# Women's Engineering College Airport Road, Lawspet, Puducherry-605008 e-mail: principal@wec.edu.in &&& Contact: 9443076787

Notice Inviting Tender for procurement of Development Boards / Sensors / Actuators / Wireless Modules for Setting up of IoT Laboratory in Women's Engineering College

# NOTICE INVITING e- TENDER No.WEC/e-Tender/RUSA/IoT lab/2025-26/369

Separate e-tenders are hereby invited by the **Principal**, **Women's Engineering College**, **Puducherry** through online under single stage two part e-Procurement system (Part I: Technical bid and Part II: Financial Bid) for the supply of Development Boards / Sensors / Actuators / Wireless Modules for Setting up of IoT Laboratory as mentioned in the 'LIST OF ITEMS' given in Annexure from eligible Original Electronic Component Manufacturer (OEM) or it's Representative / Authorized Distributor / Suppliers / Agencies / Bidders / Traders (hereafter called as "**Bidders**") having desired credentials. The technical bid in Part-I would require the bidder to qualify for the next stage only and the Part-II comprising financial bid would determine final selection of bidder for the supply of Items.

Bidders desirous of participating in the e-tender are required to login the Government of Puducherry e-Procurement website having URL <u>https://pudutenders.gov.in/</u> and locate the tender by typing **WEC/IoT** in the search engine provided, or by logging-in using their passwords. They may also visit the official website of Women's Engineering College, Puducherry website <u>www.wec.edu.in</u> and locate the same e-tender by clicking the scrolling message "e-Procurement for setting up of IoT Lab" link.

Bidders willing to take part in the e-tender are required to obtain valid Digital Signature Certificate (DSC) from any of the authorized 'Certifying Authorities' (CA) under Controller of Certifying Authorities (CCA), Department of Electronics & Information Technology (DEIT), Govt. of India. (viz. NIC, n-Code Solution, Safescrypt, e-Mudhra Consumer Services Ltd, TCS, MTNL, IDRBT) or as notified by the CA /Finance Department from time to time. DSC is given as a USB e-Token. After obtaining the Class 2 or Class 3 Digital Signature Certificate (DSC) from any of the above CA, they are required to register the fact of possessing the DSC through а registration system available in the https://pudutenders.gov.in/. A list of such licensed CAs' is also available in the CCA website www.cca.gov.in. The prospective Bidders may contact the e-tendering State Level Help desk located at 4<sup>th</sup> Floor, Chief secretariat, Beach Road, Puducherry through e-mail ID: support-eproc.py@supportgov.in and Telephone No. 0413 - 2220225 / 0413 -2233262 on any working day between 10AM-5PM for any query on e-tendering procedure, obtaining DSC and training on e-tendering usage, free of cost.

Intending Bidders are required to download the e-tender documents directly from either of the websites stated above. Tenders are required to be submitted on-line with the help of the e-Tokens provided. **This is the <u>only mode</u> of submission of tender**. The interested bidders eligible for the tender may submit their bids through the e-Procurement system using their valid DSC e-Token with assigned PIN and using login ID and password.

Details of e-tender submission procedure for participating in tenders of the UT/State Government have also been explained in the 'Bidders Manual', which is available in the website <u>https://pudutenders.gov.in/</u>. Minimum period given to the Bidders for submission of e-tenders is counted from the date on which the notice inviting tender (NIT) including e-tender is actually published in institution website

## Last date & time of submission of e-bids online is on 28/04/2025 till 18:00 hours.

The applicant bidders must read carefully all the 'Terms & Conditions' contained in this e-Notice Inviting Tender (e-NIT). He/she should particularly go through the Pre-qualification eligibility criteria, and satisfy himself/herself of all the mandatory requirements. Bidders desirous of participating in the e-tender should submit bids for the supply of list of items mentioned in the annexure only if they fulfill the minimum eligibility criteria and are in possession of all the relevant required documents.

All information the website posted in consisting of e-NIT Contract Form, Bill of and related documents, Quantities (BOQ), EMD exemption order, if any, of competent authority, corrigenda and drawings etc. if any, all shall form a part of the Tender Agreement / contract document.

SI. No	Name of Project	Estimated Amount (Tender Value) (Rs.)	Earnest Money Deposit (3 % of Tender value) (Rs.)	Time allowed for supply of items in days	Source of fund	Minimum Financial requirements to match the Prequalification (PQ) desired for the tender from bidders
1	2	3	4	5	6	7
1	Supplying List of Items given in the Annexure for setting up of IoT Laboratory <u>Note:</u> The bidder should quote rate for each item for one number only. Based on the availability of funds, the exact numbers of the individual items required will be given in the supply order.	5,00,000/-	15,000/-	15	Fund allocated under Equity Initiative of RUSA, GoP	The bidder should have annualized average financial turnover of at least Rs. 2,00,000/- (40% of the estimated cost) during the last 3 financial years, ending 31st March 2025. As a proof of financial turnover, a copy of the Audit statement / any other valid document of the bidder for the last three years should be submitted. (Note: Exemption in financial turnover and experience will be given for MSME / Startup / MII registered bidders as per Govt. rules in force.)

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Principal Women's Engineering College Lawspet, Puducherry

#### **TERMS AND CONDITIONS**

#### 1. Eligibility Criteria

Bidders should upload scanned copy of the following documents in readable form at Central Public procurement Portal using valid Digital Signature Certificate Corresponding to Eligibility, Technical & Financial bid as criterion mentioned below:

1.1 The bidder should be Original Electronic Component Manufacturer (OEM) or it's Representative / Authorized Distributor / Suppliers / Agencies / Bidders / Traders.

1.2 In the case of an authorized representative of OEM, credentials (financial turnover & experience as mentioned below) of the bidder only will be considered for evaluating eligibility criteria.

1.3 In case of Authorized Distributors/Dealers of OEM, Current authorization from OEM authorizing the bidder as its authorized representative or its Authorized Distributors / Dealers shall be submitted.

1.4 In case of OEM, Proof of being Original Equipment Manufacturer (OEM) shall be submitted.

1.5 Bidder firm shall submit an undertaking stating its firm or its partners or its Directors have not been black listed or any case is pending or any complaint regarding irregularities is pending, in India or abroad, by any global international body like World Bank/International Monetary Fund/ World Health Organization etc.., or any Indian State/Central Governments/Departments or Public Sector Undertaking of India.

1.6 Annualized average financial turnover: Bidder should have annualized average financial turnover of at least Rs2,00,000/- (40% of the estimated cost) during the last three financial years, ending 31st March, as per practice prevailing in the country of the bidder. As a proof of financial turnover, a copy of the abridged Balance Sheet along with Profit & Loss account of the bidder for the last three years or any valid document which shows the proof for financial turnover should be submitted.

