NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
POST SRINIVASNAGAR, MANGALORE – 575 025 (D K)

Phone: (0824) 2474000.   Fax: (0824) 2474033
E- mail: info@nitk.ac.in   **Website: http://www.nitk.ac.in**

NOTICE INVITING QUOTATION

Notification. No: NITK/CSE/MPS/C3IHub/Sensors/1395B/2024/04   Dated: 04-12-2024

Name of Goods	**Sensors and other Hardware Devices**
Estimated Amount	**Rs. 3,00,000.00**
EMD Amount (2% of estimated amount) (Applicable for estimate above 2.5 lakhs)	**Rs. 6,000.00**
Time for Supply of item after release of Purchase order	**15 Days**
Document Download / Sale Start Date	05-12-2024, 03:00 PM
Clarification Start Date	05-12-2024, 03:00 PM
Clarification End Date	12-12-2024, 03:00 PM
Bid Submission Start Date	05-12-2024, 03:00 PM
Last Date for submission of bids	**19-12-2024 before 03.00 PM**
Bid Opening Date	**20-12-2024, 03:00 PM**
Address for Submission of bids	**Dr. Mahendra Pratap Singh** Assistant Professor Dept. of Computer Science & Engineering NITK - Surathkal, PO Srinivasnagar, Mangalore - 575025 Dakshina Kannada District, Karnataka Contact No.: 0824-2473402 E-mail: mp_singh@nitk.edu.in

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NOTICE INVITING QUOTATION (NIQ)

The National Institute of Technology Karnataka, Surathkal (in short – NITK, Surathkal) is an Institute Of National Importance Under Ministry of Education Govt of India, imparting Technical Education and engaged in Research Activities. It is proposed to procure the items for the departmental academic/research activities.

Sealed Quotations as per the Price Schedule given in this NIQ are invited for the following items subject to the terms and conditions, from the reputed manufacturers or its authorised dealers so as to reach on or before scheduled date and time. The quotations in the firm's Business letter head should be address to the "Director, NITK, Surathkal". The envelope shall be superscribed with the Quotation Notification Number and the Name of the Goods for which quotation is submitted.

Name of Goods	Sensors and other Hardware Devices
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Sd/-
Head of the Department

Note: Institute shall not be responsible for any postal delay about non-receipt /non-delivery of the bids or due to wrong addressee.

SECTION-1
Terms and Conditions

1. The rates should be quoted for preferably FOR destination from supply within India.

2. The bidder shall indicate the excise duty exemption for the goods if applicable.

3. The rate quoted should be on unit basis. Taxes and other charges should be quoted separately, considering exemptions if any. The rate should be quoted in INR only

4. Rate quoted should be inclusive of Testing, commissioning and Installation of equipment and Training.

5. Payment: No advance payment will be made. Payment will be made only after the supply of the item in good and satisfactory condition and receipt of performance security by supplier.

6. Guarantee/Warrantee period should be specified for the complete period should be specified in section 3 of this tender document.

7. Period requirement for the supply and installation of item should be specified in section 3 of this tender document.

8. In case of dispute, the matter will be subject to Mangalore Jurisdiction only.

9. **Delivery Period**: The Delivery Period/Time shall be deemed to be the essence of the Contract and delivery must be completed not later than such date(s). If the Supplier does not perform its obligations within the Delivery Period/Date mentioned in the Contract, the same would constitute the breach of the Contract and the Institute shall have the right to cancel or withdraw the Contract for the unsupplied portion after the expiry of the original or extended delivery date or period stipulated in the Contract. Such cancellation of the contract on account of non - performance by the Supplier would entitle the Buyer to forfeit the EMD/Performance Security besides other actions such as debarment from the Institute as per GFR 2017.

10. **Liquidated Damages:** Timely delivery is the essence of the contract and hence if the Supplier fails to deliver Goods within the original/extended delivery period(s) specified in the contract, the Institute will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, **@ 1% per week or part of the week of the delayed period** as pre-estimated damages not exceeding 5% of the contract value without any controversy/dispute of any sort whatsoever.

11. The bidder needs to comply with restrictions under rule No 144 (xi) of GFR (General Financial Rules) 2017 and the clause pertaining to Public Procurement Division Order (Public Procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 and 24.07.2020 of Dept of Expenditure (DOE), Ministry of Finance). In this Connection Bidder has to submit Self Certification (as per Annexure A or B), depending on the status of the bidder.

12. The bidder needs to submit a Self-certification in line with Make in India, Public Procurement Order No. P-45021/2/2017-BE-II dt. 15.06.2017, P 45021/2/2017-PP (BE-II) dated 28.05.2018, P-45021/2/2017-PP (BE-II)

dated 29.05.2019 and P45021/2/2017- PP (BE – II) dated 16.09.2020 of DPIIT, Ministry of Commerce & Industry. The Bidder who will not meet this criterion will be rejected in the technical bid. The Self-certification should be provided as per Annexure C.

13. EMD must be in the form of Bank Guarantee **Annexure-D** (Fixed Deposit Receipt/Insurance surety bonds/DD/e-Payment mode (through Credit/Debit cards / Net Banking). It will be valid for 180 days from the date of opening of the tender. In case of EMD payment made through E-Payment, UTR Number with details should be uploaded. The firm registered with MSME/NSIC as per MSME procurement policy order 2012 will be exempted from submission of EMD. Intended parties will have to give proof of registration along with their tender. EMD of the unsuccessful bidders shall be refunded without any interest at the earliest after finalization of the purchase of the concerned item.

    a. The EMD will be returned to the BIDDERs(s) whose offer is not accepted by NITK within one month from the date of the placing of the purchase order(s) on the selected BIDDER(s). In the case of the BIDDER(s) whose offer is accepted the EMD will be returned on submission of Performance Security in the form of Bank Guarantee (BG). However, if the return of EMD is delayed for any reason, no interest/penalty shall be payable to the Bidders.

    b. The successful BIDDER, on the award of contract/order, must send the contract/order acceptance in writing, within 15 days of award of contract/order failing which the EMD will be forfeited.

    c. The EMD shall be forfeited in case a successful BIDDER fails to furnish the Performance Security.

    d. Bidder should prepare the EMD as per the instructions specified in the tender document. The original EMD should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission as specified in the tender documents. The details of the BG/DD/FD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise, the uploaded bid will be rejected.

