



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

Advertised Tender Enquiry

Department: Electronics and Communication Engineering

Tender Notice No: NITR/PW/EC/2018/63

Date: 28/09/2018

IMPORTANT DATES

Through

CPP Portal

(e- Procurement)

Event	Date	Time
Last date of submission of bid	29/10/2018	11:00 AM
Opening Date of Technical Bid	30/10/2018	11:00 AM

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 Engineering
Prof. Santos Kumar Das
National Institute of Technology
Rourkela- 769 008, ODISHA

Yours sincerely,

Dr. S.K. Das (Assistant Professor)
Electronics and communication engineering
PID: - SR/17/EC/024
ISDR Lab

Encl:

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

1. **Schedule of requirements**

SL.NO	Description of Goods/Service	Quantity
	Detailed specification and quantity specified in 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 single bid; please give all technical specifications and price bid in one envelope.

OR

It is a two-part bid with separate technical 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 closing date of the bid.
6. Some important dates:

i.	Pre-bid Conference	Date:	NA	Time:	NA
ii.	Last date for submission of bid	Date:	29/10/2018	Time:	11:00 AM
iii.	Date of Opening of technical bid	Date:	30/10/2018	Time:	11:00 AM

7. **Warranty** as per company policy.
8. **GST:** GST should be charge according to applicable rates.
9. **Tender Cost and Bid Security (EMD):** Bid Security in shape of Bank Guarantee/DD (Demand Draft) for **INR 49000/- (Rupees Forty Nine thousand only)** and Tender Cost (Non- refundable) in the form of DD 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. And Bank Guarantee/DD for the Bid-Security should remain valid for a period of **45 days** beyond the bid validity period from the date of opening of bids. Bid security 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)** and **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 30/10/2018 at 11:00 AM**

10. **Performance Security: Not applicable**

11. Please go through the enclosed “bid document” carefully for other bidding instructions.

12. Please send your quotations through: <https://eprocure.gov.in/eprocure/app>

13. For technical details, you may contact

Dr. S. K. Das (Assistant Professor)
Department of Electronics and Communication Eng.
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 in regard to 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 Bids received after the deadline of receipt indicated in para 1.4 above, shall not be taken in to consideration.
- 1.8 Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.
- 1.9 (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.
- 1.10 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.
- 2.3 **It may be noted that the Institute is exempt from paying Excise Duty vide Government Notification No. 10/97 dated 01.03.1997 [Registration No.: TU/V/RG-CD (227)/2011, dated 10.11.2011]. GST may be charged at applicable.**

- 2.4** 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.
- 2.5** 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.
- 2.6** Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.
- 2.7** The goods offered should strictly conform to the specification and technical details as mentioned in schedule of requirements in the tender documents.
- 2.8** The Institute may like to conduct pre-dispatch inspection of goods, where applicable.
- 2.9** Period of guarantee/warranty, where applicable, should be specified in the bid.
- 2.10** 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.
- 2.11** The successful bidder may be required to execute a contract, where applicable.
- 2.12** The bidder has to furnish up to date GST and Income Tax Clearance Certificate along with the bid.
- 2.13** Payment (*100 percent*) will be made by Account Payee Cheque/Bank Draft, within 30 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.
- 2.14** 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.
- 2.15** 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	Raspberry pi zero w	Raspberry pi zero w development board with case	4
2	Raspberry pi 3 Model B	Raspberry pi 3 Model B with case and heat sinks	16
3	ATX/ITX motherboard	H61 Industrial computer ATX/ITX motherboard	3
4	Jetson TX2 Developer Kit	NVIDIA Embedded Computing Board	2
5	NVIDIA GTX 1080Ti board	Intel i7 8 gen 16gb ram ssd 500gb nvidia gtx 1080 ti	1
6	Arduino UNO board	Arduino uno board with Power Adaptor (5V, 2AMP) & USB cable	10
7	Arduino Mega board	Arduino Mega board with Power Adaptor (9V, 2AMP) & USB Cable	3
8	Arduino Due	Arduino Due Board	1
9	WiFi shield	WiFi shield for Arduino uno	6
10	Ethernet shield	Ethernet shield for Arduino uno	3
11	Real Time Debugger and JTAG	Real time debugger and JTAG (General purpose which is compatible with Arduino, Raspberry Pi, Jetson, ARM Cortex, etc.)	1
Camera and Accessories			
12	Raspberry pi camera	Raspberry pi camera module v2, 8MP, 1080p with case	6
13	Raspberry pi camera	Raspberry Pi NoIR Camera v2	2
14	Video Camera sensor board	Waspnote Standard Video Camera sensor board	1
15	CCTV Development Board	CCTV System with Development Board (Having facility of reprogrammable and customization) - complete Set	1
16	CCTV accessories	MXBNC 158-10 BNC for CCTV Connector	15
		Rapter HD-05 BNC Video Balun Coaxial Solderless	10
		King Safety 90 Meters 3+1 CCTV Camera connecting Cable	2
		MX 3555 De Male with Open END CORD 6 Inch CCTV Camera DVR Pack of 5 Wire Connector	15
		MX S- 019 DC Female Connectors DC Plug	15
		MX 2502b BNC Adapter Plug W/2 BNC Female & Male for Connector	15
		MX 3554 BNC Male Cable Wire Cord for CCTV Camera DVR Wire Connector	15
		MX S-027 one Pair 8 Channel Passive BNC Video Balun Coaxial over UTP- Transceiver for CCTV Camera and DVR Wire Connector	1
17	CCTV Tool Box	CCTV Tool Box (Preferably CP PLUS Company)	1

