Terms & Conditions

1. The quotation must specify the period within which the supply could be effected from the date of receipt firm orders.

2. Quotation received after the due date mentioned on the reverse will not be considered.

3. Your quotations should be for materials strictly in accordance with the specifications shown. In case you are offering substitutes state clearly the exact specification etc, of the materials offered Drawing sketches or any other technical data should be submitted separately.

4. The prices quoted should clearly specify charges for delivery of the goods to destination indicated overleaf.

5. The prices quoted should include all packing costs and it will be assumed that packing materials (cases etc..) are non-returnable unless otherwise stated.

6. Sales tax or any other taxes if applicable should be shown separately giving the full rate of taxes for each items giving ex-incidence of such levies.

7. The Director reserves the right to accept the whole or part of any quotation without assigning any reason and the lowest or any quotation, will not necessarily be accepted, and the Director's decision shall be the final.

8. Samples must accompany the quotation when so specified or within two days when asked for later.

9. If it is discovered that the materials supplied are not exactly according to the specification, the entire stock will be rejected.

10. We reserve the right to inspect the goods offered at any stage of manufacture / supply at your premises.

11. Any dispute arising out of or relating to this Enquiry shall be deemed to have arisen in Madras and is subject to adjudication of the Madras Courts.

12. Rates quoted once will remain firm for that particular dealing.

13. The quotation should be kept valid for a period of 60 days from the date of opening for acceptance.

14. Payment will be made after confirmation on receipt of the materials in good condition at this Institute (normally within 30 days.) Advance payment will not be entertained at any circumstances.

15. Printed conditions of the firm sent along with the quotation form if any, shall not be binding on us.

16. In case of Printing the Proof should be got approved before final strike.

17. Materials should be supplied at this institute in good condition.

18. Price quoted by the suppliers accepted by the Director is final, and no deviation therefrom will be accepted without the Director's agreement in writing.

19. If the rates are under D.G.S. & D. Please specify the same clearly enclosing necessary documents.

Phone : 22545415, Fax: 2254 1126, email: dir@nitttrc.ac.in

NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH

Taramani P.O., Chennai – 600 113.

(Government of India, Ministry of Human Resource Development)

No.NITTTR/EE&CE/IoT/2017-18/ **Date:22.12.2017**

To
Vide list enclosed (10 Nos.)

Delivery required by :	QUOTATION DUE DATE
immediately	(a) Please send your quotation within the due date on sealed envelope on or before: **Date: 10.01.2018** (b) Delivery required at : NITTTR, TARAMANI, CH-113

Sl.No.	Description of Items	Material Code	Approximate Quantity Required
1.	Zigbee Sensor Node (Detailed Specification is enclosed as Annexure)		6 nos.
2.	JTAG debugger for Zigbee RF Card (Detailed Specification is enclosed as Annexure)		1 no.
3.	IAR Embedded Workbench for ARM for Zigbee stack modifications (Single User) (Detailed Specification is enclosed as Annexure)		1 no.
4.	Bluetooth Sensor Node (Detailed Specification is enclosed as Annexure)		5 nos.
5.	WiFi Sensor Node with Debugger (Detailed Specification is enclosed as Annexure)		3 nos.
6.	a) BROADCOM Gateway b) Simens IOT 2040 based IoT Development system.		1 no. 1 no.
7.	Sensor Modules (Detailed Specification is enclosed as Annexure) • Temperature Sensor • Force Sensor, Magnetic Sensor • Vibration Sensor • Humidity Sensor • RH & Temperature Sensor • Light Sensor • 3Axis Accelerometer • Smoke Sensor • Motion Senor • Tilt Sensor • Ultrasonic Sensor • Pressure Sensor • Speed Sensor (MOC 7811) • Touch Sensor		 5 nos. 1 no. each 1 no. 1 no. 1 no. 1 no. 1 no. 1 no. 1 no. 1 no. 1 no. 1 no. 1 no. 1 no. 1 no.

Note:

- TIN No. must be specified in your quotation
- Specify warranty period,
- Specify educational institute discount
- Sales tax and any other charges should be mentioned separately in each item
- Reference No. and Date should be written on the cover.

Cover should be addressed:

Name: **Associate Professor & Head i/c – Electrical Electronics & Communication Engineering**
National Institute of Technical Teachers Training and Research,
Taramani P.O., Chennai – 600 113.

(For terms and conditions please see overleaf) **DIRECTOR**

Annexure

Detailed Specification for Purchase of Internet of Things

1. **ZigBee Sensor Node**
   * Powerful SoC for 2.4GHz Zigbee applications
   * ARM Cortex M3 MCU with 32KB RAM & 512KB Flash
   * Connector for sensor interfaces.
   * JTAG connector for downloading/debugging.
   * Can be operated Battery/External Power adapter

2. **JTAG Debugger for ZigBee RF Card**
   * USB Bus Powered
   * Support USB 2.0 (480Mbps)
   * Support target with 20pin (or) 14 pin JTAG
   * Support smart RF flash programmer 2
   * USB A to Mini B cable included

3. **IAR Embedded Workbench for ARM – Single User for Zigbee stack modifications**
   * IAR systems support a broad range of components and platforms Wireless applications.
   * IAR Embedded workbench with its integrated IAR C/C++ compiler and C-Spy debugger is the natural choice for Wireless Applications.
   * IAR system offers a complete solution of RTOS and middle ware components such as TCP/IP and USB that can enhance your embedded design.