14. **Performance Security**: The successful bidder shall deposit performance security of 3% of the quoted price in the form of Bank Guarantee (**ANNEXURE-E**) of any scheduled bank drawn in favour of **The Director, NITK Surathkal, Mangaluru** payable at Mangaluru. In case the bidder fails to deposit the said Performance Security within the stipulated period, including the extended period if any, the Earnest Money Deposited by the bidder shall be forfeited automatically without any notice. Please note the following points:

    a. **Successful bidder should submit performance Security as prescribed above to the purchase Section, NITK Surathkal, on or before 30 days from the date of issue of order acknowledgment.**

    b. Performance Security shall be for the due and faithful 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.

    c. The successful bidder is entirely responsible for the due performance of the contract in all respects according to the terms and conditions of the tender.

    d. The validity of the Performance Security must cover the warranty period plus two months.

15. Abnormally quoted low bid will be liable for rejection as per the OM No.F.12/17/2019-PPD of Department of Expenditure, Ministry of Finance dated 6th February 2020.

> *****Disclaimer***** *Bidders are advised to exercise caution and not respond to any unknown calls, emails, or embedded links requesting payment for participating in the tender or for any other purpose. Please note that NITK Surathkal never asks for any tender fee for participation in tenders or bids.*

SECTION-2
SCHEDULE OF REQUIREMENTS, SPECIFICATIONS AND ALLIED DETAILS
[To be filled up by the Department / Centre of NITK, Surathkal]

Item(s) Name to be Procured : Sensors and other Hardware Devices

Brief Specifications of the Item(s) : As per Annexure-F
(Annexure-F)

Quantity : Set

Any other details / requirement : Nil

Warranty Period required : 03 Years

Delivery Schedule expected
after placement of Purchase order
(in Weeks) : 02 weeks

Performance Security to be given
by Successful Bidder after release of : 3% of Purchase Order
Purchase Order (in Rupees)
(**applicable for estimate Above 2.5 lakhs**)

SECTION 3
PRICE SCHEDULE
[To be used by the bidder for submission of the quotation]

1. Item Name   :

2. Specifications
    (Conforming to Schedule of requirements
     Enclose additional sheets if necessary)   :

3. Currency and Unit Price   :

4. Quantity   :

5. Item Cost (Sl No. 3 * Sl. No. 4)   :

6. Taxes and Other Charges   :
    (i) Specify the type of taxes and duties
        in percentages and also in figures.
    (ii) Specify Other Charges in figures.

7. Warranty Period   :
    (Conforming to the Schedule of
    requirements)

8. Delivery Schedule   :
    (Conforming to the Schedule of requirements)

9. Name and address of the Firm for   :
    placing purchase order

10. Name and address of Indian authorized
    agent (in case of imports only)   :

Signature of the Bidder: _____

Name   and Designation: _____

Business Address   : _____

                          _____

Place: **Seal of the Bidder's Firm**
Date:

SECTION 4
CONTRACT FORM
[To be provided by the bidder in the business letter head]

1. (Name of the Supplier's Firm) hereby abide by the delivery schedule mentioned in this document for supply of the items if the purchase order is awarded.

2. The item will be supplied conforming to the specifications stated in this document without any defect and deviations.

3. Warranty will be given for the period mentioned in this document and service will be rendered to the satisfaction of NITK, Surathkal during this period.

Signature of the Bidder: _____

Name   : _____

Business Address   : _____

                              _____

Place :   **Seal of the Bidder's Firm**
Date :

(Compliance to be submitted in the bidder's letterhead)
(Applicable for estimate above 2.5 lakhs)

Sub: Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017

Item Name:	
Enquiry No.:	

We M/s._____(name of the bidder company) have read the clauses pertaining to the Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country that shares a land border with India.

We hereby certify that **we are not from such a country** and eligible to be considered for this tender.

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead to commercial rejection of their bids by NITK)

For and behalf of_____(Name of the bidder)

(Signature, date & seal of an authorized representative of the bidder)

(Compliance to be submitted in the bidder's letterhead)
(Applicable for estimate above 2.5 lakhs)

Sub: **Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017**

Item Name:	
Enquiry No.:	

We M/s._____(name of the bidder company) have read the clauses pertaining to the Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country which shares a land border with India.

We are from such a country which shares a land border with India & have been registered with the Competent Authority as specified in the above-said order. We hereby certify that we fulfill all requirements in this regard and are eligible to be considered.

Evidence of valid registration by the Competent Authority is attached.

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead to commercial rejection of their bids by NITK)

For and behalf of_____(Name of the bidder)

(Signature, date & seal of an authorized representative of the bidder)

Self-Certification on the letterhead of the company
(Applicable for estimate above 5 lakhs)

In line with Government Public Procurement Order No. P-45021/2/2017-BE-II dt. 15.06.2017, P-45021/2/2017-PP (BE-II) dated 28.05.2018, P-45021/2/2017-PP (BE-II) dated 29.05.2019 and

P-45021/2/2017-PP (BE-II) dated 16.09.2020, we hereby certify that

………

(Supplier name) are local supplier meeting requirement of minimum local content …………… % defined in as above orders for the material against Enquiry / Tender No

……

……

……………………………………………………………………………………………………

Details of the location at which local value addition will be made are as follows:

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

We also understand false declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permitted under law.

