - Light Sensor 	
	• 1x Grove - Buzzer	
	1x Grove - Buzzer 1x Grove - Temperature and Humidity Sensor Pro	
	• 1x Grove - 4-Digit Display	
	• 1x Grove - Relay	
	1x Grove - PIR Motion Sensor	
	• 1x Grove - Moisture Sensor	
	• 1x Grove - Sound Sensor	
	1x Grove - Rotary Angle Sensor 1x Grove Page Pagetor Pagetor	
27	1x Grove Base Booster Pack IOT Sensor Booster Pack 3	5
<u> </u>		3
	37 in 1 Sensor Kit Package with	
	1 x Small passive buzzer module 1 x 2-color LED module	
	1 x Hit sensor module	
	25	1

	1 x Vibration switch module	
	1 x Photo resistor module	
	1 x Key switch module	
	1 x Tilt switch module	
	1 x 3-color full-color LED SMD modules	
	1 x Infrared emission sensor module	
	1 x 3-color LED module	
	1 x Mercury open optical module	
	1 x Yin Yi 2-color LED module 3MM	
	1 x Active buzzer module	
	1 x Temperature sensor module	
	1 x Automatic flashing colorful LED module	
	1 x Mini magnetic reed modules	
	1 x Hall magnetic sensor module	
	1 x Infrared sensor receiver module	
	1 x Class Bihor magnetic sensor	
	1 x Magic light cup module	
	1 x Rotary encoder module	
	1 x Optical broken module	
	1 x Detect the heartbeat module	
	1 x Reed module	
	1 x Obstacle avoidance sensor module	
	1 x Hunt sensor module	
	1 x Microphone sound sensor module	
	1 x Laser sensor module	
	1 x 5V relay module	
	1 x Temperature sensor module	
	1 x Temperature sensor module	
	1 x Linear magnetic Hall sensors	
	1 x Flame sensor module	
	1 x Sensitive microphone sensor module	
	1 x Temperature and humidity sensor module	
	1 x XY-axis joystick module	
28	1 x Metal touch sensor module	5
20	IOT Display Booster Pack	3
	• Kentec TFT LCD (P/N: K350QVG-V2-F)	
	• 3.5 inch QVGA (320x240 resolution)	
	SPI Interface	
	4-wire resistive touch screen	
	White LED Backlight	
	LED backlight driver circuit	
	Should Comply with the Booster Pack standard for use with 20 and 40 pin	
	Should Support Simple link protocol	
29	IOT Educational Booster Pack	10
	TV OPTIONAL VI. 1 G	
	TI OPT3001 Light Sensor	
	TI TMP006 Temperature Sensor	
	Servo Motor Connector	
	• 3-Axis Accelerometer	
	User Push Buttons	
	RGB Multi-color LED	
	Buzzer	
	40-pin Stackable BoosterPack Connector	
	Color TFT LCD Display	
	Microphone	
	2-Axis Joystick with Pushbutton	
	Should Support Simple link protocol	
1	- SHOULD SUPPORT SHIPPIC HIIK PROTOCOL	1
30	IOT adaptor Booster Pack	7

