



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ODISHA**

Advertised Tender Enquiry

Department: Electronics and Communication Engineering

Tender Notice No: NITR/PW/EC/2019/131

Dated- 05/07/2019

IMPORTANT DATES

To

**Through
CPP Portal
(e- Procurement)**

Event	Date	Time
Pre-Bid Meeting	NA	NA
Last date of submission of bid	29/07/2019	03:00 PM
Date of opening of techno-commercial bid	30/07/2019	03:00 PM

Dear Sir,

We intend to purchase the commodities specified below and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send your offer with prices and complete terms within the time mentioned above.

For any clarification:

**Attention: Head, Department of Electronics and Communication Eng.
Dr. S. K. Das (Assistant Professor)
National Institute of Technology, Rourkela – 769 008
Phone: 0661 – 2462466
Fax: 0661 – 2462999
E-mail: dassk@nitrkl.ac.in**

Yours sincerely

Dr. S.K. Das (Assistant Professor)
Electronics and communication engineering
PID: - SR/17/EC/052
DRDO Lab

Encl:

- 1) Schedule of requirement, specifications, dates etc.**
- 2) Bid document containing detail terms and conditions.**

1. **Schedule of requirements :- As per Annexure- I**

2. Specifications and allied Technical Details: As per the specification attached in the **Annexure-I**

3. Format of Quotation (tick appropriate box)

It is a two-part with separate techno-commercial and price bids.

4. The bid should be submitted through <https://eprocure.gov.in/eprocure/app>

5. Quotations should be valid for a period of **90 days** from the date of opening of techno-commercial bid.

6. Some important dates:

i.	Pre-bid Meeting	Date: NA	Time: NA
ii.	Last date of submission of bid	Date: 29/07/2019	Time: 03:00 PM
iii.	Date of opening of techno-commercial bid	Date: 30/07/2019	Time: 03:00 PM

7. **Warranty** as per company policy.

8. **GST:** GST should be charge according to applicable rates.

9. **Tender Fee:** Tender cost (Non- refundable) in the shape of **Demand Draft** for **INR 500/- (Rupees Five hundred only)** in favor of **Director, NIT Rourkela Payable at Rourkela** from any Scheduled Commercial Bank except Co-operative and Gramin bank. Tender Cost should reach physically through speed post/ register post/courier, containing in an envelope & superscripted with subject, tender reference number addressing to **Registrar, NIT Rourkela- 769008, Odisha;** Attention: HOD (EC) **on or before 30/07/2019 at 03:00 PM.**

10. **EMD (Earnest Money deposit)/ Bid Security (BS):** In shape of DD (Demand Draft) for **INR 25000/- (Rupees Twenty Five Thousand Only)** in favour of Director, **NIT Rourkela Payable at Rourkela** from any Scheduled Commercial Bank except Co-operative and Gramin bank. DD for the EMD (Earnest Money deposit)/Bid Security (BS) should remain valid for a period of 45 days beyond the bid validity period. EMD (Earnest Money Deposit)/Bid Security (BS) of unsuccessful bidders should be return to them at the earliest and latest on or before the 30th days after the award of the contract. EMD (Earnest Money deposit)/Bid Security (BS) should reach physically through speed post/ register post/courier, containing in an envelope & superscripted with subject, tender reference number addressing to **Registrar, NIT Rourkela - 769008, Odisha;** Attention: HOD(EC) **on or before 30/07/2019 at 03:00 PM.**

11. **Performance Security: INR 32000/-(Rupees Thirty Two Thousand Only)** in shape of Demand Draft (DD)/Bank Guarantee in favor of Director, NIT Rourkela and payable at Rourkela. And Performance security should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the suppliers including warranty obligation And EMD (Earnest Money Deposit) amount of successful bidder will be return after the receipt of performance security in case of award of contract to successful bidder.

12. Please go through the enclosed "bid document" carefully for other bidding instructions.
13. Please send your quotations through: <https://eprocure.gov.in/eprocure/app>
14. For technical details, you may contact

Dr. S. K. Das (Assistant Professor)
Department of Electronics and Communication Engg.
National Institute of Technology, Rourkela – 769 008
Phone: 0661 – 2462466
Fax: 0661 – 2462999
E-mail: dassk@nitrkl.ac.in

NB: Please furnish your Dealership Certificate (must) and Proprietary Nature Certificate (If applicable)



NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA – 769 008, ODISHA

BID DOCUMENT

1. Instructions to the bidders

- 1.1 Bids are invited on behalf of the Director, National Institute of Technology (NIT), Rourkela– 769008, Odisha, from the intending bidders for supply of the goods/stores/equipment for the Institute as detailed in the enquiry letter.
- 1.2 The bidders should quote their offer/rates in **BOQ** in clear terms without ambiguity.
- 1.3 In case of any discrepancy between the rates in figures and that in words, the rate in words will be accepted as correct.
- 1.4 The last date for receipt of the bid is marked in the enquiry.
- 1.5 The bids should be uploaded in <https://eprocure.gov.in/eprocure/app>. Please follow the guidelines of the site.
- 1.6 If a prospective bidder requires any clarification about the bidding documents, s/he may make a request the concerned officer or faculty member at least 15 days before the deadline for receipt of bids.
- 1.7 Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.
- 1.8 (In respect of high value plant, machinery etc. of a complex and technical nature). The bids may be submitted in two parts, viz., technical bid and financial bid.
- 1.9 The bidder has to sign in full at all pages of the scanned part of the bidding document. No over- writing in those pages is acceptable.

2. Conditions of the bid

- 2.1 The rates quoted should preferably be net, inclusive of packing, forwarding, freight, Insurance and all other incidental charges excluding taxes. In case these charges are quoted extra in addition to the quoted rates, the amount thereof or ad-valorem rate must be specified. Packing, forwarding, freight, etc., when quotes separately are reimbursable at actuals. If external agencies are employed, their receipts must be enclosed with the invoice.
- 2.2 Duties and Taxes are to be quoted separately. Ad-valorem rates thereof should be clearly indicated with reference to the relevant Acts and Rules.

It may be noted that the Institute is availing custom duty exemption in term of notification no 51/96- Customs dt. 23.07.1996, Notification no. - 47/2017- Integrated Tax (Rate) dt. 14.11.2017 and Notification No- 45/2017- Central Tax (Rate) dt.14.11.2017 [vid Registration No.: TU/V/RG-CDE (227)/2016, dated 13.11.2018]

- 2.3 The goods are required to be delivered at the indenting Department of NIT, Rourkela, and must be reached within **30 days** from the date of placement of the supply of order under the risk and arrangement of the bidder and offers with delivery beyond the above period shall be treated as unresponsive. In case the delivery time is higher, the same must be mentioned clearly in the quotation.
- 2.4 The bid should remain valid for a period of **90 days** from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation.

- 2.5 Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.
- 2.6 The goods offered should strictly conform to the specification and technical details as mentioned in schedule of requirements in the tender documents.
- 2.7 The Institute may like to conduct pre-dispatch inspection of goods, where applicable.
- 2.8 Period of guarantee/warranty, where applicable, should be specified in the bid.
- 2.9 If the successful bidder, on receipt of the supply order, fails to execute the order within the stipulated period, in full or part, it will be open to the Director, NIT, Rourkela to recover liquidated damage from the firm at the rate of 1 percent of the value of undelivered goods per month or part thereof, subject to a maximum of 5 percent of the value of undelivered goods. Alternatively, it will also be opened to the Director, to arrange procurement of the required goods from any other source at the risk and expenses of the bidder.
- 2.10 The successful bidder may be required to execute a contract, where applicable.
- 2.11 The bidder has to furnish up to date GST and Income Tax Clearance Certificate along with the bid.
- 2.12 Payment (*100 percent*) will be made by Account Payee Cheque/Bank Draft, within days from the date of receipt of the goods in good condition or receipt of the bill, commissioning of the equipment, where applicable, whichever is later/latest.
- 2.13 In the event of any dispute arising out of the bid or from the resultant contract, the decision of the Director, NIT, and Rourkela shall be final.
- 2.14 The bid document/resultant contract will be interpreted under Indian Laws.