Date:
Place:

Signature:
Name and Designation:
Mobile no:
Office
Telephone   No:
Email ID:
Office Seal:

FORMAT FOR EARNEST MONEY DEPOSIT / BID BOND
(Applicable for estimate above 2.5 lakhs)
(To be typed on <u>Non-judicial stamp paper</u> of value Indian Rupees Five Hundred)
(TO BE ESTABLISHED THROUGH ANY OF THE NATIONAL BANKS (WHETHER SITUATED AT MANGALURU OR OUTSTATION) WITH A CLAUSE TO ENFORCE THE SAME ON THEIR LOCAL BRANCH AT MANGALURU OR ANY SCHEDULED BANK (OTHER THAN NATIONALISED BANK) SITUATED AT MANGALURU. BONDS ISSUED BY COOPERATIVE BANKS ARE NOT ACCEPTED)

LETTER OF GUARANTEE

To
Director,
National Institute of Technology Karnataka,
Srinivasnagar P.O., Surathkal
Mangaluru – 575025

IN ACCORDANCE WITH YOUR TENDER for the supply of …..........................., M/s............................. (hereinafter called the "Bidder") having its Registered Office at ...., wish to participate in the said bid for the supply...as an irrevocable Bank Guarantee against Earnest Money Deposit for an amount of Rs. …................... (Rupees.............................) valid up to **(180 days from the date of issue of Bank Guarantee)**, is required to be submitted by the bidder as a condition precedent for participating in the said bid, which amount is liable to be forfeited by the Purchaser on (1) the withdrawal or revision of the offer by the bidder within the validity period, (2) Non acceptance of the Letter of Intent/Purchase order by the Bidder when issued within the validity period, (3) failure to execute the contract as per contractual terms and condition within the contractual delivery period and (4) on the happening of any contingencies mentioned in the bid documents.

During the validity of this Bank Guarantee:
We, …......................(Bank name) having the registered office at....................................guarantee and undertake to pay immediately on first demand by NITK Surathkal, an amount of Rs........................... (Rupees. ....) without any reservation, protest, demur and recourse. Any such demand made by theNITK Surathkal shall be conclusive and recourse. Any such demand made by the purchaser shall be binding on the Bank irrespective of any dispute or difference raised by the Bidder.
The Guarantee shall be irrevocable and shall remain valid up to.......................(180 days from the date of issue of Bank Guarantee) If any further extension is required, the same shall be extended to such required period on receiving instruction from the Bidder, on whose behalf the is Guarantee is issued.

Notwithstanding anything contained herein:
∗ Our liability under this Bank Guarantee shall not exceed Rs.................... (Rupees...................).

∗ This Bank Guarantee shall be valid up to...(date).
∗ We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee Only and only if you serve upon us a written claim 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 Bond Period, the Original Bond will not be returned to the Bank. The bank is requested to take appropriate necessary action on or after the expiry of the bond period

FORMAT FOR PERFORMANCE GUARANTEE BOND
(To be typed on Non-judicial stamp paper of the value of Indian Rupees of Five Hundred)
(Applicable for estimate above 2.5 lakhs)

To,
Director,
National Institute of Technology Karnataka,
Srinivasnagar P.O., Surathkal
Mangaluru – 575025

Whereas……………………………………………… (name and address of the contractor) (hereinafter called "the contractor") has undertaken, in pursuance of contract no ……….. date……………. to supply ……………… (description of goods and Works/ Services) (hereinafter called "the contract").

And Whereas you have stipulated it in the said contract that the contractor shall furnish you with a bank guarantee by a Commercial bank for the sum specified therein as security for compliance with its obligations as per the contract;

And Whereas we have agreed to give the contractor such a bank guarantee.

Now Therefore we hereby affirm that we are guarantors and responsible to you, on behalf of the contractor, up to a total of ………………………………………………….(amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the contractor to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the sail debt from the contractor before presenting us with demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed thereunder or of any of the contract documents which may be made between you and the contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall be valid until the ………….day of …….20……

Our………………………………….branch at………………*(Name & Address of the ……….…………..*(branch) is liable to pay the guaranteed amount depending on the filing of a claim and any part thereof under this Bank Guarantee only and only if you serve upon us at our ………………* branch a written claim or demand and received by us at our …………………..* branch on or before Dt………….. otherwise, the bank shall be discharged of all liabilities under this guarantee after that.

(Signature of the authorized officer of the Bank)

…………………………………………

…………………………………………

Name and designation of the officer

…………………………………………

Seal, name & address of the Bank and address of Branch

*Preferably at the headquarters of the authority competent to sanction the expenditure for the procurement of goods or at the concerned district headquarters or the state headquarters.

Detailed Technical Specifications for Sensors and other Hardware Devices

Domain	Item	Description
Sensors	
Sensor 1:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	SDS011
	Quantity	05 No.s
	Specifications	• Laser scattering principle: Measures particle concentration in the air for particles ranging from 0.3 µm to 10 µm. • Data output: Provides digital output via serial protocol (9600 bps) and supports output over 2 PWM channels. • Built-in fan: Ensures air sampling, enhancing stability and reliability. • Measuring output: PM2.5, PM10 • Range: 0.0-999.9 ug/m3 • Power supply voltage: 5V • Maximum working current: 100mA • Particle diameter resolution: Less than 0.3um • Accurate and reliable: Uses laser detection, offering measurement stability and consistency. • Quick response: Detects changes in less than 10 seconds. • Easy integration: Outputs via UART (IO output can be customized) and features a built-in fan. • High resolution: Capable of detecting particles as small as 0.3 µg/m³.
	Potential applications	• PM2.5, PM10 detectors • Air purifiers • Air exchangers • Filtering systems
Sensor 2:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Particulate Matter Sensors
	Quantity	02 No.s
	Specifications:	• Laser-based sensor: Utilizes a laser light source for particle detection and counting. • Detection method: Detects particles through light scattering as they pass through a laser beam. • Detection range: Measures particulate concentration from 0 µg/m³ to 1,000 µg/m³. • Working principle: Particles reflect light when illuminated by the laser, which is then captured by a photo/light detector. • Signal conversion: The reflected light is converted into an