1.7 Experience: The bidder should have successfully executed in last seven years, orders for supply of goods meeting any one of the following three criteria:

- 1. One order of value more than or equivalent to Rs.4,00,000/- (80% of the estimated cost)
- 2. Two orders each of value more than or equivalent to Rs.2,50,000/- (50% of the estimated cost)
- 3. Three orders each of value more than or equivalent to Rs.2,00,000/- (40% of the estimated cost)

1.8 Performance/Experience Certificate:

Bidders must submit a performance / experience certificate in respect of the works claimed against experience as mentioned under Para 1.7 These certificates should be issued by the end user agencies for whom the works have been carried out and endorsed by the bidder. Such performance/experience certificates should clearly indicate the following:

- i. Value of order or contract
- ii. Scope of order or contract
- iii. Order or Contract No., Award date
- iv. Order or Contract Completion date
- v. That the supplied systems have performed satisfactorily after commissioning.

1.9 The scope of works in respect of works claimed against Para 1.7 above, should be substantiated by submission of appropriate documentation such as the relevant portion of the contract.

1.10 The bidder should have valid GST & PAN registration.

1.11 Last date of submission of tender will be taken as reference for assessing the eligibility criteria.

1.12 The tender for the supply of items mentioned in the annexure cannot be submitted both by the OEM and its authorized representative. In such a case, the application of OEM alone will be considered and the tender of the authorized representative will be rejected.

1.13 The bidder as authorized representative/its distributor/dealer/trader can participate on behalf of only one OEM.

1.14 No bidder firm or its subsidiary firm or its parent firm shall be allowed to submit alternate bids. Such bids shall be summarily rejected. Bidder firms shall submit an undertaking stating the same.

1.15 Exemption in financial turnover and experience will be given for MSME / Startup / MII registered bidders as per Govt. rules in force.

#### 2. **Purchase preference/relaxation/exemption:**

2.1 Concessions to the bidders registered with MSME / Startup / MII, shall be applicable as per the directives of Govt. of India.

2.2 Purchase preference to Central Public Sector Undertaking shall be applicable as per the directives of Govt. of India prevalent on the date of acceptance.

2.3 The tender document fee will be Rs. 1,000/- (Rupees One Thousand only). The tender fee is nonrefundable. Tender fee shall be accepted in the form of Bank Demand Draft in favour of "**PRINCIPAL**, **WOMEN'S ENGINEERING COLLEGE**" payable at PUDUCHERRY from any Nationalized/Scheduled Bank or online fund transfer to the account details given below:

Name of the Account Holder	M/s. WOMEN'S ENGINEERING COLLEGE
Account Number	150401001235
Bank Name and Branch	ICICI Bank, Lawspet Branch
IFSC Code	ICIC0001504

Tender fee Demand Draft / Transaction receipt in original should be sent through speed post or in person to **the Principal, Women's Engineering College, Airport Road, Lawspet, Puducherry - 605008** on or before by the last date & time for submission of bid and will be non-refundable except to registered MSME / Startup / MII bidders, as per clause 2.1 & 2.2 whose Tender fee is exempted.

## 3. Earnest Money Deposit (EMD):

3.1 EMD of the value Rs. 15,000/- shall be accepted in the form of Bank Demand Draft from any Nationalized/Scheduled Bank in favour of the **Principal, Women's Engineering College, payable at Puducherry**. EMD in original should be sent through a speed post or given in person at O/o. The Principal, Women's Engineering College, Airport Road, Lawspet, Puducherry - 605008 before the last date & time of submission of tender in Public Procurement Portal. EMD is refundable but no interest shall be paid on EMD. No interest or any other expenses, whatsoever, shall be payable by Principal, Women's Engineering College on the EMD in any manner.

3.2 Tender not accompanied by the requisite EMD shall be summarily rejected except those exempted under clause no. 2.1 & 2.2 above.

3.3 Valid registered MSME / Startup / MII bidders shall be exempted from submission of EMD and upload a copy of their registration approved monetary limits certificate in Government of Puducherry e-Procurement portal, which will be verified during Technical/Eligibility Bid Evaluation. If any violation from the government guidelines for registered bidders is found, the bid will be summarily rejected.

3.4 If due to some reason, the Principal, Women's Engineering College cancels this tender then EMD of all bidders without any interest shall be returned.

4. The Principal, Women's Engineering College shall not be responsible for delay/loss of tender document if bidder fails to upload the Tender in scheduled date & time.

5. Bidder firm shall not change or alter or modify, in any way, the language /contents of bid documents / Annexure / Proforma for Performance Bank Guarantee / Proforma for Undertaking. Any bid submitted with changed or altered or modified language /contents of the said documents then the Bid of the firm may be liable to be rejected.

## 6. Miscellaneous:

a. To assist in the examination, evaluation and comparison of bids, Principal, Women's Engineering College may, at its discretion, ask the bidder for the clarifications / confirmation of compliance of its bid. The request for clarification / confirmation of compliance and the response shall be through query provision available in Government of Puducherry e-Procurement Portal.

b. Bidders must ensure that the points on which clarifications are required by them have already been submitted to the Principal, Women's Engineering College in advance through Government of Puducherry e-Procurement i.e. https://pudutenders.gov.in .

c. Bidder or his authorized representatives will be permitted to attend the bid opening process at the Principal, Women's Engineering College premises. The representatives attending the bid opening process must have a proper authority letter to attend the bid opening process.

e. No post bid clarification / confirmation of compliance at the initiative of the bidder shall be entertained.

f. The bid uploaded on Government of Puducherry e-Procurement portal will only be considered for evaluation.

g. No hard copy of the bid shall be entertained, as mentioned in the tender document.

h. The total number of items required may increase or decrease depending upon the availability of the funds under the scheme. Based on the availability of funds, the exact numbers of the individual items required will be given in the supply order.

## 7. ASSISTANCE TO BIDDERS:

a. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender through Government of Puducherry e-Procurement.

Any queries relating to the process of online bid submission or queries relating to Government of b. Puducherry e-Procurement Portal in general may be directed to the 24x7 Government of Puducherry e-Procurement Portal Helpdesk. For any Technical gueries related to Operation of the Government of Puducherry e-Procurement Portal 0413 2220225 0413 Contact Tel: No. \_ / 2233262 \_ e-Mail: support-eproc.py@supportgov.in.

## 8. Tender document

8.1 The tender document consists of three sections. The bidder shall go through all these Sections (Section I-General Information Guideline, Section II – Terms & Conditions, Section III : Technical & Operational requirements) of the tender document and shall comply with each clause of all the three sections.

8.2 Bidders willing to participate may download the digitally signed tender document online from Government of Puducherry e-Procurement Portal at https://pudutenders.gov.in and submit digitally counter signed tender document on-line at the same portal.

8.3 The instructions in the tender document are binding on the bidder and submission of the tender shall imply unconditional acceptance of all the terms and conditions by the bidder. Bidders shall upload tender in the Government of Puducherry e-Procurement Portal(Government of Puducherry e-Procurement portal) well in advance to avoid last minute hassles. The Principal, Women's Engineering College shall not entertain any queries on such subjects after the last date of downloading tender documents. i.e. 25/04/2025.