DETAILED TECHNICAL SPECIFICATION AND QUANTITY

Purchase of Hardware Components

SL. No.	ITEM NAME	DESCRIPTION	QTY
1	Arduino Mega 2560 with USB cable.	Microcontroller ATmega1280 Operating Voltage 5V Input Voltage (recommended) 7-12V Input Voltage (limits) 6-20V Digital I/O Pins 54 (of which 15 provide PWM output) Analog Input Pins 16 DC Current per I/O Pin 40 mA DC Current for 3.3V Pin 50 mA Flash Memory 128 KB of which 4 KB used by bootloader SRAM 8 KB EEPROM 4 KB Clock Speed 16 MHz	2
2	Arduino Uno R3 With USB Cable	Microcontroller: ATmega328 Operating Voltage: 5V Input Voltage (recommended): 7-12V Input Voltage (limits): 6-20V Digital I/O Pins: 14 (of which 6 provide PWM output) Analog Input Pins: 6 DC Current per I/O Pin: 40 mA DC Current for 3.3V Pin: 50 mA Flash Memory: 32 KB of which 0.5 KB used by bootloader SRAM: 2 KB (ATmega328) EEPROM: 1 KB (ATmega328) Clock Speed: 16 MHz	2
3	Arduino Due with USB connector	Microcontroller AT91SAM3X8E Operating Voltage 3.3V Input Voltage (recommended) 7-12V Input Voltage (limits) 6-16V Digital I/O Pins 54 (of which 12 provide PWM output) Analog Input Pins 12 Analog Output Pins 2 (DAC) Total DC Output Current on all I/O lines 130 mA DC Current for 3.3V Pin 800 mA DC Current for 5V Pin 800 mA Flash Memory 512 KB all available for the user applications SRAM 96 KB (two banks: 64KB and 32KB) Clock Speed 84 MHz	4

4	LIDAR litev3 with connector.	<p>Range: 0-40m Laser Emitter. Accuracy: +/- 2.5cm at distances greater than 1m. Power: 4.75-5V DC; 6V Max Current Consumption: 105mA idle; 130mA continuous Rep Rate: 1-500Hz Laser Wave Length/Peak Power: 905nm/1.3 watts Beam Divergence: 4 m Radian x 2 m Radian. Optical Aperture: 12.5mm. Interface: I2C or PWM.</p>	2
5	ultrasonic sensor	<p>Operating Voltage: 5V DC, Operating Current:15mA, Measure Angle: 15 degrees. Range: 2cm-4cm</p>	5
6	10 DOF-IMU sensor	<p>1) 3-axis gyroscope: ±250, ±500, or ±2000 degree-per-second scale. 2) 3-axis compass: ±1.3 to ±8.1 gauss magnetic field scale. 3) 3-axis accelerometer: ±2g/±4g/±8g/±16g selectable scale. BMP180 barometric pressure/temperature: -40 to 85 °C, 300 - 1100hPa range, 0.17m resolution (preferred Adafruit company:- Product IDs L3GD20H, LSM303 and LSM303)</p>	2
7	RC servo motor	<p>Voltage: 4.8-6.0 Volts Torque: 69.56/83.47 oz-in. (4.8/6.0V) Speed: 0.18/0.16 sec/60° (4.8/6.0V) Direction: Counterclockwise 1000-2000usec Rotation: 180°</p>	4
8	RC servo motor	<p>Voltage: 4.8-6.0 Volts Torque: 45.8/66.7 oz-in. (4.8/6.0V) Speed: 60/70 r/min (4.8/6.0V) Rotation: 360°</p>	3
9	RC servo motor	<p>Voltage: 4.8-6.0 Volts Torque: 16.6/20.8 oz-in. (4.8/6.0V) Speed: 0.15/0.10 sec/60° (4.8/6.0V) Rotation: 160°</p>	3
10	ZigBee pro long range wireless module with antenna	<p>Operating Voltage:2.7 V to 3.6 V Output Power: 63 mW Frequency:-2.4 GHz Range: 2 mile Data Rate: 250 kbps Sensitivity: – 101 dBm Maximum Operating Temperature: + 85 C Antenna Connector Type: RPSMA Brand: Digi International Dimensions:-3.294 cm x 2.438 cm Interface Type: SPI, UART</p>	5
11	ZigBee Explorer dongle	<p>This unit works with all XBee modules including the Series 1 and Series 2.5, standard and Pro version.</p>	2