18	HD Webcam (For image based project works)	HD Webcam (Preferably Logitech HD pro webcam C920, 1080p)	4
19	IR Cameras	IR Cameras, 4 MP Vandal-Resistant network dome camera (Preferably Hikvision Company)	2
20	IP CAMERA (D-Link)	D-Link DCS-933L Wireless N IR Home Network Camera H264 (Day + Night Vision) + Range Extender	2
21	Thermal Imaging Camera	Thermal Imaging Camera , Thermal Network Bullet Camera (Preferably Hikvision Company)	1
22	Normal Webcam	Logitech C270 HD Webcam (Black)	3
23	CCTV Surveillance System (includes Training and Installation)	4-Port 100 Mbps Unmanaged PoE Switch (Preferably Hikvision Company)	1
24		6MP Smart IP Box Camera (Lens not included) (Preferably Hikvision Company)	2
25		UTP Category 5E/6 Cables (Preferably Hikvision Company)	2
26		IP Video Intercom Power/Data Distributor (Preferably Hikvision Company)	2
27		Embedded Plug & Play NVR (Preferably Hikvision Company)	1
28		Wall mount with junction box – Short (Preferably Hikvision Company)	5
29		Pole mount adapter(Preferably Hikvision Company)	5
30	Drone camera	5 Mega Pixel 1080p 30fps Wifi/IP camera from China - DIY Drones	2
Sensors			
31	Dust Sensor (LABCO [S. Korea] DP-125L) with PM10 Impactor, [Laser Scattering type]	Measurement Range: Upto (10 mg/m3 (10000 ug/m3)),Resolution: 0.1-1 ug/m3, Output: Analog 0-5V (millivolt output (mv)), Digital Serial Interface: UART, Power Supply: 3-5V (Max 9V), Response Time: 10 secs (max 20 sec)	1
32	Oxygen (O2) Gas Sensor (City Tech, Dynament, Spancan/Equivalent Gas Sensor Company), [Electrochemical/ IR.]	Measurement Range: 0-25 % Output: Analog 0-5V (millivolt output (mv)) Digital Serial Interface: UART (optional) Power Supply: 3-5V (Max 9V) Response Time: 10 secs (max 20 sec) Operating Temp: 0-50 °C Operating Humidity: 20-90% RH Certifications:EN50271/SIL1/Equivalent Safety Certified	1
33	Carbon Dioxide (CO2) Sensor, [Electrochemical/ IR]	Measurement Range: 0-2 % Output: Analog 0-5V (millivolt output (mv)) Digital Serial Interface: UART (optional) Power Supply: 3-5V (Max 9V) Response Time: 10 secs (max 20 sec) Operating Temp: 0-50 °C Operating Humidity: 20-90% RH Certifications:EN50271/SIL1/Equivalent Safety Certified	1