	•	Should Support 20-pin / 40 Pin Launch Pad	
	•	Should Support Analog Signal	
	•	Should Support Digital Signal	
	•	Should Support UART / I2C / SPI interface	
31	IOT S	ensor Kit (50 different sensors)	1
	•	3 X ECG Monitor Sensor Module	
		Designed to extract, amplify, and filter small biopotential signals. Leads Off Description.	
		Leads-Off Detection.Shutdown Pin.	
		LED Indicator.	
		o Analog Output.	
		 3.5 mm Jack for Biomedical Pad Connection. Interface to Wireless sensor node Bluetooth, Wifi, Zigbee module 	
		5 X PM2.5 GP2Y1010AU0F Air Quality Sensor	
		 Sensitivity 0.5V/(0.1mg/m3) ,Power supply voltage 5V ± 2V ,Maximum working current 20mA,, Operating temperature range10 to 60 °C, Response time 10ms , Particle diameter resolution Less than 0.1um 	
	•	2 X O3 Gas Sensor	
		 Analog output 	
		 The analog output increases with the concentration, the higher the voltage the higher the concentration the ozone gas with high sensitivity (detection concentration range 10PPM-1000PPM Ozone) 	
	•	2 X NO2 ,NH3, CO Gas Sensor	
		 Air Quality Sensor Three fully independent sensing elements on one package Built with ATmega168PA I2C interface with programmable address Heating power can be shut down for low power Detectable gases Carbon monoxide CO 1 – 1000ppm 	
		Nitrogen dioxide NO2 0.05 – 10ppm	
		○ Ammonia NH3 1 – 500ppm	
	•	2 X WATER PH SENOSR	
		 Module Power: 5.00V Module Size: 43 x 32mm(1.69x1.26") 	
		o Measuring Range :0 - 14PH	
		o Measuring Temperature: 0 - 60 ℃	
		$ \begin{array}{ll} $	
		 Response Time: ≤ 1min pH Sensor with BNC Connector, pH2.0 Interface ,Gain Adjustment Potentiometer , 	
		Power Indicator LED	
	•	2 X WATER TDS SENSOR	
		o Input Voltage: 3.3 ~ 5.5V	
		 Output Voltage: 0 ~ 2.3V Working Current: 3 ~ 6mA 	
		○ TDS Measurement Range: 0 ~ 1000ppm	
		o TDS Measurement Accuracy: ± 10% F.S. (25 °C)	
		 Module Size: 42 * 32mm Module Interface: PH2.0-3P 	
		 Electrode Interface: XH2.54-2P, TDS probe, Number of Needle: 2, Total Length: 	
		83cm	
		o Connection Interface: XH2.54-2P, Color: Black, Other: Waterproof Probe	
	•	2 X Soil Temperature and Moisture Sensor Relative humidity and temperature measurement	
		With dew point All calibration, digital output	
		 Excellent long term stability Waterproof package, and can be used for measurement of soil 	
		Low energy consumption	
		o Body dimensions: 14mm diameter, 50mm long	
		 Cable length: 1 ft Humidity readings with 4.5% accuracy 	
		 Humidity readings with 4.5% accuracy Temperature readings with 0.5 degree C accuracy 	
		○ Working Temperature/Humidity range: -40°C ~ 120°C, 0~100% RH	
	•	5 X Smoke sensor MQ2	
		Operating Voltage is +5V	
		 Can be used to Measure or detect LPG, Alcohol, Propane, Hydrogen, CO and even methane 	
		 Can be used as a Digital or analog sensor 	
	•	5 X Motion Sensor	
		o Operating voltage range: DC 4.5-20V, Level output: High 3.3 V /Low 0V, Quiescent	
		Current: <60uA • Lens size sensor: Diameter:23mm(Default)	
		• Angle Sensor: <140 ° cone angle	

		 Distance Measuring Range 3 to 7m (can be adjusted) 	
	•	5 X Light Sensor	
		 Operating voltage 5v ,LDR , 	
		o current(mA) 0.5-3 mA	
		 Response time - 20 ~ 30 milliseconds Peak Wavelength - 540 nm 	
		5 X Magnet Sensor	
		 Output high and low ,operating voltage 5v Real time application for door closing and opening operation 	
	•	5 X Proximity Sensor	
		 Output Type: PNP NO(Normally Open) Detecting Distance: 4mm 1% Theory: Inductive Sensor Wire Type: 3 Wire Type (Brown, Blue, Black) Switch Appearance Type: Cylinder Type, Brass Shell Supply Voltage: DC 3-36V Current: 300mA Detect Object: Metal Diameter: 12mm Cable Length: 1.1M Package Includes: 1x Inductive Proximity Sensor Switch. Real time application in industry for production counting Display 	
	•	5 X Ultrasonic Sensor	
		 Operating Voltage: 5V(DC) Output Signal: Electric frequency signal, high level 5V, 	
		low level 0VSensor Angle: Not more than 15 degrees; Input Trigger Signal: 10us	
32	IOT R	TTL impulse Echo Signal: output TTL PWL signal Detection Distance: 2cm-450cm Robotics KIT	4
32	1011		7
	•	Should have ARM CORTEX M4 based MCU for controlling Robots	
	•	Romi Chassis with 2 motor and 2 wheels	
	•	Motor driver and power board with DRV8838 motor driver H Bridge	
	•	QTR-8A Reflectance sensor array with 8 IR LED/phototransistor	
	•	used as a proximity or reflectance sensor	
	•	6 Bump switches for obstacle detection	
	•	Rechargeable batteries	
	•	Should support 4 UART, 8 SPI, 4 I2C interface	
	•	Clock Speed of 48 MHz, Minimum 35 GPIO Pins	
	•	Should have 16 channel 14 bit ADC for analog interface	
	•	Should contain 256 KB Flash and 64 KB of RAM	
	•	Capable of Programming minimum 5 different Low Power Modes	
	•	Power consumption: 80uA/MHz active and 660nA RTC standby operation	
	•	Advanced Encryption Standard (AES256) Accelerator, CRC, DMA, HW MPY3	
	•	Capable of supporting Thumb and Math Instructions	
	•	On board JTAG emulator for programming	
	•	Should support Open source GUI for development IDE	
	•	Should have interface for connecting Sub1GHz RF, Wi-Fi, BLE, Zigbee module	
	•	Controller should be capable of re-programming	
	•	Controller should be capable of plugging Booster pack on top of it	