Sr.	Activity	Da	te
No.		Start	Closing
i	Tender publishing date in Government of Puducherry e-Procurement portal	18.04.2025:18.00Hrs.	
ii	Tender document download/sale from Government of Puducherry e-Procurement portal at https://pudutenders.gov.in	18.04.2025:18.15Hrs.	25.04.2025:18.00Hrs.
iii	Seek clarification by bidders	18.04.2025:18.30Hrs.	25.04.2025:17.00Hrs.
iv	Online Submission of Bids (All the e- bids) on Government of Puducherry e-Procurement portal.	18.04.2025:18.45Hrs.	28.04.2025:18.00Hrs.
v	Offline submission of tender fee & EMD in physical form.	19.04.2025 10.00Hrs.	25.04.2025:17.00Hrs.
vi	Opening of Eligibility Bid	29.04.2025:14:00 Hrs.	
vii	Opening of Technical Bids	To be intimated later	
viii	Opening of Financial bids.	To be intimated later	

9. The critical dates for this tender are a	s given below.
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Supply of items mentioned in the annexure will be at, the Principal, Women's Engineering College, Airport Road, Lawspet, Puducherry - 605008.

Following Envelopes shall be through online submission at Government of Puducherry e-Procurement portal (https://pudutenders.gov.in ) by the bidders:

Envelop-I: - Scan copy of Tender Fee, EMD & Eligibility bid Envelop-II: - The Technical Bid Envelop-III: - The Financial Bid

#### 10. Amendment to Tender document

At any time, prior to the scheduled date of submission of bids, the Principal, Women's Engineering College if it deems appropriate to revise any part of this tender or to issue additional data to clarify and interpret the provisions of this tender, it may issue addendum/corrigendum to this tender. Any such addendum/ corrigendum shall be deemed to be incorporated by this reference into this tender and binding on the bidders. Addendum/corrigendum will be notified through Central Public Procurement Portal (Government of Puducherry e-Procurement portal) at https://pudutenders.gov.in

#### **11.** Clarification of Bid Documents:

11.1 Bidder, requiring any clarification of the tender Document, may submit their clarifications, if any, through provision of Central Public Procurement Portal (Government of Puducherry e-Procurement portal) at https://pudutenders.gov.in

Request for clarification received from bidders shall be responded by the Principal, Women's Engineering College till the schedule indicated above or as extended there to by the Principal, Women's Engineering College, Puducherry.

11.2 Replies to Clarifications by the Principal, Women's Engineering College shall be submitted through Central Public Procurement Portal (Government of Puducherry e-Procurement portal) at https://pudutenders.gov.in . The bidders are advised to visit the Central Public Procurement Portal (Government of Puducherry e-Procurement portal) at https://pudutenders.gov.in regularly. Clarifications and other documents, if and when issued by the Principal, Women's Engineering College, shall be in relation to the tender and hence shall be treated as their extension.

 $\cdot$  The Principal, Women's Engineering College makes no representation or warranty as to the completeness or accuracy of any response, nor does the Principal, Women's Engineering College undertake to answer all the queries that have been posted by the Bidders.

• In order to provide reasonable time to bidders to take the amendments into account for preparing their bids, the Principal, Women's Engineering College may, at its discretion, extend the deadline for the submission of bids suitably.

The Principal, Women's Engineering College reserves the right to accept or reject any or all applications without assigning any reasons. The Principal, Women's Engineering College reserves the right to call off the process of short-listing the bidders at any stage without assigning any reason whatsoever.

#### 12. Financial proposal / bid under Financial cover:-

The financial bid should contain the following documents in one cover (folder).

Bill of Quantities (BOQ): The bidder is required to quote the rate of the item through on-line in the space marked for quoting rate in the BOQ.

Only downloaded copies of the above document in Excel Sheet are to be uploaded by the bidder. BOQ without a valid numeric rate at the designated space provided in the BOQ will be rejected outright.

Bidders willing to quote "at-par" rate shall need to write "0" in the 'space' provided for rates in the BOQ.

#### 13. Refund/Settlement Process for EMD:

After opening of his/her bids and technical evaluation of the same by the Tender Inviting Authority through electronic processing in the e-Procurement portal of the State Government, the tender inviting authority will declare the status of the bid as successful or unsuccessful which will be made available along with the details of the unsuccessful bidders to ICICI Bank by the e-Procurement portal through web services.

On receipt of the information from the e-Procurement portal, the Bank will refund through an automated process the EMD of the bidders disqualified at the technical evaluation to the respective bidders' bank accounts from which they made the EMD on-line transaction. Such refund will take place within T+2 Bank working days where T will mean the date on which information on rejection of bid is uploaded to the e-Procurement portal by the Tender Inviting Authority.

Once the financial bid evaluation is electronically processed in the e-Procurement portal, EMD of the technically qualified bidders other than that of the L1 will be refunded.

# 14. **PROHIBITION ON SUSPENDED / DEBARRED PERSONS / ENTITIES TO PARTICIPATE IN THE BIDDING OF GOVERNMENT PROJECTS / CONTRACTS OF THE DEPARTMENT**

A person / entity that is suspended / debarred by a procuring entity shall not be allowed to participate in any procurement process during the period of suspension / debarment unless the same has been revoked.

#### 15. Taxes & duties to be borne by the bidder

In view of introduction of GST with effect from 01.7.2017, all the bidders intending to participate in this e-tender should offer their financial bids inclusive of GST applicable for the entire composite Procurement of goods contained in the BOQ. No separate payment towards GST shall be made by the Tendering / implementing authority. The estimated amount put to tender in the instant e-Tender is not inclusive of the GST component but contains the pre-GST taxation amounts. Income Tax, Royalty, GST (CGST, SGST, IGST), Construction Workers' Welfare Cess, Labour Insurances and similar other statutory levy / cess will have to be borne by the bidder and his/her quoted rate should be quoted accordingly after considering all these charges. On-line tax invoice containing bidders GSTIN needs to be submitted to the Principal, Women's Engineering College, Puducherry by the supplier for raising claims/bills for receiving payments of supply of items mentioned in the annexure under this contract clearly showing separately the Tax charged in accordance with the provisions of the GST Act, 2017 for bidders with annual turnover gained out of all businesses in the immediate preceding year above Rs 2.50 lakh as per GST Act. It is clarified that under no circumstances will there be a revision of any contractual values in the contract due to the impact of change in tax rate(s), if any, from VAT/Service Tax to GST.

#### 16. Bid Validity

The Bid will be normally valid for 180 days from the date of opening of the financial proposal. However, extension of bid validity may be suitably considered by the TIA, if required, subject to written confirmation of the bidder (s) to that effect.

#### 17. Withdrawal of Tender

Withdrawal of tender/bid once the bid has been submitted online and after passing of end date for submission and has been accepted for further processing, is not allowed. EMD will be forfeited by the TIA and the bidder penalized in terms of government rules would be applicable.