		electrical signal to calculate the concentration of particles. ● Particle concentration information: Provides detailed data on particle concentration across a specific range. ● Applications: Commonly used for air quality monitoring and detecting particulate pollution.
	Potential applications	• HVAC (commercial and residential) • Indoor air quality monitors • Handheld air quality monitors • Air purifiers (commercial and residential) • Automotive cabin air purifiers
	Additional Information	• A long life of 10 years offers a more stable operation for continuous usage • Proven EMC performance, based on IEC61000 stable operation, ±15% accuracy (PM2.5)
Sensor 3:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	GY-SHT35-D Digital Temperature and Humidity Sensor
	Quantity	02 No.s
	Specifications:	● Rated Voltage (V):2.4 to 5.5 ● Temp. Measuring Range (°C): -40°C~125°C ● Humidity Range : 0 ~ 100% relative humidity ● High accuracy in temperature and humidity measurements ● Digital output via I2C or SPI communication interface ● Low power consumption for energy efficiency ● On-chip calibration for precise readings ● Compact design for easy integration ● Wide operating voltage range for versatile applications
	Potential applications	It is suitable for diverse applications such as weather stations, environmental monitoring, HVAC systems, and industrial automation due to its ability to measure temperature and humidity accurately.
	Additional Information	1. **High Accuracy**: Provides precise measurements for both temperature and humidity. 2. **Digital Output**: Typically uses an I2C or SPI communication interface for easy integration into various electronic systems. 3. **Low Power Consumption**: Designed to operate efficiently, making it suitable for battery-powered devices. 4. **Calibration Coefficients**: Includes on-chip calibration data for accurate readings without external calibration. 5. **Compact Design**: A small form factor allows easy integration

		into different devices or projects.
		6. **Wide Operating Voltage Range**: Can operate within a broad range of supply voltages.
		7. Easy to use
		8. High accuracy in temperature and humidity measurements
		9. Digital output via I2C or SPI communication interface
		10. Low power consumption for energy efficiency
		11. On-chip calibration for precise readings
		12. Compact design for easy integration
		13. Wide operating voltage range for versatile applications
		14. Good quality product
		15. Temperature measurement accuracy: ±0.2°C
Sensor 4:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	MEMS Gas Sensor (CO, Alcohol, NO2 & NH3) – I2C – MiCS-4514
	Quantity	02 No.s
	Specifications:	Operating Voltage: 3.3～5.5V DC Power Dissipation: 0.45W(5V) Output Signal: I2C (0~3V) Working Temperature: -30～85℃ Working Humidity: 5～95% RH(No condensation) Storage Temperature: -40~85℃ Lifespan: >2 years (in the air) Circuit Board Size: 27mm* 37mm Mounting Hole Size: inner diameter 3.1mm/ outer diameter 6mm Measurement range: 1 – 1000ppm (Carbon monoxide CO) 0.05 – 10ppm (Nitrogen dioxide NO2) 10 – 500ppm (Ethanol C2H5OH) 1 – 1000ppm (Hydrogen H2) 1 – 500ppm (Ammonia NH3) >1000ppm (Methane CH4)
	Potential applications	Gas leak detection Gas safety equipment Air environment detection
	Additional Information	This sensor can detect various gas concentrations, including CO, C2H5OH (alcohol), H2, NO2, and NH3, and the code includes various gas concentration conversion formulas to make sensor testing and use easier. It's compatible with Arduino, ESP32, Raspberry Pi, and other mainstream controllers thanks to its I2C output and 3.35.5V wide voltage input. Package should Include: 1 x MEMS CO Alcohol NO2 & NH3 Gas Sensor 1 x 4pin I2C Cable

Sensor 5:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	MQ135 Semiconductor Sensor for Air Quality
	Quantity	02 No.s
	Specifications:	MQ135 Detection range: 10～1000ppm(ammonia gas, toluene, hydrogen, smoke) Standard test circuit: Vc:5.0V±0.1V, VH: 5.0V±0.1V Sensor Type: Semiconductor Standard Encapsulation: Bakelite, Metal cap Target Gas: ammonia gas, sulfide, benzene series steam Detecting Range: 10～1000ppm(ammonia gas, toluene, hydrogen, smoke) Standard test circuit: Vc:5.0V±0.1V, VH: 5.0V±0.1V
Sensor 6:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	K30 FR (Fast Response CO2 Sensor Module)
	Quantity	02 No.s
	Specifications:	• Measured Gas: Carbon dioxide (CO_2) • Operating Principle: Non-dispersive infrared (NDIR) • Measurement Range (CO_2): 0–5000 ppm • Output 1 (OUT1): Linear Output, 0–10 VDC = 0–5000 ppm • Output 2 (OUT2): Linear Output, 0–5 VDC = 0–5000 ppm • Output 3 (OUT3): Digital Output, On ≥ 800 ppm, Off ≤ 700 ppm • Output 4 (OUT4): Digital Output, On ≥ 1000 ppm, Off ≤ 900 ppm • Accuracy (CO_2): ±30 ppm ±3% of reading • Dimensions: 51 x 57 x 14 mm (L x W x H) • Life Expectancy: Greater than 3 years • Operating Temperature Range: 0–50 °C • Operating Humidity Range: 0–95% RH (non-condensing) • Power Supply: 4.5–14 VDC • Current Consumption: 70 mA (average) • Response Time (T90): 2 seconds @ 0.5 l/min tube gas flow

		● Communication Interfaces: I²C, UART (Modbus)
	Potential applications	N/A
	Additional Information	• Fast response time • Compliant with ANSI/ASHRAE Standard 62.1-2022 • Compliant with RESET grad B • Compliant with WELL Building Standard® (WELL v2™) • Individually calibrated • High quality • Long term stability

Water Monitoring Sensors

Sensor 1:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	DS18B20 Water Temperature Sensor Module
	Quantity	05 No.s
	Specifications:	● Digital Output should offer digital temperature conversion and output for precise readings. ● Single-Bus Communication: Uses advanced single-wire data communication, reducing the need for additional wiring. ● High Accuracy: Provides up to 12-bit resolution with an accuracy of ±0.5°C, ideal for precise applications. ● Parasitic Power Mode: Can operate in parasitic mode, eliminating the need for an external power supply. ● Wide Temperature Range: Detects temperatures from -55°C to +125°C (-67°F to +257°F), suitable for extreme environments. ● Built-in EEPROM: Includes EEPROM for storing configuration settings and temperature limits for enhanced reliability. ● Input Voltage (V): 3.3~5 ● Interface: Digital ● Operating Temperature (°C): -55 to 125 ● Length (mm): 32 ● Width (mm): 22
	Potential applications	Water Temperature Measurement
	Additional Information	It should be compatible with Arduino and Raspberry Pi 5.
Sensor 2:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Waterproof Temperature Probe: Waterproof Temperature Probe-Black (1 m).