12	GSM/GPRS module	Quad-band range:-850/900/1800/1900MHz Bluetooth connectivity, Baud rate (9600-115200, factory default value: 9600), Standard Audio Jack Connectors for external speaker and mic, Selectable interface between hardware serial port and software serial port, Inbuilt Powerful TCP/IP protocol stack for internet data transfer over GPRS. SMA Connector with external antenna Input Voltage: 5V-12V DC Normal operation temperature: -20 °C to +55 °C	2
13	GPS module	GPS Solution MTK MT3339, 66 Channels Frequency L1, 1575.42 MHz; Position Accuracy Without aid: 3.0 m 2D-RMS Interface to UART Baud Rate 4800 ~ 115200 bps Update Rate 1 ~ 10 Hz Power Supply VCC: 3.0 V to 4.3 V	4
14	GSM/GPRS module	Compatible with Raspberry Pi 2B/3B/Zero/Zero W Supports SMS, phone call, GPRS, DTMF, HTTP, FTP, MMS, email, etc. Support GPS, COMPASS, Bluetooth 3.0, supports data transferring through Bluetooth.	1
15	Wi-fi module (ESP2866)		2
16	Lora Module With Berg connector	Operating Voltage: 1.8 – 3.7V, default 3.3V. Wireless Standard: 433MHz. Frequency range: 420 – 450MHZ. Port: SPI/GPIO. Working temperature: -40- +85 degrees. Pin pitch: 2.0 mm. Distance: 10 KM in Open Area.	3
17	Lora Module With Berg connector	Range approximate to 2 Km line of sight using simple wire antennas, or up to 20Km with directional antennas	2
18	LoRa GPS Shield for Arduino	lora specification:- 168 dB maximum link budget. +20 dBm - 100 mW constant RF output vs. +14 dBm high efficiency PA. Programmable bit rate up to 300 kbps. High sensitivity: down to -148 dBm. Bullet-proof front end: IIP3 = -12.5 dBm.. Low RX current of 10.3 mA, 200 nA register retention. Fully integrated synthesizer with a resolution of 61 Hz. FSK, GFSK, MSK, GMSK, LoRaTM and OOK modulation. Preamble detection. 127 dB Dynamic Range RSSI. Automatic RF Sense and CAD with ultra-fast AFC. Packet engine up to 256 bytes with CRC.	1

		<p>Built-in temperature sensor and low battery indicator.</p> <p>GPS specification:- Power Acquisition:25mA,Power Tracking:20mA.</p> <p>Compliant with GPS, SBAS.</p> <p>Programmable bit rate up to 300 kbps.</p> <p>Serial Interfaces UART: Adjustable 4800~115200 bps,Default: 9600bps.</p> <p>Update rate:1Hz (Default), up to10Hz.</p> <p>Protocols:NMEA 0183,PMTK.</p>	
19	PIR Sensor	<p>Sensing Distance 12 Meter</p> <p>Output Type Digital</p> <p>Operating Current 170 μA</p> <p>Operating Temperature -20° to 60° C</p> <p>Operating Voltage 3 to 6 V DC</p>	7
20	Thermal Image sensor	<p>temperatures ranging from 0°C to 80°C (32°F to 176°F) with an accuracy of +- 2.5°C (4.5°F). It can detect a human from a distance of up to 7 meters (23) feet. With a maximum frame rate of 10Hz.</p>	1
21	PTZ ip camera	<p>2MP Exmor CMOS Sensor</p> <p>Real Time 1080p Streaming at 30fps</p> <p>5.1-61.2mm 12x Optical Zoom</p> <p>16x Digital Zoom (Preferred Sony Brand)</p>	1
22	ip camera	<p>8MP Network IP Camera</p> <p>4K Video Resolution 3840x2160 pixels</p> <p>15fps Recording Capability at H.265+, H.265, H.264+, H.264</p> <p>Triple Video Streams</p> <p>Digital WDR, Noise Reduction, Back Light Compensation</p> <p>Day & Night IR Cut Filter</p> <p>4mm Fixed Lens - 87° Angle of View</p> <p>130ft Night Vision</p> <p>Micro SD card slot supports up to 128GB</p>	1
23	Thermal imaging camera	<p>Type: Analog Camera</p> <p>Style: PTZ Camera</p> <p>Sensor: Vox</p> <p>Technology: Pan / Tilt / Zoom</p> <p>Special Features: Waterproof / Weatherproof</p> <p>IR Distance:4000M</p>	2
24	Flame Sensor (5 channel/5 direction)	<p>Detecting range: >120 degree</p> <p>Analog and digital outputs</p> <p>On-board potentiometer and indicators.</p> <p>Operating Voltage: 3.3V – 9V</p>	2
25	Flame Sensor	<p>Detection range of 760 nm to 1100 nm. Detection angle is about 60 degrees, extremely sensitive to the flame spectrum. With an adjustable precision potentiometer to adjust the sensitivity.</p> <p>Operating voltage:3.3V-5V.</p>	5