Principal Women's Engineering College Lawspet, Puducherry

# Women's Engineering College Airport Road, Lawspet, Puducherry-605008 e-mail: principal@wec.edu.in &&& Contact: 9443076787

## Procurement of Development Boards / Sensors / Actuators / Wireless Modules for Setting up of IoT Laboratory in Women's Engineering College, Puducherry No.WEC/e-Tender/RUSA/IoT lab/2025-26/369

SI. No.	Item Name & Description	Approximate Quantity required (Nos.)
	DEVELOPMENT BOARDS	
	Arduino Uno	
	Microcontroller: Almega328P	
	Operating Voltage: 5V	
	Input Voltage (Recommended): 7-12V	
	Input Voltage (Limit): 6-20V	
	Digital Input/Output Pins: 14 (6 PWM capable)	
	Analog Input Pins: 6	
	DC Current per I/O Pin: 20mA	
	DC Current for 3.3 V Pin: 50mA	
1	Flash Memory: 32 KB	5
	SKAM: 2 KB	
	Clash Sneed, 16 MIL	
	Clock Speed: 16 MHZ	
	Communication: USB, Serial	
	Dimensional 68 6 mm v 52 2 mm	
	Dimensions: 08.0 mm x 55.5 mm	
	Digital Pine: 0, 12 (0 and 1 are also PX/TX for sorial communication)	
	Analog Pins: A0 A5	
	Dower Ding: 5V 2 2V VIN CND	
	Arduino Mogo	
	<u>Aruunio Mega</u> Microcontroller ATmega2560	
	Operating Voltage 5V	
	Input Voltage (recommended) 7-12V	
	Input Voltage (limit) 6-20V	
	Digital I/O Pins 54 (of which 15 provide PWM output)	
_	Analog Input Pins 16	
2	DC Current per I/O Pin 20 mA	5
	DC Current for 3.3V Pin 50 mA	
	Flash Memory 256 KB of which 8 KB used by bootloader	
	SRAM 8 KB	
	EEPROM 4 KB	
	Clock Speed 16 MHz	
	LED_BUILTIN 13	

#### ANNEXURE

	ESP8266 WiFi Development Board	
	Module Type: NodeMCU ESP8266-12E	
	Serial/USB Chip: CP2102	
	Output Power(dBm): 19.5 @802.11b Mode	
3	Flash Memory (Mb): 4	5
5	Support: SDIO 1.1/2.0, SPI, UART	5
	Length (mm): 49	
	Width (mm): 24	
	Height (mm): 13	
	Weight (gm): 8	
	ESP32 WiFi+BLE Development Board	
	Item Type: Dev. Board	
	Flash Memory: 4MB, 32Mbit	
4	Supply Voltage (V) DC 5V	5
	GPIO 30	2
	Connectivity Bluetooth + WiFi	
	WiFi Frequency 2.4GHz	
	Communication Protocol Serial Peripheral Interface	
	<u>Raspberry Pi Zero W (Mini Computer)</u>	
	802.11 b/g/n wireless LAN	
	Bluetooth 4.1	
	Bluetooth Low Energy (BLE)	
_	IGHZ, single-core CPU	~
5		5
	Mini HDMI® port and micro–USB On-The-Go (OTG) port	
	Micro USB power	
	HAI-compatible 40-pin header	
	Composite video and reset neaders	
-	CSI camera connector Despharmy Di 4 + (Mini Computer)	
	$\frac{\text{Kaspberry F14} + (\text{Will Computer})}{\text{Broadcom BCM2711}  \text{Ouad core Cortex}_A72 (ARM v8) 64-bit SoC @$	
	1 8GHz	
	1GB 2GB 4GB or 8GB LPDDR4-3200 SDR AM (depending on	
	model)	
	2.4 GHz and 5.0 GHz IEFE 802 11ac wireless Bluetooth 5.0 BLE	
	Gigabit Ethernet	
	2 USB 3 0 ports: 2 USB 2 0 ports	
	Raspherry Pi standard 40 nin GPIO header (fully backwards compatible	
	with previous boards)	
6	$2 \times \text{micro-HDMI}$ ports (up to 4kp60 supported)	5
Ū	2-lane MIPI DSI display port	2
	2-lane MIPLCSI camera port	
	4-pole stereo audio and composite video port	
	H.265 (4kp60 decode). H264 (1080p60 decode, 1080p30 encode)	
	OpenGL ES 3.1. Vulkan 1.0	
	Micro-SD card slot for loading operating system and data storage	
	5V DC via USB-C connector (minimum 3A*)	
	5V DC via GPIO header (minimum 3A*)	
	Power over Ethernet (PoE) enabled (requires separate PoE HAT)	
	Operating temperature: $0-50$ degrees C ambient	

	MSP430 Launch Pad Board	
	MSP430G2553IN20 – MSP430 Device	
	14-/20-pin DIP (N) socket	
	Built-in flash emulation for debugging and programming	
	2 programmable LEDs	
	1 power LED	
	1 programmable button	
7	1 reset button	5
	16kB Flash.	
	512B RAM.	
	interruptible GPIOs (capacitive sense-capable).	
	16-bit timers	
	8channel 10-bit ADC	
	Comparator	
	Serial Communication (USCI – I2C, SPI & UART)	
	STM32F4 Nucleo Board	
	STM32F401RET6 in LQFP64 package	
	ARM®32-bit Cortex®-M4 CPU with FPU	
	84 MHz max CPU frequency	
	VDD from 1.7 V to 3.6 V	
	512 KB Flash	
	96 KB SRAM	
	GPIO (50) with external interrupt capability	
8	12-bit ADC with 16 channels	5
0	RTC	5
	Advanced-control Timer	
	General Purpose Timers (7)	
	Watchdog Timers (2)	
	USART/UART (4)	
	I2C (3)	
	SPI (3)	
	SDIO	
	USB 2.0 OTG FS	
	ARM Development Board	
	Crustal for LPC2148, 12Mbr	
	Crystal for DTC: 22 769KUz	
	Crystal for RTC: 32.708KHZ	
	40 pin Berg header for external interfacing	
	On board Two Line LCD Display (2x16)	
	Un board I analog input wITH POI	
0	I wo RS-232 Interfaces (For direct connection to PC's Serial port)	5
9	Real-Time Clock with Battery Holder	5
	Reset and Boot loader toggle switches	
	On Board 12C 24CXX EEPROIM	
	All Port Pins available at Berg Strip	
	5 v button cell for on chip KIU On Poord Dottor LED Indicator	
	On Dualu Power LED indicator	
	ON/OFF switch	
	Div/OFF Switch	
	Power plug-in jack (power supply AC/DC 12V).	