	Quantity	05 No.s
	Specifications:	- Supply Voltage: Operates within a voltage range of 3.0V to 5.5V. - Temperature Range: Capable of detecting temperatures from -55°C to +125°C. - Length: 1 meter - Probe Dimensions: It features a 6mm diameter probe with a length of 50mm, which is ideal for compact installations. - Response Time: Temperature query time is approximately 750 milliseconds. - Cable Length: Includes a 1-meter cable for flexible placement.
	Potential applications	Use for temperature measurement.
	Additional Information	Should be Arduino and Raspberry Pi 5 compatible
Sensor 3:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Analog TDS Sensor/meter
	Quantity	05 No.s
	Specifications:	- Wide Voltage Input: 3.3~5.5V - Good Compatibility Output: 0~2.3V analog signal output, compatible with 5V or 3.3V controller - AC Excitation Source: effectively prevents the probe from polarization - Waterproof Probe - Easy to Use: Arduino compatible, simple connection, plug, and play without soldering - Input Voltage: 3.3 ~ 5.5V - Output Voltage: 0 ~ 2.3V - Working Current: 3 ~ 6mA - TDS Measurement Range : 0 ~ 1000 ppm - TDS Measurement Accuracy: ± 10% F.S. (25 °C) - Module Interface: PH2.0-3P - Electrode Interface: XH2.54-2P
	Potential applications	Measuring the TDS
	Additional Information	The product should also include a waterproof probe. Should be Arduino and Raspberry Pi 5 compatible
Sensor 4:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Analog pH Sensor/meter

	Quantity	05 No.s
	Specifications:	- Power Indicator LED - pH Sensor with BNC Connector - Input Voltage (V): 5 - Accuracy: ± 0.1pH - Response Time: ≤ 1 min - Interface Type: pH2.0 - Measuring Range: 0 – 14PH - Operating Temperature (°C): 0 to 60
	Potential applications	- Water quality testing - Aquaculture and similar environments - Building pH meter gadgets or water monitoring stations
	Additional Information	Should be Arduino and Raspberry Pi 5 compatible
Sensor 5:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Analog Turbidity Sensor
	Quantity	05 No.s
	Specifications:	Function: Measures water quality by detecting turbidity (suspended particles in water) Working Principle: - Measures light transmittance and scattering rate (related to Total Suspended Solids, TSS) - Higher TSS = Increased turbidity Output Modes: - Analog and digital signal outputs - The adjustable threshold in digital mode based on MCU Requirements Input Supply: 5 VDC Current Consumption: 40 mA Response Time: <500 ms Insulation Resistance: 100 MΩ Operating Temperature: 5°C to 90°C Storage Temperature: -10°C to 90°C
	Potential applications	- Water quality measurement in rivers, streams, and wastewater - Effluent monitoring - Sediment transport research - Laboratory measurements
	Additional Information	Should be Arduino and Raspberry Pi 5 compatible

Sensor 6:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Portable pH/EC/TDS/Temperature Meter
	Quantity	01 No.
	Specifications:	● An economical, waterproof, portable meter that measures pH, conductivity (EC), total dissolved solids (TDS), and temperature (°C) with a single probe. The meter operation is simplified with dedicated buttons for measurement modes to be displayed on the LCD and knobs for single-point calibration of pH and EC/TDS. ● 3-in-1 probe with pH, EC/TDS, and temperature sensors ● Amplified pH electrode for immunity to electrical noise, including from ballasts and pumps ● Large LCD with instructions pH Measurement: ● Range: 0 to 14 pH ● Resolution: 0.1 pH ● Accuracy: ±0.1 pH ● Calibration: Manual, 1-point through offset trimmer EC Measurement: ● Range: 0.00 to 6000 µS/cm ● Resolution: 10 µS/cm ● Accuracy: ±2% F.S. ● Calibration: Manual, 1-point through slope trimmer TDS Measurement: ● Range: 0 to 3000 ppm (mg/L) ● Resolution: 10 ppm (mg/L) ● Accuracy: ±2% F.S. ● Calibration: Manual, 1-point through slope trimmer EC/TDS Temperature Compensation: ● Automatic from 0 to 50°C (32 to 122°F) ● Temperature Correction Coefficient: β = 2% /°C ● EC to TDS Conversion Factor: 0.5 ppm (mg/L) = 1 µS/cm Temperature Measurement: ● Range: 0.0 to 70.0°C ● Resolution: 0.1°C ● Accuracy: ±0.5°C Probe: ● HI1285-5 combination probe

		- Amplified pH/EC/TDS/temperature probe - Built-in temperature sensor 8-pin DIN connector 1 m (3.3 in.) cable Power: 9V battery - Approximately 150 hours of continuous use Environment: 0 to 50°C (32 to 122°F) - RH max 100% Dimensions: 145 x 80 x 36 mm (5.7 x 3.1 x 1.4") Weight: 230 g (8.1 oz.)
	Potential applications	Water monitoring
	Additional Information	N/A
Sensor 7	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Water Flow Sensor
	Quantity	04 No.s
	Specifications:	1. Max Water Flow (Litre/min): 1 to 120 L/min 2. Working water pressure (MPa): ≤2.0 MPa 3. Operating Voltage: 3.5 to 24V 4. Should be Arduino/Rasberry Pi 5/ESP32 compatible 5. Interface (Input and output): should be compatible with 12.7 mm/ 0.5 inch PVC pipe
	Potential applications	For water flow measurement and related work
	Additional Information	1. Made of high-quality ABS and metal, it is solid, durable, and good performance, serving for a long time. 2. With a stainless steel bearing inside the impeller, it is super wear-resistant. 3. The sealing ring adopts the structure under the upper and lower forces to never leak water. 4. A permanent magnet will never rust. 5. Prevent water ingress and never age. 6. Should not be susceptible to any electromagnetic interference.