34	Carbon Monoxide Sensor (CO), [Electrochemical type]	Measurement Range: 0-200 ppm Output: Analog 0-5V (millivolt output (mv)) Digital Serial Interface: UART (optional) Power Supply: 3-5V (Max 9V) Response Time: 10 secs (max 20 sec) Operating Temp: 0-50 °C Operating Humidity: 20-90% RH Certifications:EN50271/SIL1/Equivalent Safety Certified	1
35	Nitrogen Dioxide(NO ₂) Sensor, [Electrochemical type]	Measurement Range: 0-50 ppm Output: Analog 0-5V (millivolt output (mv)) Digital Serial Interface: UART (optional) Power Supply: 3-5V (Max 9V) Response Time: 10 secs (max 20 sec) Operating Temp: 0-50 °C Operating Humidity: 20-90% RH Certifications:EN50271/SIL1/Equivalent Safety Certified	1
36	Sulphur Dioxide (SO ₂) Sensor,[Electrochemical type]	Measurement Range: 0-500 ppm Output: Analog 0-5V (millivolt output (mv)) Digital Serial Interface: UART (optional) Power Supply: 3-5V (Max 9V) Response Time: 10 secs (max 20 sec) Operating Temp: 0-50 °C Operating Humidity: 20-90% RH Certifications:EN50271/SIL1/Equivalent Safety Certified	1
37	Ozone (O ₃) Sensor, [Electrochemical type]	Measurement Range: 0-2 ppm Output: Analog 0-5V (millivolt output (mv)) Digital Serial Interface: UART (optional) Power Supply: 3-5V (Max 9V) Response Time: 10 secs (max 20 sec) Operating Temp: 0-50 °C Operating Humidity: 20-90% RH Certifications:EN50271/SIL1/Equivalent Safety Certified	1
38	Methane (CH ₄) Sensor, [Infrared type (IR)]	Measurement Range: 0-10/20 % Output: Analog 0-5V (millivolt output (mv)) Digital Serial Interface: UART (optional) Power Supply: 3-5V (Max 9V) Response Time: 10 secs (max 20 sec) Operating Temp: 0-50 °C Operating Humidity: 20-90% RH Certifications:EN50271/SIL1/Equivalent Safety Certified	1
39	Hydrogen Sulphide (H ₂ S) Sensor, [Electrochemical type]	Measurement Range: 0-50 ppm Output: Analog 0-5V (millivolt output (mv)) Digital Serial Interface: UART (optional) Power Supply: 3-5V (Max 9V) Response Time: 10 secs (max 20 sec) Operating Temp: 0-50 °C Operating Humidity: 20-90% RH Certifications:EN50271/SIL1/Equivalent Safety Certified	1

40	Spancan Gas Calibration Cannister/ Mini Cylinder with fittings. [Types: Oxygen, Carbon Dioxide, Carbon Monoxide, Nitrogen dioxide, Sulphur dioxide, methane, Hydrogen Sulphide and Ozone]	34 Litre gas capacity Disposable aluminium cylinder For reactive gases Filled to 500 PSI Each Gas Type] [One Cannister for	8
41	NH ₃ -Detector	NH ₃ -Detector (Preferably Alpha sense Company or Libelium Company)	2
42	PM _{2.5} , PM ₁₀ -Detector	PM _{2.5} , PM ₁₀ -Detector (Preferably Alpha sense Company or Libelium Company)	2
43	Ambient Light Sensor	Ambient Light Sensor (Preferably Honeywell Company or Arduino Company)	4
44	Rain Detector sensor	Rain Detector (Preferably Honeywell Company)	2
45	Wind Speed & Direction Sensor	Wind Speed & Direction Sensor (Preferably Honeywell Company)	2
46	Motion sensor	Motion sensor HC-SR501	6
47	Temperature and Humidity Sensor	DHT22 Temperature and Humidity Sensor	6
48	Ultrasonic sensors	Ultrasonic sensors (ANE DC 5V Waterproof Ultrasonic Module Distance Measuring Transducer Sensor Module)	6
49	Fire Smoke Sensor	Fire Smoke Sensor Detection Alert Alarm System (Preferably Walnut Innovations Company)	6
50	Wired Door Window Sensor Magnetic Switch	Wired Door Window Sensor Magnetic Switch For Home Alarm System (Preferably Robo India Company)	6
51	MPU-6500	M660 MPU-6500 3 Axis Gyroscope and Accelerometer Sensor	6
52	Temperature sensor	DS18B20 Temperature sensor	5
53	Sound and Audio sensor	LM393 Sound and Audio sensor	10
54	IR long range sensor	GP2Y0A02yk IR long range sensor	10
55	vibration sensor	SW420 vibration sensor	8
56	Finger Print Development Module	FDA01M (Stand-alone with built-in CPU), optical sensor, accessories	1
57	PASSIVE INFRA RED SENSOR	GY-MLX90614-DCI IIC Long Distance Infrared Temperature Sensor Module Small Angle High Precision(<10 degree FOV)	12
58	Ultrasonic sensors	MB1001, ParkSonar-EZ-72	4
59		MAXBOTIX-MB7360	4
60		MAXBOTIX-MB7364	4
61	LIDAR	LIDAR-Lite v3HP	5
62		TF mini lidar	5
63	LDR	LDR module	8