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Annexure: 'B'

FORMAT FOR PERFORMANCE BOND/GUARANTEE

(Undertaking from the supplier on a Non Judicial Stamp Paper of requisite duly attested by Notary)

In consideration for "The Registrar, NIT Jalandhar)having agreed to releas concluded Order No da of (here in after care	e the payment of ne ted	et value as per ter (hereinafter calle	ms and conditions of a d'the order') for supply
(hereinafter called 'the supplier') on Jalandhar for the due performance of the	said order		
We, Messers	hereby	y submit the FDR/T	DR No
issued by favour of Registrar, NIT Jalandhar a unconditionally and absolutely underta Jalandhar by reason of any failure of the part of its obligations to the satisfaction of the satisfa	ke against any loss e supplier to perform	or damage caus or omission or ne	ed or suffered by NIT
We, the supplier, do hereby authorize amount / undertake to pay the amount on a demand from the NIT Jalandhar st caused to or would be caused to or suffor the terms and conditions contained negligence to perform the said order of Jalandhar any amount so demanded by	lue and payable under ating that the amount ered by the NIT Jalan in the said order or r any part thereof. V	er this guarantee wit claimed is due by adhar by reason of a by reason of oute, the Supplier, u	thout any demur merely way of loss or damage any breach by us of any r failure or omission or

- a) Any dispute or difference between NIT Jalandhar and supplier or any other person or between the supplier or any person or any suit or proceeding pending before any court or tribunal or arbitrator relating thereto; or
- b) The invalidity, irregularity or unenforceability of the order; or
- c) Any other circumstances which might otherwise constitute discharge of this guarantee, including any act of omission or commission on the part of NIT Jalandhar to enforce the obligations by the supplier or any other person for any reason whatsoever.

We, the Supplier, further agree that the performance Bond/ Guarantee herein contained shall be continued one and remain in full force and effect during the period that would be taken for the performance of the said order and that it shall continue to be enforceable till all the dues of the NIT Jalandhar under or by virtue of the said order have been fully paid and its claims satisfied or discharged or till the office of the Registrar, NIT Jalandhar certifies that terms and conditions of the said order have been fully and promptly carried out by us and accordingly discharges this Performance Bond/ Guarantee.

We, the Supplier, further agree with NIT Jalandhar, that NIT Jalandhar shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said order or to extend time of performance by the said supplier from time to time or to postpone for any time or from time to time and of the powers exercisable by the NIT Jalandhar against the said supplier and forbear or enforce any of the terms and conditions relating to the order and we shall not be relieved from our liability by reason of any such variation or extension being granted to us or for any forbearance, act or omission on the part of NIT Jalandhar or any indulgence by NIT Jalandhar to us or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

This Performance Bond/Guarantee will not be discharged due to the change in the constitution of the supplier. We, the Supplier, undertake not to revoke this Performance Bond / Guarantee except with the prior consent of NIT Jalandhar in writing.

The disputes relating to this Bank Performance Bond / Guarantee shall be resolved as per the terms and conditions of the order.



G T Road By Pass, Jalandhar-144011, Punjab (India)

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Annexure-C

FORMAT FOR PERFORMANCE BOND (BANK GUARANTEE)

In consideration for the Registrar, National Institute of Technology Jalandhar, (hereinafter called	ed NIT Jalandhar)
having agreed to release the payment of net value as per terms and conditions of a cond	cluded Order No.
dated (hereinafter called 'the order') for supply	
of(hereinafter called 'the Equipment	/Item) to
Messrs(hereinafter called 'the supplier') on submission of a Ba	ank Guarantee to
the satisfaction of NIT Jalandhar for the due performance of the said order.	
We, (hereinafter called 'the Bank	k') at the request
of the supplier do, as a primary obliger and not merely as surety, hereby irrevocably, unabsolutely undertake against any loss or damage caused or suffered by NIT Jalandhar by reast of the supplier to perform or omission or negligence to perform any part of its obligations to the NIT Jalandhar in terms of the order.	son of any failure
We, the Bank do hereby undertake to pay the amount due and payable under this guarar demur merely on a demand from NIT Jalandhar stating that the amount claimed is due by damage caused to or would be caused to or suffered by NIT Jalandhar by reason of any brown supplier of any of the terms and conditions contained in a said order or any part thereof. At made on the Bank shall be conclusive as regards the amount due and payable by the guarantee, which shall not be considered as satisfied by any intermediate payment or satisfact or obligation hereunder. However, our liability under this guarantee shall be restricted to exceeding We, the Bank, undertake to pay to NIT Jalandhar any amount so demanded by notwithstanding a). Any dispute and difference between NIT Jalandhar and supplier or any between the supplier or any person or any suit or proceeding pending before any court or triburelating	y way of loss or each by the said ny such demand bank under this tion of any part of an amount not NIT Jalandhar, other person or
thereto or	