	PIC Development Board	
10	<ul> <li>PIC Development Board for Microchip PIC Series For any 40 Pin series 16FXXX, 18FXXX (EX 16F877A - 40 pin).</li> <li>ICSP Socket for Programming through PICKIT2</li> <li>On board Regulated Power- Optional Supply 5v, 12v supplies.</li> <li>RS232 Serial Port.</li> <li>7Seg Multiplexed Display.</li> <li>DC Power Supply Connector (12v Ac or Dc).</li> <li>LCD display 2linex 16Character.</li> <li>24Cxx I2C EEPROM.</li> <li>RTC DS1307.</li> <li>4 LED array.</li> <li>4X4 Matrix Key Pad.</li> <li>4 Interrupt Switchers.</li> <li>ULN2003 To Drive Relays and Stepper Motors.</li> </ul>	5
11	Nvidia Jetson Mini (Mini Computer)GPU NVIDIA Maxwell <sup>TM</sup> architecture with 128 NVIDIA CUDA®cores and 0.5 TFLOPS (FP16)CPU Quad-core ARM® Cortex®-A57 MP Core processorMemory 4 GB 64-bit LPDDR41600 MHz – 25.6 GB/sStorage 16 GB eMMC 5.1 Flash StorageVideo Encode 250 MP/s1 x 4K @ 30 (HEVC)2 x 1080p @ 60 (HEVC)4 x 1080p @ 30 (HEVC)Video Decode 500 MP/s1 x 4K @ 60 (HEVC)2 x 1080p @ 60 (HEVC)2 x 4K @ 30 (HEVC)2 x 4K @ 30 (HEVC)2 camera 12-ch (3x4 or 4x2) MIPI CSI-2 D-PHY 1.1 (18 Gbps)Connectivity Wi-Fi requires external chip10/100/1000 BASE-T EthernetDisplay EDP 1.4   DSI (1 x 2) 2 simultaneousUPHY 1 x 1/2/4 PCIe, 1 x USB 3.0, 3 x USB 2.0IO 3 x UART, 2 x SPI, 2 x I2S, 4 x I2C, multi GPIO headers	5
12	Esp lora Arduino Development Board Operating voltage: 3.3V to 7V Frequency: 433MHz Data rate: 150 Mbps @ 11n HT40,72 Mbps @ 11n HT20,54 Mbps @ 11g, 11 Mbps @ 11b Transmit power: 19.5 dBm @ 11b, 16.5 dBm @ 11g, 15.5 dBm @ 11n Receiver sensitivity: up to -139dBm UDP continues to throughput by 135 Mbps Operating temperature range: -40 ° C to + 90 ° C	5