Sensor 8	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Water Solenoid Valve
	Quantity	04 No.s
	Specifications:	Working water pressure(MPa): ≤2.0 MPa Input Voltage Range: AC220V / DC12V / DC24V Input Current(A): 0.048(220V) / 0.48(12V) / 0.235A(24V) Insulation Resistance (MΩ): 4.85KΩ(220V)/25Ω(12V)/100Ω(24 Interface (Input and output): should be compatible with 12.7 mm/ 0.5 inch PVC pipe
	Potential applications	Ideal for industrial, home automation, and IoT projects.
	Additional Information	1. Precise water flow measurement for various applications. 2. Reliable turbine sensor technology ensures accuracy. 3. Compact and easy to install in tight spaces. 4. Wide flow rate range to suit diverse needs. 5. Durable construction for long-term use. 6. Suitable for both liquids and gases. 7. Analog or digital output options for flexibility. 8. Interface (Input and output): should be compatible with 12.7 mm/ 0.5 inch PVC pipe
Sensor 9	BRAND NAME AND MODEL	To be specified by the bidder
	Name	7 in 1 Soil Sensor
	Quantity	02 No.s
	Specifications:	● Power Supply: 12-24V DC ● Output Signal: RS485/4G/NB-IoT/LoRa ● Response Time: <1s ● Moisture measurement range: 0~100% ● Moisture measurement accuracy: 　　±3% of reading (within the range of 0-53%) 　　±5% of reading (within the range of 53-100%) ● Probe: Imported 316-type stainless steel ● Conductivity measurement ranges:　0-10000us/cm ● Conductivity resolution: 10us/cm ● PH measurement range: 3-9PH ● PH measurement accuracy: ±0.3PH ● NPK measurement range: 0-199mg/kg ● NPK measurement accuracy: ±2%Fs ● Storage environment: -20 °C – 60 °C ● Working pressure range: 0.9-1.1atm

		● Protection Level: IP68
		● Interface Type: USB

Hardware Equipment:

Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Screw Driver Set with Bulb (Neon, Silver and Green)
	Quantity	01 No.
	Specifications:	● Number of Items: 10 ● Head Style: Phillips ● Material: Alloy Steel ● Color: Silver and Green ● Recommended Uses: Household and Professional Use Set Contents: ● 5 Blades: 6.0x8mm, 3.5x0.5mm, Phillips 0, Square Poker, Phillips 1 ● 1 Extension Rod ● 1 Handle with Neon Bulb Material: ● High-Grade Steel (Blades) ● Transparent Green Cellulose Acetate (Handle) Handle Characteristics: ● High-Grade C.A. Plastic ● Non-Flammable ● Unaffected by Oil, Petrol, Grease, and Water ● Standards: Conforms to IS 844-1979
Item 2	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Bit Screw Driver Set BS31
	Quantity	01 No.

	Specifications:	● Screwdriver Bit Set Features
		  o Material: Accurately hardened and tempered to 56-60 HRC for high torque and wear resistance.
		  o Bit Types: Precisely machined Phillips, Torx, Flat, Hexagon, Tri-W and Square Tips.
		  o Strength: High tensile strength for durability.
		  o Applications: Suitable for general home use.
		  o Durability: Long-lasting design.
		● Bit Sizes
		  o Phillips: 0, 1, 2, 3

		o Flat: 2.5 mm, 3 mm, 4 mm, 5 mm, 6 mm o Torx: T9, T10, T15, T20, T25, T30, T40 o Tri-Wing: 1 mm, 2 mm, 3 mm, 4 mm o Hex: 2 mm, 2.5 mm, 3 mm, 4 mm, 5 mm, 6 mm o Square: S0, S1, S2, S3
	Potential applications	N/A
	Additional Information	N/A
Display		
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	OLED Display
	Quantity	05 No.s
	Specifications:	● Driver IC: SSD1306 ● Resolution: 128 x 64 ● Visual Angle: >160° ● Input Voltage: 3.3V ~ 6V ● Only Need 2 I/O Port Control ● Pixel Color: Blue ● Pin: 7 ● Interface: SPI/I2C ● Screen Size: 0.96"
	Potential applications	N/A
	Additional Information	Should be Arduino and Raspberry Pi 5 compatible
Item 2	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Official Raspberry Pi display with Capacitive Touchscreen
	Quantity	02 No.s
	Specifications:	● Hardware Resolution: 800×480 ● Used with Raspberry Pi, it supports Raspbian, Ubuntu, WIN 10 IoT, single touch, and driver-free. ● Multi-language OSD menu for power management, brightness/contrast adjustment, etc. ● Toughened Glass Panel, ● Low Power consumption ● Screen Size: 7inch

Potential applications	- Monitoring in Surveillance System - Video projection systems - As monitors for computers - Industrial Control System	
Additional Information	Package Should Includes: 1 x 7-inch Raspberry Pi Display 1 x Set of Jumper Wires 1 x Ribbon Cable 4 x Screws 4 x Screw holders 1 x Display V1 board	

Multimeter:		
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Digital Multimeter
	Quantity	1
	Specifications:	Performance: - Voltage Measurement: Maximum 600V between any terminal and Earth Ground - Display: 6000 counts, 3 updates per second for real-time readings - Battery Life: 200 hours minimum for extended usage Environmental: - Operating Temperature: 0°C to 40°C for reliable performance in various conditions - Storage Temperature: -30°C to 60°C for safe transportation and storage - Humidity: Non-condensing conditions for optimal operation - Altitude: 2000 meters for use in various environments Durability: - Size and Weight: Compact and lightweight for portability - IP Rating: IP40 for protection against dust and water droplets - Safety: IEC 61010-1 and 61010-2-033 standards for safe operation Other Specifications: - Temperature Coefficient: 0.1 X (specified accuracy) / °C for temperature stability - EMC: IEC 61326-1 and CISPR 11 compliance for

		electromagnetic compatibility
		• AC/DC Volt
		• Ohm Tester Continuity Test with Buzzer Portable Electrical Tool Tests Live Wire
	Potential applications	N/A
	Additional Information	N/A
Item 2	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Digital Pocket Multimeter
	Quantity	01 No.
	Specifications:	General: • Power Source: Battery-powered (9V battery) • Style: Digital • Dimensions: 15 x 13 x 4 centimeters • Weight: 118 grams • Measurement Type: Multimeter • Country of Origin: India Display and Indicators: • Maximum Display Value: 1999 • Over-Range Indication: "-" • Polarity Display: "-" for negative polarity • Low Voltage Indication: On the display Performance: • Safety Class: CAT II 600V • Waterproof: IP20 • Fuse: F1:F 250mA/250V, F2:F 10A/250V • Operating Temperature: 0-40°C (32-104°F) • Storage Temperature: -10-50°C (14-122°F) • Relative Humidity: <80% RH • Altitude: <2000m Physical Specifications: • Dimensions (LxWxH): 144x74x40mm • Weight (no rubber case): About 160g • Weight (with rubber case): About 250g