- a). The invalidity, irregularity or unenforceability of the order or
- b). Any other circumstances which might otherwise constitute discharge of this guarantee, including any act of omission or commission on the part of NIT Jalandhar to enforce the obligations by the supplier or any other person for any reason whatsoever.

We, the Bank, further agree that the guarantee herein contained shall continue and remain in full force and effect during the period that would be taken for the performance of the said order and that it shall continue to be enforceable till all the dues of NIT Jalandhar under or by virtue of the said order have been fully paid and its claims satisfied or discharged or till the office of the Registrar, NIT Jalandhar confirms that the terms and conditions of the said order have been fully and promptly carried out by the said supplier and accordingly discharge this guarantee.

We, the Bank, hereby agree and undertake that any claim which the bank may have against the supplier shall be subject to and subordinate to the prior payment and performance in full of all the obligations of the bank hereunder and the bank will not, without prior written consent of NIT Jalandhar, exercise any legal rights or remedies of any kind in respect of any such payment or performance so long as the obligations of the bank hereunder remain owning and outstanding, regardless of the insolvency, liquidation or bankruptcy of the supplier or otherwise. We, the Bank, will not counter claim or set off against its liabilities to NIT Jalandhar hereunder any sum outstanding to the credit of NIT Jalandhar with it.

We, the Bank, further agree with NIT Jalandhar , that NIT Jalandhar shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said order or to extend time of performance by the said supplier from time to time or to postpone for any time or from time to time and of the powers exercisable by the NIT Jalandhar against the said supplier and forbear or enforce any of the terms and conditions relating to the order and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said supplier or for any forbearance, act or omission on the part of NIT Jalandhar or any indulgence by NIT Jalandhar to the said supplier or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

This guarantee will not be discharged due to the change in constitution of the Bank or the supplier.

We, the Bank, lastly undertake not to revoke this Guarantee during its currency except with the prior consent of NIT Jalandhar in writing.

The disputes relating to this Bank Guarantee shall be resolved as per the terms and conditions of the order.



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Annexure-D

FORMAT FOR MANUFACTURER'S AUTHORIZATION FORM

		lkar Natio	onal Institute o	f Techr	nology					
Sub. :	: e-Tende	r for "		".						
Dear \$	Sir,									
			, who , having facto _ [<i>name</i> & addr	ory/offic	e at			,	hereby author	orize M/s
			ove goods manu				0.01 (0.0)	u, noge	mato ana oon	
We	-		responsible		•		/Agreen	nent	negotiated	by
			, jointly a are a specific tender as	authoriz	ed to bi	d, negoti	ate and	conclud	e the order in	
2 *spe	ecify in d	etail man	ufacturer's res			_	es to be	render	ed by	
			are as under:							
i)						-				
ii) _						_				
chang and o comm Yours	ed or age bligations ission or of faithfully,	ent/ distrib to the nomission	to be rendered utor is changed ew Indian Age on the part of ne	it shall nt failin ew India	be obli g whicl an Ager	gatory o n we wi nt/ distrib	n us to a Il ipso-fa outor.	automa acto be	tically transfe come liable	r all the duties for all acts of
Note:	This lett	er of aut	horization sho	uld be	on the	letter h	ead of	the ma	nufacturing	concern and
shoul	d be sig	gned by	a person co	mpeter	nt and	having	the p	ower	of attorney	to bind the
manu	facturer.									