<ul> <li>Microcontroller SAMD21 Cortex®-M0+ 32bit low power ARM® MCU (datasheet)</li> <li>Radio module u-blox NINA-W102 (datasheet)</li> <li>Board Power Supply (USB/VIN) 5V</li> <li>Secure Element ATECC508 (datasheet)</li> <li>Supported Battery Li-Po Single Cell, 3.7V, 1024mAh Minimum</li> <li>Circuit Operating Voltage 3.3V</li> <li>Digital I/O Pins 8</li> <li>PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4)</li> <li>UART 1</li> <li>SPI 1</li> <li>I2C 1</li> <li>Analog Input Pins 7 (ADC 8/10/12 bit)</li> <li>Analog Output Pins 1 (DAC 10 bit)</li> <li>External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)</li> <li>DC Current per I/O Pin 7 mA</li> <li>CPU Flash Memory 256 KB (internal)</li> <li>SRAM 32 KB</li> <li>EEPROM no</li> </ul>		iArduno MKR WiFi Development Board	
<ul> <li>(datasheet)</li> <li>Radio module u-blox NINA-W102 (datasheet)</li> <li>Board Power Supply (USB/VIN) 5V</li> <li>Secure Element ATECC508 (datasheet)</li> <li>Supported Battery Li-Po Single Cell, 3.7V, 1024mAh Minimum</li> <li>Circuit Operating Voltage 3.3V</li> <li>Digital I/O Pins 8</li> <li>PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4)</li> <li>UART 1</li> <li>SPI 1</li> <li>I2C 1</li> <li>Analog Input Pins 7 (ADC 8/10/12 bit)</li> <li>Analog Output Pins 1 (DAC 10 bit)</li> <li>External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)</li> <li>DC Current per I/O Pin 7 mA</li> <li>CPU Flash Memory 256 KB (internal)</li> <li>SRAM 32 KB</li> <li>EEPROM no</li> </ul>		Microcontroller SAMD21 Cortex®-M0+ 32bit low power ARM® MCU	
<ul> <li>Radio module u-blox NINA-W102 (datasheet)</li> <li>Board Power Supply (USB/VIN) 5V</li> <li>Secure Element ATECC508 (datasheet)</li> <li>Supported Battery Li-Po Single Cell, 3.7V, 1024mAh Minimum</li> <li>Circuit Operating Voltage 3.3V</li> <li>Digital I/O Pins 8</li> <li>PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4)</li> <li>UART 1</li> <li>SPI 1</li> <li>I2C 1</li> <li>Analog Input Pins 7 (ADC 8/10/12 bit)</li> <li>Analog Output Pins 1 (DAC 10 bit)</li> <li>External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)</li> <li>DC Current per I/O Pin 7 mA</li> <li>CPU Flash Memory 256 KB (internal)</li> <li>SRAM 32 KB</li> <li>EEPROM no</li> </ul>		(datasheet)	
<ul> <li>Board Power Supply (USB/VIN) 5V</li> <li>Secure Element ATECC508 (datasheet)</li> <li>Supported Battery Li-Po Single Cell, 3.7V, 1024mAh Minimum</li> <li>Circuit Operating Voltage 3.3V</li> <li>Digital I/O Pins 8</li> <li>PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4)</li> <li>UART 1</li> <li>SPI 1</li> <li>I2C 1</li> <li>Analog Input Pins 7 (ADC 8/10/12 bit)</li> <li>Analog Output Pins 1 (DAC 10 bit)</li> <li>External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)</li> <li>DC Current per I/O Pin 7 mA</li> <li>CPU Flash Memory 256 KB (internal)</li> <li>SRAM 32 KB</li> <li>EEPROM no</li> </ul>		Radio module u-blox NINA-W102 (datasheet)	
<ul> <li>Secure Element ATECC508 (datasheet)</li> <li>Supported Battery Li-Po Single Cell, 3.7V, 1024mAh Minimum</li> <li>Circuit Operating Voltage 3.3V</li> <li>Digital I/O Pins 8</li> <li>PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4)</li> <li>UART 1</li> <li>SPI 1</li> <li>I2C 1</li> <li>Analog Input Pins 7 (ADC 8/10/12 bit)</li> <li>Analog Output Pins 1 (DAC 10 bit)</li> <li>External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)</li> <li>DC Current per I/O Pin 7 mA</li> <li>CPU Flash Memory 256 KB (internal)</li> <li>SRAM 32 KB</li> <li>EEPROM no</li> </ul>		Board Power Supply (USB/VIN) 5V	
<ul> <li>Supported Battery Li-Po Single Cell, 3.7V, 1024mAh Minimum Circuit Operating Voltage 3.3V Digital I/O Pins 8 PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4) UART 1</li> <li>13 SPI 1 I2C 1 Analog Input Pins 7 (ADC 8/10/12 bit) Analog Output Pins 1 (DAC 10 bit) External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2) DC Current per I/O Pin 7 mA CPU Flash Memory 256 KB (internal) SRAM 32 KB EEPROM no</li> </ul>		Secure Element ATECC508 (datasheet)	
Circuit Operating Voltage 3.3V Digital I/O Pins 8 PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4) UART 1 13 SPI 1 12C 1 Analog Input Pins 7 (ADC 8/10/12 bit) Analog Output Pins 1 (DAC 10 bit) External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2) DC Current per I/O Pin 7 mA CPU Flash Memory 256 KB (internal) SRAM 32 KB EEPROM no		Supported Battery Li-Po Single Cell 3 7V 1024mAh Minimum	
Digital I/O Pins 8         PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4)         UART 1         SPI 1         I2C 1         Analog Input Pins 7 (ADC 8/10/12 bit)         Analog Output Pins 1 (DAC 10 bit)         External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)         DC Current per I/O Pin 7 mA         CPU Flash Memory 256 KB (internal)         SRAM 32 KB         EEPROM no		Circuit Operating Voltage 3 3V	
PWM Pins 13 (0, 8, 10, 12, 18 / A3, 19 / A4)         UART 1         SPI 1         I2C 1         Analog Input Pins 7 (ADC 8/10/12 bit)         Analog Output Pins 1 (DAC 10 bit)         External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)         DC Current per I/O Pin 7 mA         CPU Flash Memory 256 KB (internal)         SRAM 32 KB         EEPROM no		Digital I/O Pins 8	
<ul> <li>13 UART 1</li> <li>13 SPI 1</li> <li>13 I2C 1</li> <li>Analog Input Pins 7 (ADC 8/10/12 bit)</li> <li>Analog Output Pins 1 (DAC 10 bit)</li> <li>External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)</li> <li>DC Current per I/O Pin 7 mA</li> <li>CPU Flash Memory 256 KB (internal)</li> <li>SRAM 32 KB</li> <li>EEPROM no</li> </ul>		$PWM Pins 13 (0 \ 8 \ 10 \ 12 \ 18 / A3 \ 19 / A4)$	
13SPI 1 I2C 1 Analog Input Pins 7 (ADC 8/10/12 bit) Analog Output Pins 1 (DAC 10 bit) External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2) DC Current per I/O Pin 7 mA CPU Flash Memory 256 KB (internal) SRAM 32 KB EEPROM no5		UART 1	
13I2C 15Analog Input Pins 7 (ADC 8/10/12 bit)Analog Output Pins 1 (DAC 10 bit)External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2)DC Current per I/O Pin 7 mACPU Flash Memory 256 KB (internal)SRAM 32 KBEEPROM no		SPI 1	
Analog Input Pins 7 (ADC 8/10/12 bit) Analog Output Pins 1 (DAC 10 bit) External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2) DC Current per I/O Pin 7 mA CPU Flash Memory 256 KB (internal) SRAM 32 KB EEPROM no	13	12C 1	5
Analog Output Pins 1 (DAC 10 bit) External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2) DC Current per I/O Pin 7 mA CPU Flash Memory 256 KB (internal) SRAM 32 KB EEPROM no		Analog Input Pins 7 (ADC $8/10/12$ hit)	
External Interrupts 10 (0, 1, 4, 5, 6, 7, 8,9, 16 / A1, 17 / A2) DC Current per I/O Pin 7 mA CPU Flash Memory 256 KB (internal) SRAM 32 KB EEPROM no		Analog Output Pins 1 (DAC 10 bit)	
DC Current per I/O Pin 7 mA CPU Flash Memory 256 KB (internal) SRAM 32 KB EEPROM no		External Interrupts $10(0, 1, 4, 5, 6, 7, 8, 9, 16/\Lambda 1, 17/\Lambda 2)$	
CPU Flash Memory 256 KB (internal) SRAM 32 KB EEPROM no		DC Current per I/O Pin 7 m $\Lambda$	
SRAM 32 KB EEPROM no		CPU Elash Memory 256 KB (internal)	
EEPROM no		SRAM 32 KB	
		FEPROM no	
Clock Speed 32 768 kHz (RTC) 48 MHz		Clock Speed 32 768 kHz (BTC) 48 MHz	
LED BUILTIN 6		LED BUILTING	
USB Full-Sneed USB Device and embedded Host		USB Full-Speed USB Device and embedded Host	
Length 61.5 mm·Width 25 mm		Length 61.5 mm Width 25 mm	
Arduine Nane Development Board		Arduino Nono Development Board	
Microcontroller ATmega 328		Microcontroller ATmega328	
Architecture AVR		Architecture AVR	
Operating Voltage 5 V		Operating Voltage 5 V	
Flash Memory 32 KB of which 2 KB used by bootloader		Flash Memory 32 KB of which 2 KB used by bootloader	
SRAM 2 KB		SRAM 2 KB	
Clock Speed 16 MHz		Clock Speed 16 MHz	
14 Analog IN Pins 8	1/	Analog IN Pins 8	5
FEPROM 1 KB	17	FEPROM 1 KB	5
DC Current per I/O Pins 20 mA (I/O Pins)		DC Current per I/O Ping 20 mA (I/O Ping)	
Input Voltage 7-12V		Input Voltage 7-12V	
Digital I/O Pins 22 (6 of which are PWM)		Digital I/O Pins 22 (6 of which are PWM)	
PWM Output 6		PWM Output 6	
Power Consumption 19 m $\Lambda$		Power Consumption 10 mA	
PCB Size 18 x 45 mm		PCB Size 18 x 45 mm	
I UD SIZE TO X 45 IIIII		I ilvPad Arduino Roard	
Microcontroller · ATmega328V		Microcontroller · ATmega328V	
Operating Voltage Range : $2.7-5.5$ V		Operating Voltage Range $\cdot 27.55$ V	
Input Voltage : 2.7-5.5 V		Input Voltage : 2.7-5.5 V	
Digital I/O Pins : 14 Nos (of which 6 provide PWM output)		Digital I/O Pins : 14 Nos (of which 6 provide PWM output)	
15 Analog Input Pins : 6 Nos 5	15	Analog Input Pins · 6 Nos	5
$\frac{15}{\text{DC Current per I/O Pin \cdot 40 m A}}$	15	DC Current per I/O Pin $\cdot 40 \text{ m} \text{ A}$	5
Flash Memory · 16 KB (of which 2 KB used by bootloader)		Flash Memory · 16 KB (of which 2 KB used by bootloader)	
SRAM · 1 KB		SRAM · 1 KB	
EFPROM : 512 hytes		EEPROM : 512 hytes	
Clock Speed : 8 MHz		Clock Speed : 8 MHz	