64	GY-85 Sensor Module 9 Axis 6DOF 9DOF		7
65	Light-to-Voltage Optical Sensors	TSL252R	30
66	Intelligent 9-Axis Absolute Orientation Senso	BNO055 - 9 DOF	2
Wireless Communication Modules			
67	GPS module	Ultimate GPS Breakout – 66 channel w/10 Hz updates – Version 3 (Preferably Adafruit Company)	4
68	GSM MODULE	SIM900 GSM MODULE with SMA Antenna compatible with Arduino	5
69	IoT gateway	Meshlium IoT gateway	1
70	IoT KIT	Waspote V15 (Preferably Libelium Company)	1
71	WiFi module	NodeMCU v2 WiFi module	11
72	WiFi chip	ESP8266 12E WiFi chip	18
73	WiFi chip	ESP8266 01 WiFi chip	8
74	Wireless N Router	TP-LINK TL-WR840N 300Mbps Wireless N Router (Dual External Antenna)	2
75	Wireless N Nano USB Adapter	TP-Link TL-WN725N 150Mbps Wireless N Nano USB Adapter (Black)	12
76	Zigbee	Zigbee (XBEE Pro s2c) module with base board and cables	5
77	Transceiver Module	LoRa Transceiver Module (Preferably Microchip or Ai-Thinker Ra-02 or DSPWorks)	2
78	Pycom FiPy	WiFi Development Tools (802.11) CatM1 NB-IoT, Sigfox LoRa, WIFI, BLE Module	4
79		Pycom Expansion Board 2.0	4
Cables and Connectors			
80	connecting wires	Male to Male connecting wires	500
81		Male to Female connecting wires	500
82		Female to Female connecting wires	500
83	Flat Ribbon Cable	10, 20, 30, 50 cm Raspberry Pi CSI/DSI Camera Module Flat Ribbon Cable	10
84	Connectors	HDMI to HDMI cable (5 mtrs)	8
85		FTDI to USB converter cable	8
86		HDMI Audio / Video Cable Assembly 1m, Black	7
87		HDMI Audio / Video Cable Assembly 2m, Black	7
88		RJ45 Mounted LAN Cable, 2m	7
89		LAN Cable (100 m) without RJ45	1

90		RJ45 Connectors (Clamps)	100
91		Single Stand wire bundle (yellow) (400m)	3
92		HDMI to VGA converter	8
93		BNC Connectors	8
94	Jumper Wire Plastic Housing	2.54mm	1000
95	Break Away Male Header	2.54mm (Straight)	100
96	Jumper Wire Pin Male Gold Plated	2.54mm	500
97	Jumper Wire Pin Female Gold Plated	2.54mm	500
98	Screw Terminals	5mm Pitch (3-Pin)	10
99	Screw Terminal	3.5mm Pitch (3-Pin)	10
100	Break Away MALE Headers	Long 20mm-Gold Plated	10
101	Break Away Female Headers	2.54mm	10
102	Break Away Headers	Long 25mm-Gold Plated	10
103	Break Away Female Headers	Swiss Machine Pin	5
104	Breakable Right Angle Header	Male (2.54mm)	10
105	Break Away Male Header	2mm (Straight)	5
106	RJ45 connector	HANRUN HY911103A	6
107	USB to UART Interface	Pmod USB-UART: USB to UART Interface (Preferably Digilent Company)	2
108	USB To RS232		5
109	High Quality 30AWG Silicone Wire 5m		5
110	High Quality 26AWG Silicone Wire 5m		5
111	10 Core Rainbow Color Flat Ribbon Wire Cable	10METERS each	8
112	Gigabit Interface Converter (GBIC) Module	Gigabit Interface Converter (GBIC) Module.	2
Power Supplies			
113	Stontronics Power Adapter	2.5AMP, 5V PSU	12
114	Raspberry Pi UPS	Raspberry Pi UPS RTC Power Supply Expansion Board	4
115	LI-PO BATTERY	Lithium polymer battery 3.7v, 1000mAH	5
116		Lithium polymer battery 7.4v, 2000mAH	10
117		Lithium polymer battery 11.1v, 2000mAH	5
118	LI-PO BATTERY charger	Universal charger	2