	Potential applications	N/A
	Additional Information	N/A
Soldering Iron		
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Soldering iron with temperature-adjustable soldering station
	Quantity	1
	Specifications:	● Power: 60W ● Voltage range: AC 220V~240V,50Hz ● Weight: 0.67kg ● Working environment: 0~40°C/32~104°F ● Temperature adjustments utilize the most advanced temperature control circuit for precise controls. ● The heating core employs high-quality, durable materials for long service life. ● Steel tubing utilizes high-strength 304 stainless steel. ● The handle employs new, superior, eco-friendly, heat-resistant materials, ● The handle and steel heating tube use an added temperature isolation ring to block heat transfer and improve comfort. ● The handle employs a thermal bracket isolation technology, while the bracket plate is made of alloy materials to avoid scald damage.
	Potential applications	N/A
	Additional Information	Should be with the Temperature adjustment feature
Item 2	BRAND NAME AND MODEL	To be specified by the bidder
	Name	High-Quality 25 Watts/230Volts Soldering Iron
	Quantity	01 No.
	Specifications:	1. Attains full operating Temperature within a second. 2. Maintains constant tip temperature. 3. Low Leakage Current. 4. Safe for the use of dedicated and sensitive Components. 5. Maximum Heat transfer efficiency. 6. Slide on a Replaceable tip.

		7. Cool Grip Insulating Nylon Handle 8. High-Quality Built Material. 9. Max Temperature(°C): 380 10. Rated Voltage (V): 230 VAC 11. Rating Power (W): 25 12. Bit Type: Chisel 25W Rated
	Potential applications	PCB assembly & repair Electricals soldering
Item related to Raspberry Pi
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Raspberry Pi 5
	Quantity	02 No.s
	Specifications:	● Broadcom BCM2712 2.4GHz quad-core 64-bit Arm Cortex-A76 CPU, with cryptography extensions, 512KB per-core L2 caches and a 2MB shared L3 cache ● VideoCore VII GPU, supporting OpenGL ES 3.1, Vulkan 1.2 ● Dual 4Kp60 HDMI® display output with HDR support ● 4Kp60 HEVC decoder ● LPDDR4X-4267 SDRAM (2GB, 4GB, and 8GB) ● Dual-band 802.11ac Wi-Fi® ● Bluetooth 5.0 / Bluetooth Low Energy (BLE) ● microSD card slot, with support for high-speed SDR104 mode ● 2 × USB 3.0 ports, supporting simultaneous 5Gbps operation ● 2 × USB 2.0 ports ● Gigabit Ethernet, with PoE+ support (requires separate PoE+ HAT) ● 2 × 4-lane MIPI camera/display transceivers ● PCIe 2.0 x1 interface for fast peripherals (requires separate M.2 HAT or other adapter) ● 5V/5A DC power via USB-C, with Power Delivery support ● Raspberry Pi standard 40-pin header ● Real-time clock (RTC), powered by an external battery ● Power button
	Potential applications	N/A
	Additional Information	N/A
Item 2	BRAND NAME AND MODEL	To be specified by the bidder

	Name	Official 27W USB-C PD Power Supply for Raspberry Pi 5
	Quantity	02 No.s
	Specifications:	- Input voltage: 100 - 240 v.a.c - Input AC frequency: 50-60Hz - Output voltage: 5.1V - Output current: 5.0A - Output power: 25.5W - Average active efficiency: 89.0% - Efficiency at low load (10 %): 87.9% - No-load power consumption: 0.1W - Connector: USB-C - Cable: 1.2m 17AWG, white or black - Black(Plug Type :IN)
	Potential applications	N/A
	Additional Information	N/A
Item 3	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Official Raspberry Pi 5 Active Cooler
	Quantity	02 No.s
	Specifications:	- Input voltage: 5V DC supplied via four-pin fan header on Raspberry Pi 5 - Fan speed control: Pulse width modulation control with tachometer - Maximum airflow: 1.09 CFM - Maximum fan speed: 8000 RPM +/- 15% - Product material: Anodised aluminum
	Potential applications	N/A
	Additional Information	- Single-piece anodized aluminum heatsink - Heatsink-mounted, temperature-controlled blower fan attached by three screws. - Spring-loaded push pins for mounting onto Raspberry Pi 5 - Pre-applied thermal pads for heat transfer
Item 4	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Raspberry Pi Case for Raspberry Pi 5
	Quantity	02 No.s

	Specifications:	● Input voltage: 5V DC supplied via four-pin fan header on Raspberry Pi 5 ● Fan speed control: Pulse width modulation control with tachometer ● Maximum airflow: 2.79 CFM ● Maximum fan speed: 8000 RPM +/- 15% ● Case material: ABS (base, frame, lid) and PC (fan assembly)
	Potential applications	N/A
	Additional Information	● Integrated, temperature-controlled cooling fan that connects to the fan connector on Raspberry Pi 5 ● 12mm × 17mm × 4mm heatsink with self-adhesive pad improves heat transfer from the processor ● Easily removable lid exposes fan and breakout slot for cables and GPIO ● Integrated mounting features allow for case stacking ● HATs can be mounted to the enclosure with stand-offs and GPIO header extenders(not included) ● Four silicone feet for the case are included
USB Cables		
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	USB Type C Cable
	Quantity	10 No.s
	Specifications:	● Connector Type: USB Type C ● Cable Type: Braided USB Type C ● Compatible Devices: Tablet, Laptop, Smartphone, Headphones, Charging Adapter ● Special Feature: Braided, Data Transfer, Tangle Free, Waterproof, Fast Charging ● Compatible Phone Models: All Type-C-enabled models ● Data Transfer Rate: 0.48 Gigabits Per Second ● Shape: Round ● Number of Pins: 28 ● AC Adapter Current: 3 Amps ● Net Quantity: 1 Count ● Item Weight: 30 Grams ● Connectivity Technology: USB ● Specification Met: Qualcomm ● Wattage: 60 Watts ● Item Weight: 30 g