	Arduino Nano 33 Ble Sense with Header Board	
	Item Type: Development Board, With Header	
	Model Type: Nano	
	Model No.: ABX00070	
	Microcontroller: nRF52 Series	
	Microcontroller Chip :nRF52840	
	Operating Voltage (VDC): 3.3V	
	Input Voltage (V): 21V	
	DC Current per I/O Pin (mA) :15mA	
	Clock Speed : 64MHz	
	CPU Flash Memory :1MB	
16	SRAM : 256KB	5
10	EEPROM : None	5
	Digital Input / Output Pins : 14	
	PWM Pins : All Digital Pins	
	UART : 1	
	SPI:1	
	I2C: 1	
	Analog Input Pins : 8 (ADC 12 bit 200 ksamples)	
	Analog Output Pins: Only through PWM (no DAC)	
	USB : Native in the nRF52840 Processor	
	IMU: 9 axis IMU Its a Combination of two (BMI270 – 6 axis IMU and	
	BMM150 - 3  axis IMU.	
	Microphone: MP34D105	
	<u>IOT Trainer Kit with Pi 4B 4GB</u>	
	1 x IOTIF Board.	
	1 x Set of 4 pin RMC connectors.	
	1 x Set of 8 pin RMC connectors.	
	1 x 2 Din Adapter Cable	
	1 x Lah Manual	
	1 x Lao Manual.	
	1 x Cashig.	
	1 x SD Card	
	1 x Nano Board compatible with Arduino	
	1 x PIR Sensor	
	1 x HC SR o4 Ultrasonic Sensor	
17	1 x DHT11 Sensor	5
	1 x PS2 Joystick Module	
	1 x ESP8266	
	1 x Bluetooth Module	
	1 x 4*4 Membrane Kevpad	
	1 x Relay Module	
	1 x Breadboard	
	1 x LED	
	1 x RGL LED	
	1 x 16*2 LCD Module	
	1 x Stepper Motor	
	1 x Servo Motor	

	Universal IOT Experiment Kit for ESP32	
	Fully compatible with the M5 Stack stackable and extendable system	
	Protoboard, M5-BUS extension	
	Each module comes with an individual power switch	
	Environment Sensor set (Temperature, Humility, barometric pressure, light	
	intensity and Microphone)	
	Joystick controller	
	8 channel of relay output	
	4 x DAC, 4 x ADC	
	4x4 button matrix	
	8x8 RGB LED matrix	
18	Encoder	5
10	1 x servo	5
	DC-Motor (with feedback encoder)	
	Step motor with four-phase five-wire	
	Radio frequency identification reader	
	RS-485, RS323 series communication	
	Package includes:	
	1x Demo Board learning board	
	1x Power Adapter	
	1x RS232 cable	
	1x RFID Card	
	1x ID Card	
	16x breadboard cable	
	Pro-Range Raspberry Pi IOT/ Automation Kit	
	1 x MB-102 Breadboard	
	1 x Bread Board Power Supply Module	
	1 x SanDisk 32 GB class 10 SD Card	
	1 x Raspberry Pi Camera	
	1 x USB to TTL Converter Cable	
	I x Black Plastic Raspberry PI 4 case	
	1 x Compatible to case Cooling FAN	
	1 x Micro HDMI Male To HDMI Adapter	
	1 x LAN Cable (3-meter length)	
	1 x HDMI TO HDMI Cable (1-meter Length)	
	1 X 8 channel 3.3V to 5V Level Converter	
19	1 x 40 pins Female to Female Dupont Cable 20 cm	5
	1 x 40 pins Male to male Dupont Cable $-20$ cm	
	1 x 40 pins Male to Female Dupont Cable – 20 cm	
	1 x Ked LED $-$ spcs.	
	1 x Yellow LED – Spcs.	
	1 x Blue or Green LED – Spcs.	
	1 x $3 \text{mm}$ Push Buttons – $3 \text{pcs}$	
	1 x 220/550/1K/2K resistors- spcs (eacr)	
	1 x 4^4 Mainx Reypan Memorane Switch	
	1 x J v Duai Channel Ketay iviouule with Opiocoupler	
	1 x 12C ADS1115 10 DILADC 4 CHAIHEI WOULLE	
	1 x DC 3 6 V Mini Submarsible Water Dump	
	1 x DC 5-0 v Ivinii Suomersiole water Pump	
	1 x Son Plasue Tube for mini Pump-1 meter	