119	LI-PO BATTERY charger board	LI-PO BATTERY charger board with micro USB-DIY	10
120	5V/2A DC Adapter	5V/2A DC Adapter for RPi-3 (Best Quality)	15
121	SMPS	12V and 5V, 2A in single SMPS	4
122	DC Converter Module	5V to 3.3 V DC Converter Module for Breadboard	10
123	DC-DC Buck Converter	LM2596 DC-DC Buck Converter	12
124	Power Supply	12v 18Ah Li-ion battery (With one Charger)	2
ICs			
125	Adjustable Positive Voltage Regulator	LM317AHVT	20
126	Driver	MAX3646EVKIT [Driver Maxim]	4
127	Driver	ADN2871_driver	4
128	Operational amplifiers	OPA695	8
129	Media converter	max3967A	10
130	Limiting Amplifier	MAX3969ETP	10
131	USB Interface IC USB 2 Port Hub Int 10/100 Ethernet	LAN9512-JZX	4
132	Ethernet Media Converter IC	ML6652EH	4
133	Operational amplifiers	LM7171	10
134	Operational amplifiers	OPA694ID	10
135	Switching Voltage Regulator	MAX1044CSA	10
136	Differential Amplifiers IC Hi-Speed	AD8131ARZ	10
137	IC	74HC04	20
138	IC	74LS139	20
139	IC	74LS109	20
140	IC	74HC164	20
141	IC	CA3140	10
142	IC	ICL76605	20
143	Feedback Amplifier	LM6172	10
144	2 INPUT NAND Gate	HD74LS00N	10
145	Laser Module Emitter - Red Point		15
146	Avalanche diode	Si APD [S12060-05]	2
147	Transistors	ZTX605	20
148	Photodiode	BPV10	20
149	Optical source	High power infrared LED [L3989-02 Infrared LED]	2
150	Optical dtector	Si PIN photodiode [S3071]	2
151	Photodiode	S205 PLASTIC SIP , Si PIN	2

152	Si PIN photodiode	s5973-02	6
153	Surface Mount LED	HSMF-A341-A00J1	20
154	Surface Mount LED	ASMT-YTB2-0BB02	20
155	Photodiode	OSD50-E	4
156	White LED	(I=20mA, V=3.2v)	40
157	Driver (LED)	MAX325	10
158	Driver (LED)	MAX232CPE	10
159	1080 Pcs 54 Values Assorted Mixed Carbon film Resistors lot 5% 0.25W Resistor kit by Romtek		2
160	Assorted ceramic capacitors 15uf-22000uf set		2
161	Assorted electrolyte capacitors 15uf-22000uf set		2
162	Limiting Amplifier	MAX3264 amplifier	4
Add-on Boards, displays and motors			
163	Relay breakout board	4 channel, 5v relay breakout board	8
164	Analog to digital converter (ADC)	fancier ADS1x15 series analog to digital converter (ADC) (Model : ADS1115, Can read 4 channels with 12 to 16-bit precision, and a programmable gain stage)	4
165	Analog to digital converter (ADC)	MCP3008 Analog to Digital converter (ADC)	2
166	AD/DA converter	PCF8591 AD/DA Analog to Digital to Analog Converter Module + 4pin F-F Cable	2
167	ARPI600 Raspberry Pi Expansion Board (11 Channel ADC for Raspberry Pi) (Rhydolabz, Kerela), [Sensor Interface Board for Pi type]	Xbee Connector Sensor Interface Onboard USB to UART Onboard ADC (10 bit, 11 Channels) Onboard Real-time Clock	1
168	Reed Switch Module	SMT07350R Reed Switch Module	6
169	Data Acquisition card	USB-6009 NI Data Acquisition card	1
170	Buzzer Module	Active Alarm Buzzer Module for Arduino	6
171	Real Time Clock (RTC) Module	DS1307	12
172	Ethernet Media Converter	Fast Ethernet Media Converter [TP-Link MC110CS 10/100Mbps Single-Mode Media Converter]	2
173	Display	16x4 Alphanumeric LCD	4