		● Fast Charging - Delivers 3A fast charging and 480 Mbps data transfer speed. ● Quick Charge - Supports Quick Charge (QC) 3.0 to deliver rapid charging speed. ● Wide Compatibility - It is compatible with all Type-C-enabled devices, including Android smartphones, tablets, and PC peripherals. ● Unbreakable - Made of special braided outer with rugged interior bindings, it is an ultra-durable cable without daily rough usage. ● Ideal Length - It has an ideal length of 1.5 meters.
	Potential applications	N/A
	Additional Information	N/A
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Type A to Micro USB Braided Cable | 3A/18W Fast Charging and 480 Mbps Data Transfer Speed | 1.2m, Tangle Free Cable
	Quantity	05 No.s
	Specifications:	● Braided Micro USB Cable with 18W charging support ● Supports 3A fast charging and data transfer speeds up to 480 Mbps ● Sturdy, tangle-free cable and endurance-tested to provide 8000+ bend lifespan ● Nylon Braided tangle free cable
	Potential applications	Smartphone, Tablet
	Additional Information	N/A
Wires		
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	30AWG Hook up Wire Kit
	Quantity	1 (6 Different Colors x 20 m (66 ft) each)
	Specifications:	A colorful set of 30 AWG silicone wires Wire Features: ● Soft and flexible ● Resistant to damage and abrasions ● Cost-effective ● Durable 1 unit Package should Includes:

		● 1 x Black AWG 30 Tinned Copper Silicone Wire (66 ft)
		● 1 x Red AWG 30 Tinned Copper Silicone Wire (66 ft)
		● 1 x Yellow AWG 30 Tinned Copper Silicone Wire (66 ft)
		● 1 x Green AWG 30 Tinned Copper Silicone Wire (66 ft)
		● 1 x Blue AWG 30 Tinned Copper Silicone Wire (66 ft)
		● 1 x White AWG 30 Tinned Copper Silicone Wire (66 ft)
		● 1 x Heatshrink Tubes
		● 1 x Colored Wire Ties
		● 1 x Mini Wire Stripper Tool
	Potential applications	Electronic projects
	Additional Information	N/A
Resistors		
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	600 pcs. Metal Film Resistor Assorted kit
	Quantity	1 unit
	Specifications:	● 1/4W 1% Tolerance Metal Film Resistors, so 5 color bands. This is a great assortment for front-ends and low-power applications. ● These resistors are typical axial-lead metal film resistors, which have much better temperature stability than their carbon equivalents, ● Lower noise and are generally better for high-frequency or radiofrequency applications. ● 1 unit Package should include: (20 pieces for each below-mentioned Value) 　1. 1 x 10Ω Resistor 　2. 1 x 22Ω Resistor 　3. 1 x 47Ω Resistor 　4. 1 x 100Ω Resistor 　5. 1 x 150Ω Resistor 　6. 1 x 200Ω Resistor 　7. 1 x 220Ω Resistor 　8. 1 x 270Ω Resistor 　9. 1 x 330Ω Resistor 　10. 1 x 470Ω Resistor 　11. 1 x 510Ω Resistor 　12. 1 x 680Ω Resistor 　13. 1 x 1KΩ Resistor 　14. 1 x 2KΩ Resistor

		15. 1 x 2.2KΩ Resistor
		16. 1 x 3.3KΩ Resistor
		17. 1 x 4.7KΩ Resistor
		18. 1 x 5.1KΩ Resistor
		19. 1 x 6.8KΩ Resistor
		20. 1 x 10KΩ Resistor
		21. 1 x 20KΩ Resistor
		22. 1 x 47KΩ Resistor
		23. 1 x 51KΩ Resistor
		24. 1 x 68KΩ Resistor
		25. 1 x 100KΩ Resistor
		26. 1 x 220KΩ Resistor
		27. 1 x 300KΩ Resistor
		28. 1 x 470KΩ Resistor
		29. 1 x 680KΩ Resistor
		30. 1 x 1MΩ Resistor
	Potential applications	N/A
	Additional Information	N/A
Wire Cutter, Wire Stripper and Cutter		
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Wire Stripper and Cutter
	Quantity	02 No.s
	Specifications:	1. An improved handle for extra comfort and grip. 2. Sharp cutting edge. 3. Suitable for industrial applications. 4. H-8mm L-13cm W-80 gm. 5. Fast cutting action with black oxide finish. 6. Strips and cuts wire 12-24 gauge. 7. Wire Gauge screw in slot holds stripping die to the proper size for repeated jobs and prevents nipped wire. 8. Sharp cutting edges for all industrial uses.
	Potential applications	N/A
	Additional Information	N/A
Item 1	BRAND NAME AND MODEL	To be specified by the bidder
	Name	Heavy Duty Nipper

	Quantity	02 No.s
	Specifications:	1. H-1 cm L-12cm W-50 gm. 2. A versatile tool for cutting copper and aluminum conductors from 0.8mm to 1.2mm. 3. Made out of high-grade alloy steel with black oxide finish heat treated to 60 HRC on cutting edges. 4. Suitable for dressing components on printed circuit boards. 5. Handles made out of high-grade ABS plastics.
	Potential applications	N/A
	Additional Information	N/A
	ESP-32	
Item 1:	BRAND NAME AND MODEL	To be specified by the bidder
	Name	ESP32-S3
	Quantity	04 No.s
	Specifications:	● Item Type: ESP32 Based, S3 Variant ● Protocol : 802.11 b/g/n ● Frequency(GHz): 2.4 ● Power Supply Voltage (V): 3.3, 5 ● WIFI: 802.11 ● Interface Type: GPIO, UART, USB
	Potential applications	N/A
	Additional Information	● Wireless Connectivity ● Low Power Consumption ● Rich GPIO Set ● Built-in Security ● OTA Updates ● Tool is for Evaluation of ESP32-S3-WROOM-1 ● Product Type: WiFi Development Tools ● Each Package Should Include 1 x ESP32-S3-DevKitC-1-N8 Development Board

Note: Digital or Hard copy manual is a must for Sensors

Sd/-
Dr. Mahendra Pratap Singh
Faculty in-charge of Purchase

Sd/-
Head of the Department
Dept. of CSE

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