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Annexure – E

DECLARATION REGARDING BLACKLISTING / DEBARRING FOR TAKING PART IN TENDER

Self Attested

I / We	(Tenderer)	hereby	declare that	the firm / a	agency namely
M/s			has not	been blacklis	ted or debarred
in the past by Union / State	e Government or organizati	ion from	taking part in C	3overnment te	nders in India.
	Or				
	(Tenderer) he				
Union / State Government	or any Organization from t	aking pa	art in Governme	ent tenders for	a period of
	years w.e.f			•	
and n	now the firm/company is ent	titled to t	ake part in Gov	ernment tend	ers.
	tion found false I / we are fu T Jalandhar, and EMD / SD	•		er/ contract wi	ll be rejected
DEPONENT					
Attested:					
(Stamp of Company with	authorized sign)				
Name					
Address					



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Annexure: 'F'

CERTIFICATE OF WARRANTY

i).I/We certify that the warranty shall	be for a period of	years	forar	nd
starting from the date of satisf	actory installation,	commissioning and	I handing over of the	ne
Equipment / Machinery/ Instrume	ent and of the wor	ks conducted therev	vith covered under the	ne
supply order in working order. Du	iring the warranty	period, I/we shall p	rovide free "after sa	ıle
service" and the replacement	of any part(s) of	the Equipment / Ma	achinery/ Instrument	or
rectification of defects of work of	the Equipment / Ma	achinery/ Instrument	will be free of cost. The	ne
replacement of the parts shall	be arranged by us	s, at our own cost	and responsibility. W	۷е
undertake that the above warran	ity shall begin only	from the date of sa	atisfactory and faultles	SS
functioning of the Equipment / Ma	chinery/Instrument	for 60 days at NIT Ja	alandhar premises. Th	ne
benefit of change in dates of t	he warranty period	d shall be in the in	terest of the use/yo	ur
organization.				

- ii). During the warranty period, we shall provide at least_____ preventive maintenance visits.
- iii). Uptime Guarantee: During the warranty period, we will be responsible to maintain the Equipment / Machinery/ Instrument in good working conditions for a period 350 days (i.e. 95% uptime) in a block of 365 days.
 - a). All complaints will be attended by us within 2 working days of receipt of the complaint in our office.
 - b). In case there is delay of more than 2 days in attending to a complaint from our side then you can count the number of days in excess of the permissible response time in the downtime. The above said response time of 2 days for attending to a complaint by us will not be counted in the downtime.
 - c). **Penalty**: We shall pay a penalty equivalent to **0.5** % **of the FOB/CIF** value of the Equipment / Machinery/ Instrument for every week or part thereof delay in rectifying the defect.

Note: The right to accept the reason (s) for delay and consider reduction or wave off the penalty for the same shall be at the sole discretion of Director, NIT Jalandhar

- iv). We certify that the Equipment / Machinery/ Instrument being/ quoted is the latest model and that spares for the Equipment / Machinery/ Instrument will be available for a period of at least ______ years and we also guarantee that we will keep the organization informed of any update of the Equipment / Machinery/ Instrument over a period of ____ years.
- v). WEquipment / Machinery/ Instrument e guarantee that in case we fail to carry out the maintenance within the stipulated period, NIT Jalandhar reserves the right to get the maintenance work carried out at our risk, cost and responsibility after informing us. All the expenses including excess payment for repairs/maintenance shall be adjusted against the Performance Bank Guarantee. In case the expenses exceed the amount of Performance Bank Guarantee, the same shall be recoverable from us with/without interest in accordance with the circumstances.
- vi).We shall try to repair the Equipment / Machinery/ Instrument at NIT Jalandhar premises itself. However, the Equipment / Machinery/ Instrument twill be taken to our site on our own expenses in case it is not possible to repair the same at NIT Jalandhar. We shall take the entire responsibility for the safe custody and transportation of the Equipment / Machinery/ Instrument taken out for repairs till the Equipment / Machinery/ Instruments rehabilitated to the NIT Jalandhar after repair Any loss of Equipment / Machinery/ Instrument or its accessories under its charge on account of theft, fire or any other reasons shall be at our sole risk and responsibility which will be compensated to NIT Jalandhar for such losses at the FOB/CIF value for the damaged/lost Equipment / Machinery/ Instrument part, including accessories.
- vii. We undertake to perform calibration after every major repair/breakdown/taking the Equipment / Machinery/ Instrument for repair out of NIT Jalandhar premises.
- viii. In case of extended warrantee, we undertake to carry out annual calibration of the Equipment /Item.
- ix. We guarantee that we will supply spare parts if and when required on agreed basis for an agreed price. The agreed basis could be an agreed discount on the published catalogue price.
- x. We guarantee to the effect that before going out of production of spare parts, we will give adequate advance notice to you so that you may undertake to procure the balance of the life time requirements of spare parts.
- xi. We guarantee the entire unit against defects of manufacture, workmanship and poor quality of components.