174	OLED Display	0.96" OLED Display Module – SPI/I2C – 128×64 – 7 Pin	2
175	STEPPER MOTOR DRIVER	TB6560 STEPPER MOTOR DRIVER BOARD 3A	5
176	Transceiver	PIC18F4550	10
177	SparkFun 6 Degrees of Freedom Breakout - LSM303C		5
178	Slip Ring with Flange	22mm diameter, 6 wires, max 240V @ 2A	10
179	Stepper Motor 35 mm	NEMA Chin Hybrid Stepper Motor - 35mm	8
180	Stepper Motor Driver Carrier	A4988(POLOLU)	10
Lab_Hardware			
181	Hardware Tools	Soldering iron with stand (Preferably Soldron Company)	3
182		Digital Soldering Station-Weller rework station (Soldering & Desoldering)	2
183		Desoldering Braid, Width 2.5mm (Preferably Weller Company)	3
184		Nipper (Preferably Taparia Company)	2
185		Sleeve cutter/ remover (Preferably Taparia Company)	5
186		Nose plier (small) (Preferably Taparia Company)	3
187		Nose plier (big) (Preferably Taparia Company)	2
188		Crimping Tool	1
189		Ring type Spanner set (Preferably Taparia Company)	1
190		Double ended Spanner set (Preferably Taparia Company)	1
191		840 Screw Driver Set with Neon Bulb (Preferably Model-840 of Taparia Company)	2
192		25 in 1 Precision Screwdriver Set Multi Pocket Repair tool kit (1set)	2
193		Cutting plier (Preferably Taparia Company)	2
194		Bosch GSB 500 RE 500-Watt Tool Set	1
195		Electronics Soldering Wire or Lead (50 gm)	12

196		150gm 63/37 Tin Lead Rosin Core 0.3mm 1.2% Flux Reel Welding Line Solder Wire Low Melting Point	2
197		Electronics Soldering Paste / Flux (50 gm)	10
198		Heat Blower Bosch	2
199		Electric Tester	3
200		Electronics Multipurpose Magnetic Precision Screw Drivers Set	2
201		LAN Cable Tester & Crimping Tool (Connector Plug Network Toolkit)	1
202		Bread Board	10
203		Multifunctional 3-In-1 Hand-Held Folding Lighted High- Powered Magnifier Glass With 3X Zoom & 2 LED Lights	5
204		5 LED Light Magnifier Magnifying Glass Helping Hand Soldering Stand with 3 Lens	2
205		Desoldering Pump	4
206		Portable Mini USB Vacuum Cleaner Computer Dust Blower Cleaner for Pet Car Laptop Keyboard Camera Phone	1
207		ESD-safe tweezers-Curved	3
208		ESD-safe tweezers-straight	3
209		Digital Multi-meter (Preferably Fluke Company)	3
210	Antistatic Brushes	PCB Cleaning purpose	3
211	Antistatic Wrist Strap		3
212	Antistatic Mat	1meter X 1meter	3
213	Antistatic Striped Gloves		3
214	Circuit Board Holder		2
215	Stereo microscope	microscopes for SMD soldering -AmScope SE400-Z	1
216	Alligator/test clips and leads		10
217	Heat shrink sleeve	1mm(5METERS)	5
218	Heat shrink sleeve	2mm(5METERS)	5
219	Heat shrink sleeve	3mm(3METERS)	3
220	Heat shrink sleeve	4mm(3METERS)	3
221	Desolder wick	1 meter	2
222	Three in one soldering station	soldron 740	1
223	PCB	6x4 dot PCB	15
224	PCB BOARD	3x7 cm Universal PCB Prototype Board Double-Sided –	10

225	Fog Machine	Fog Machine [Anoralux Fog 400 LED 400 W Special Effects Fog Machine]	1
226	Head-phone	Head-phone with mike [Preferably Logitech H111 (Black or Gray)]	15
227	Memory card	32GB class 10 SD memory card with Card Reader (Preferably Sand disk Company)	10
228	3D printer	FFF/FDM Print Technology, Minimum layer resolution: 50/100 microns, Max layer resolution: 300M microns, Best Print quality, Closed printer, Low noise, Fast print.	1