4. **Bluetooth Sensor Node**
   * Bluetooth Specification Version 4.1
   * It can be operated standalone as well as interface with MCU
   * ASCII Command interface over API
   * Firmware upgrade over UART or OTA
   * 64KB Internal serial flash
   * UART/3 channel ADC/ DIO
   * Power supply: Coin cell battery

5. **WiFi Sensor Node**
   * Low power CC3200 wireless MCU
   * Cortex M4 based Microcontroller with inbuilt WiFi
   * Onboard 9 low power mems sensors
   * Connect sensors directly to the cloud with WiFi
   * Can be configured as access point and station mode

6. **IoT Gateway**

a). Broadcom Gateway

   * Third Generation Raspberry Pi
   * 1.2GHz, 64bit quad core Cortex A53 CPU Board
   * Bluetooth 4.1 Classic BLE
   * 2.4GHz, 802.11 Wireless
   * 1GB internal RAM

* 4 USB ports
* Full HDMI port
* Ethernet port 10/100Mbps
* Camera & display interface port

b). Simens IOT 2040 based IoT Development system.

- IoT 2040 Gateway
- RS 485 Slave module with sensor
- RS 232 Module with sensor
- Zigbee Coordinator &End device with sensor
- Wifi end device with sensor
- Intel centrino based wifi module
- LoRa WAN Coordinator &end device with sensor
- 3 rd party hardware like PLC and Sensors of many Brands can be Integrated through Ethernet & Serial Ports .
- Open Protocols Modbus , Profinet .REST or MQTT ,AMQP, OPCUA
- Based On Intel Quark X1020 ,(x86)@400MHz
- Compatible With Open Source Software Arduino IDE and Yocto Linux
- High Level Language Support : java , python &Micro SD card Slot upto 32GB
- 512 MB Ram, 8Mb flash 256kb SRAM . 1 Ethernet Port
- One MINI PCIe Slot For Hardware Expansion For WLAN /Additional Ethernet Port
- Arduino Uno – R3 Compatible
- Intel Wi-Fi + Bluetooth Module For 300MB Data rate
- 1xUSB Controller + 1 x Device
- 2 x 10 / 100 Ethernet RJ45

7. Sensor Modules

 # Force Sensor

* Sensor : FSR400
* Analog output : 0 - 3.3V
* O/P voltage proportional to the force supply to the sensor

 # Temperature Sensor

* Sensor : LM35
* Precision Temperature Sensor Calibrated directly in Celsius
* Rated for full +2˚ to +150˚C range

 # Magnetic Sensor

* Sensor : A 1324
* Linear output hall effect such as displacement, angular position & current measurement
* Output voltage proportional to magnetic flux density

 # Vibration Sensor

* Sensor : Mini sense100
* High voltage sensitivity : 1 V/g
* Over 5 V/g resonance
* Upto 40 Hz operation below resonance

 # Humidity Sensor

* Sensor : HIH4030
* Near linear voltage output Vs %RH
* Typical 1 to 3.6 Volt DC output for 0 to 100% RH at 5V DC supply

 # RH & Temperature Sensor

* High accuracy Temperature sensor
* Precision relative Humidity Sensor
* 0 to 100% RH operating range
* -40 to 125°C operating range
* Suitable for automotive climate control and defogging micro environment data centre.

 # Light Sensor

* Sensor : LDR
* Analog output : 0 - 3.3V
* It detects any light source
* Wide Spectral response

 # 3 Axis Accelorometer

* Sensor : ADXL346
* It measures the static acceleration of gravity in tilt sensing applications
* Digital output resolution - 10 bit
* It detects x,y,z axis of the object
* Selectable Sensitivity (±2g/±4g/±8g/±16g)

 # Smoke Sensor

* Sensor : MQ-II
* Good sensitivity to Combustible gas in wide range
* High sensitivity to LPG, Propane and Hydrogen
* Analog Output

 # Motion Sensor

* Sensor : AMN23111
* Pyroelectric sensor modules contain the necessary functions in a small package (TO-5).
* Ideal for small-movement detection

 # Tilt Sensor

* Sensor: SFH7710
* Digital output
* Angle 70 to 200 degree gives high output
* Angle 250 to 20 degree gives low output

 # Ultrasonic Senosr

* Distance Measurement
* Not more than 15 degrees
* Precision upto 2mm
* Output : Electrical frequency

 # Pressure Sensor

* I2C Interface
* Wide barometric pressure range
* Pressure range
* 3.3V operating range
* Factory calibrated

 # Speed sensor(MOC7811)

* Sensor: MOC7811
* Slotted couplers consist of an infrared emitting diode facing a photo detector in a Molded Plastic housing

 # Touch Sensor

* 2 wire serial Interface
* 8 keys or 16 keys mode
* Capacitive touch key
* Operating Voltage : 3.3V