26	Gas sensor includes MQ-135, MQ-7, MQ-5 etc. (2 from each)	1.Operating Voltage: 5V DC Type: Analog & Digital Sensitivity to Ammonia, Sulphide and Benzene steam. Range : 10 to 1000 ppm. 2.Characteristic gas : 100 ppm CO. Sensitive resistance : 2 to 20 10kohm 10 kohm at 100ppm CO.	6
27	Raspberry pi3 with SD card (64 GB)	64-bit quad-core ARM Cortex-A53 802.11 b/g/n Wireless LAN Bluetooth 4.1 (Classic & Low Energy) Dual core Video core IV® Multimedia co-processor.1 GB LPDDR2 memory.	7
28	Bread Board	2 distribution strip, 1 Terminal strip, 200 distribution holes 630 terminal hoes	6
29	Jumper wire for Arduino and Raspberry pi and sensors.	Male- Male, Female-Female, Male-Female) 1 strip from each.	3
30	8 channel relay module.	8 Channel 5V Relay Shield Module Board for Arduino Raspberry Pi.	2
31	Raspberry pi display	Display size 10.1 Inch IPS HDMI Monitor 1280*800 HD LCD Screen Display Audio with Case& speaker for Raspberry Pi 3	1
32	Raspberry pi case	Abs Case With Fan For Raspberry Pi 3/2/B+ (White)	5
33	Arduino mega case	Transparent Acrylic Case Shell Enclosure Gloss Box For Arduino Mega 2560 R3.	5
34	Arduino Uno case	Transparent Acrylic Case Shell Enclosure Gloss Box For Arduino UNO R3.	3
35	Power bank	11000 mAh Power Bank (Preferred Philips Brand)	2
36	HDMI to VGA port cable (compatible with Raspberry pi)	Raspberry pi compatibility connection with pc	6
37	A soldering iron stand, and soldering iron pack consist of [1 x Tool carry case 1 x Adjustable temperature soldering iron 1 x Solder wire 1 x Solder sucker(De-soldering Pump) 5 x Extra soldering iron tips (Total 6 Pieces) 1 x Tweezer] flux, tin lead, solder iron tip cleaner.	1)magnifier stand 2)60W 110V Electric Soldering Iron Kit Adjustable Temperature Welding Starter Tool	1
38	Wi-Fi module (esp-32 model)	Operating Voltage – Supply: 2.2 - 3.6 V. Current – Transmitting: 80 mA. Data Rate: 54 Mbps. Frequency: 2.4 GHz.	1

39	6 DOF-IMU sensor	1) Analog supply voltage 1.9- 3.6 V 2)3 magnetic field channels and 3 acceleration channels. 3)16-bit data output.	1
40	9DOF IMU Sensor	9 axis module (3 axis gyroscope + 3 accelerometer + 3 axis magnetic field)	1
41	10 DOF-IMU sensor	input range from 3 to 8v. Integrate 10 dof sensors Adxl345 accelerometer ITG3200 gyro HMC5883L Compass BMP280 pressure sensor	5
42	Power adopter with cable for Raspberry pi and Arduino	output:-5v,2A	6
43	Wind Sensor Rev. P	Wind Speeds Measured: 0-150 MPH, Ambient temperature compensation	1
44	RG-11 (Rain Gauge Sensor)	I/P voltage: - 12-30DC voltage. operating temp range:- -40 to 60 degree Celsius	1
45	Buzzer(High decibel, mini siren smoke)	Range-1 KM, Type:- Siren, Loud Sound	2
46	Data Acquisition card	Featuring I/O on both sides of the device in the form of MXP and MSP connectors, it includes 10 analog inputs, six analog outputs, 40 digital I/O lines, WiFi, LEDs, a push button, an onboard accelerometer, a Xilinx FPGA, and a dual-core ARM Cortex-A9 processor. Preferred [my RIO-1900 model NI Data Acquisition card]	1
47	Data Acquisition card accessories	NI myRIO Starter Accessory Kit NI myRIO Mechatronics Accessory Kit NI myRIO Embedded Systems Accessory Kit Preferred [NI myRIO Essentials Guide Bundle]	1
48	AD/DA converter	Operating voltage range of 2.5V to 6V. Analog inputs programmable as single-ended or differential inputs.8-bit successive approximation A / D converter through an analog output DAC gain. Preferred [PCF8591 AD/DA Analog to Digital to Analog Converter Module + 4pin F-F Cable]	2
49	Analog to digital converter (ADC)	12-bit precision at 3300 samples/second over I2C. The chip can be configured as 4 single-ended input channels, or two differential channels. (Preferable from texas instrument Model : ADS1015)	1
50	Real time debugger and JTAG	Real time debugger and JTAG General purpose which is compatible with Arduino, Raspberry Pi, ARM Cortex, etc.	1
51	Raspberry pi camera	Raspberry pi camera module v2, 8MP, 1080p with case	2
