GOVT. COLLEGE OF ENGINEERING, KARAD

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No. : GCOEK / Store /2023/4226 Date: 21 SEP 2023

To,
College website / Notice Board

QUOTATION (For E & TC Engineering)

Sub : Quotation for following. (Due Date 04.10.2023)

Sealed Quotations are invited from eligible and interested manufacturers/ dealers/distributors/ for the following items on the terms and conditions mentioned below.

Sr. No	Particulars	Qty	Rate Per	GST %	Total Cost
1	**IoT Research Platform** (Detail scope of supply is as per enclosed sheet)	1			

Terms & Condition

1. The quotation should be sent to **"The Principal, Government College of Engineering, Karad" on or before 04.10.2023 at 5.30PM.**
2. Quotations will be opened at 3.00 PM on 05.10.2023.
3. Mention make / model no., warranty & delivery period of equipment quoted.
4. Quotation validity for at least 45 days from the date of opening.
5. Delivery at F.O.R. Govt. College of Engineering Karad.
6. 100% payment after satisfactory delivery & installation.
7. No extra charges will be paid for cartage etc. the material rejected and replaced.
8. After delivery quality conformance undertaking of equipment/machinery
9. The undersigned reserves the right to accept or reject any offer or all offers without assigning any reason thereof.

(S. R. Kulkarni)
HOD- E&TC Engineering

Head of Department
Electronics and Telecommunication Department
Government College of Engineering, Karad

IoT Research Platform Specifications

Cloud Based IoT Platform :

- Should have Subscription facility of IoT Cloud Platform to ingest, visualise and analyse live and Historical data of all Connected Sensors and Wireless Gateways.
- Cloud based IoT platform should be able to generate live graphs of data and should be able to generate alerts as specified.
- It should be easy to on board new devices with varying capabilities to the cloud based IoT Platform.
- The cloud based IoT platform should be scalable and capable to handle commercial deployments if it is decided to take the projects to market.
- Cloud based IoT platform should should support multi Tenancy.
- Cloud based IoT platform should allow to create new apps without writing any code for faster deployment of applications at IoT platform level.

Local Application UI :

- Should provide UI for programming nodes and collecting the results sent by nodes lo- cally.
- Should provide SQLite interface in local monitoring and programming app for data- base management with possibility of exporting to Excel or Delimited Text.
- Should provide a socket interface using which user may also create custom GUI
- UI should be able to display data of user integrated sensor.
- Should provide an interface to generate commands for the nodes using USB interface.
- Should be able to show network topology if enabled.

Code & Network Configuration :

- Code Modification Should support C based programming.
- Vendor should provide Comprehensive Long term support till Hardware EOL
- Should have Flexible MAC protocol implementation based on 802.15.4
- Should provide editable Source codes of Protocol Stack above MAC
- Should support AODV, MAC based routing, Bi-directional MBR, Multipath routing etc
- Should support implementation of new custom routing algorithms
- Should support Over the Air Programming
- Should support implementation of standard or custom security algorithm
- Should have the capability of implementation of data compression algorithms
- Should support creation of custom libraries and APIs for new features
- Should be capable of displaying network topology for supported routing algorithms
- Should be capable of generating commands for the nodes in the network
- Should communicate via various gateways such as USB, WiFi, Cellular, Ethernet etc
- Should allow to make end device based on Wifi, GPRS, Ethernet or custom protocol based on IEEE 802.15.4.
- System should be ready for cloud integration for Internet of Things (IoT) application and should be open for integration with other third party cloud based IoT platforms
- Possibility to develop custom position based Routing & Localisation Algorithm

Sensors & Wireless Radio Compatible with above Platform :

USB Gateway:

- USB to Asynchronous serial data transfer interface

•• USBData protocol handled by device (No USB specific programming Transfer rate 115200 baud required)

- 128 byte receive buffer and 256 byte transmit buffer

WiFi Gateway:

- Low-power Wi-Fi networking module
- Integrated SPI-serial flash for software
- BCM43362 single band 2.4GHz IEEE 802.11b/g/n 1x1 Wi-Fi transceiver
- Support for all Wi-Fi security modes including Open,WEP, WPA,WPA2-PSK
- Integrated 1MB Flash memory and 128kB SRAM
- Operational Temperature Range: -25°C to +85°C
- Wi-Fi Powersave : 0.77mA **Ethernet Gateway:**
- IEEE 802.3TM Compatible Ethernet Controller
- 8-Kbyte Transmit/Receive Packet Dual Port SRAM
- Configurable Transmit/Receive Buffer Size
- Fully Compatible with 10/100/1000Base-T Networks
- Temperature Range: -25°C to +85°C

GSM Gateway:

- Quad-Band GSM 850/900/1800/1900MHz
- Tx Power Class Four-800/900MHz(2W)
- Tx Power Class One-1800/1900MHz(1W) • Rx Sensitivity 109 dBm -850/900 MHz
- Rx Sensitivity 108 dBm -1800/1900 MHz
- Sleep Mode Current Consumption 1mA
- Operating Voltage-3.3V - 4.5V

Low Power Wireless Mesh Radio Module:

- 32-bit RISC Microcontroller
- Variable clock speed (1/2/4/8/16/32 MHz)
- 256KB flash, 32KB RAM, 4KB EEPROM
- 2.4 GHz IEEE 802.15.4 compliant transceiver
- 128-bit AES security processor
- Time of Flight engine for ranging
- Integrated PCB antenna
- Rx current 17mA, Tx current 15.3mA
- 2V to 3.6V battery operation
- Dynamically Controlled discrete transmission power levels (-32 to 0 dBm)
- Range upto 100 mts LoS

Temperature Sensor:

- Range -40°C to 100°C with 14 bit resolution

Humidity Sensor:

- Digital output with a 14-bit resolution, • Capable of detecting a change of 0.04% RH.
- Low power battery enabled end solution, extracts a maximum of 25µA of current when programmed to work at maximum accuracy
- Range- 0 to 100

Pressure Sensor:

- Range : 260 to 1260 hPa
- Current consumption: Low resolution mode- 4 uA, High Resolution mode- 25uA

CO_2 Sensor:

- Concentration detection 350 to 10000 ppm
- Input Voltage requirement 6V
- Current Requirement 200mA
- Operating Temperature -20 to 70°C

Soil Temperature Sensor:

- Resolution: 0.125°C
- Accuracy: ±0.5%
- Power Consumption: < 3 mA

Soil Moisture Sensor:

- Insensitive to salinity
- Consumes less than 7mA
- Measures volumetric water content or gravimetric water content
- Accuracy: 2%

Electrical Conductivity Sensor:

- Soil and Water Electrical Conductivity Sensor with 5-200000 uS/cm. • Response Time: 90% in 1s
- Cable length: 1m

pH Sensor:

- Soil and Water pH Sensor 0-14range and Long Life
- Resolution: .0001
- Response Time: 95% in 1s
- Cable length: 1m

Extender Module:

- It should extend all the pins of the micro controller for users
- User can connect external sensors and devices.
- User can debug hardware/checking output on DIOs and other ports

It should provide Access to ADC, SPI, UART, I2C, and PWM generators

*Made in India products will be preferred as per guideline from Department of Electronics and Information Technology, India
Company must be ISO 9001-2008 certified