	I x Heart Rate Sensor Module	
	1 x 40-Pin GPIO Extender	
	1 x 40-Pin GPIO Extender Cable (20 cm)	
	1 x LDR Sensor Module	
	1 x 0.96 Inch I2C/IIC 4pin OLED Display Module	
	1 x Flame Sensor Module	
	1 x Air Moisture Sensor	
	1 x Soil Moisture Sensor	
	1 x MO-2 Gas/Smoke Sensor Module	
	1 x MC-38 Magnetic Switch Wired Door Window Sensor	
	ARDIINO OPI A IOT KIT	
	Round OLED Display	
	Five capacitive touch buttons	
	On-board sensors (temperature humidity pressure and light)	
	Two 24 V relays	
	microSD card holder	
	Dug and play connectors for different sensors	
	DCDC Costure and Provimity	
20		5
20	18650 Li Jon rachargaphla battary halder (battary not included)	5
	Five DCD I EDe	
	Andring MKD WE: 1010	
	Alduno Mikk wifi 1010	
	Migra USD askla	
	Micro USB cable	
	DID sensor	
	Pirk sensor Diver and alary ashing for all the sensors	
	Flug-and-play cables for all the sensors	
	Liectropol ESP32 ESP-325 WIFI IOT Development Board Starter Kit	
	1 * 0.06 inch OLED	
	1 X DUTTI Tommereture and Upmidity Medule	
	1 * DELTIT Temperature and Humidity Module	
	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V2 showed Boloy Module	
	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photometican Machile	
	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Availance Madule	
	1 * DHTTT Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * 820 Dress the send	
	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * 830 Breadboard 1 * Misser USD Colder	
	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * 830 Breadboard 1 * Micro USB Cable 10 * EMD Det Coll	
	<ul> <li>1 * DHTIT Temperature and Humidity Module</li> <li>1 * HC-SR501 PIR Motion Sensor</li> <li>1 * 5V 2-channel Relay Module</li> <li>1 * Photoresistor Module</li> <li>1 * Obstacle Avoidance Module</li> <li>1 * 830 Breadboard</li> <li>1 * Micro USB Cable</li> <li>10 * F-M DuPont Cable</li> </ul>	_
21	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * 830 Breadboard 1 * Micro USB Cable 10 * F-M DuPont Cable 10 * F-F DuPont Cable	5
21	<ul> <li>1* DHTIT Temperature and Humidity Module</li> <li>1* HC-SR501 PIR Motion Sensor</li> <li>1* 5V 2-channel Relay Module</li> <li>1* Photoresistor Module</li> <li>1* Obstacle Avoidance Module</li> <li>1* 830 Breadboard</li> <li>1* Micro USB Cable</li> <li>10 * F-M DuPont Cable</li> <li>10 * M-M DuPont Cable</li> <li>10 * M-M DuPont Cable</li> </ul>	5
21	<ul> <li>1* DHTIT Temperature and Humidity Module</li> <li>1* HC-SR501 PIR Motion Sensor</li> <li>1* 5V 2-channel Relay Module</li> <li>1* Photoresistor Module</li> <li>1* Obstacle Avoidance Module</li> <li>1* 830 Breadboard</li> <li>1* Micro USB Cable</li> <li>10 * F-M DuPont Cable</li> <li>10 * F-F DuPont Cable</li> <li>10 * M-M DuPont Cable</li> <li>5* LED Red</li> </ul>	5
21	1 * DHTIT Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * Obstacle Avoidance Module 1 * 830 Breadboard 1 * Micro USB Cable 10 * F-M DuPont Cable 10 * F-F DuPont Cable 10 * M-M DuPont Cable 5 * LED Red 5 * LED Red 5 * LED Yellow	5
21	1 * DHTIT Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * 00stacle Avoidance Module 1 * 830 Breadboard 1 * Micro USB Cable 10 * F-M DuPont Cable 10 * F-F DuPont Cable 10 * M-M DuPont Cable 5 * LED Red 5 * LED Red 5 * LED Green 2 * DCD LED	5
21	<ul> <li>1* DHTIT Temperature and Humidity Module</li> <li>1* HC-SR501 PIR Motion Sensor</li> <li>1* 5V 2-channel Relay Module</li> <li>1* Photoresistor Module</li> <li>1* Obstacle Avoidance Module</li> <li>1* 830 Breadboard</li> <li>1* Micro USB Cable</li> <li>10 * F-M DuPont Cable</li> <li>10 * F-F DuPont Cable</li> <li>10 * M-M DuPont Cable</li> <li>5* LED Red</li> <li>5* LED Red</li> <li>5* LED Green</li> <li>2 * RGB LED</li> <li>1 * (10V) Particular to the second secon</li></ul>	5
21	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * 005 adbe Avoidance Module 1 * Micro USB Cable 10 * F-M DuPont Cable 10 * F-F DuPont Cable 10 * M-M DuPont Cable 5 * LED Red 5 * LED Red 5 * LED Green 2 * RGB LED 1 *(10K) Potentiometer	5
21	1 * DHTITTemperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * Obstacle Avoidance Module 1 * 830 Breadboard 1 * Micro USB Cable 10 * F-M DuPont Cable 10 * F-F DuPont Cable 10 * M-M DuPont Cable 5 * LED Red 5 * LED Red 5 * LED Green 2 * RGB LED 1 *(10K) Potentiometer 1 * Passive buzzer	5
21	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * Obstacle Avoidance Module 1 * Micro USB Cable 10 * F-M DuPont Cable 10 * F-F DuPont Cable 10 * F-F DuPont Cable 10 * M-M DuPont Cable 5 * LED Red 5 * LED Red 5 * LED Green 2 * RGB LED 1 *(10K) Potentiometer 1 * Passive buzzer 1 * Active Buzzer	5
21	1 * DH111 Temperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * 830 Breadboard 1 * Micro USB Cable 10 * F-M DuPont Cable 10 * F-F DuPont Cable 10 * M-M DuPont Cable 5 * LED Red 5 * LED Red 5 * LED Green 2 * RGB LED 1 *(10K) Potentiometer 1 * Passive buzzer 1 * Active Buzzer 6 * Pushbutton Switches	5
21	1 * DHTTTTemperature and Humidity Module 1 * HC-SR501 PIR Motion Sensor 1 * 5V 2-channel Relay Module 1 * Photoresistor Module 1 * Obstacle Avoidance Module 1 * Micro USB Cable 10 * F-M DuPont Cable 10 * F-F DuPont Cable 10 * M-M DuPont Cable 5 * LED Red 5 * LED Red 5 * LED Green 2 * RGB LED 1 *(10K) Potentiometer 1 * Passive buzzer 1 * Active Buzzer 6 * Pushbutton Switches 30 * Resistors (220R/1K/10K)	5

	Educational IoT & Programming Device Kit for students	
	Microsophy: 3-12V (3V VIa USB)	
	Compatible Software Dabbe Scretch? Dabbe Scretch? Ardving IDE	
22	Inpute: Detentiometer buttens, 2 deta inpute, gracedile aling light sonsor	5
	mipuls. Potentiometer, buttons, 5 data inputs, crocodne cnps, light sensor,	
	Autophone A De LED matrix speaker ports	
	Size: 127mm x 91mm x 34mm	
	WIRFLESS MODULES	
	ZigBee XBee S2CPro with Development Board	
	Transceiver Chipset: Silicon Labs EM357 SoC.	
	Data Rate: 250 kbps Max.	
	Frequency: 2.4 GHz.	
	Range: Up to 2 miles (3200m) in line of sight.	
	Operating Temperature: -40 to 90 °C.	
	Interface: SPI, UART.	
1	Power Supply: 2.7 to 3.6V.	5
_	Dimensions: $10 \times 8 \times 6$ cm (approximately).	-
	Antenna Connector: RP-SMA Female.	
	Sensitivity: -101 dBm.	
	Transmit Current: 120 mA.	
	Receive Current: 31 mA.	
	Output Power: 63 mW.	
	Weight: 0.06 kg.	
	Lora WAN Module SX1278 with Development Board	
	Model Type: Wireless Transmitter Modules	
	Frequency (MHz): 433	
	Communication Distance : 15KM	
	Sensitivity (dBm): down to -148dBm	
2	Programmable bit rate :UP to 300Kbps	5
	RSSI dynamic range :127dB	
	Wireless Frequency :433MHz	
	Operating Voltage :1.8-3.7v	
	Shipping Weight : 0.008 kg	
	Shipping Dimensions : $8 \times 7 \times 1$ cm	
	Bluetooth Module HC- 05	
	Bluetooth Protocol: Bluetooth v2.0+EDR.	
	Operating Frequency: 2.4 GHz ISM band.	
	Modulation: GFSK (Gaussian Frequency Shift Keying).	
	Emission Power: ≤4dBm, Class 2.	
	Sensitivity: $\leq$ -84dBm at 0.1% BER.	
3	Speed: Asynchronous: 2.1Mbps (Max) / 160 kbps, Synchronous:	5
5	1Mbps/1Mbps.	5
	Security: Authentication and encryption.	
	Profiles: Bluetooth serial port.	
	Power Supply: +3.3VDC, 50mA.	
	Working Temperature: $-20 \sim +75^{\circ}$ C.	
	Dimensions: 26.9mm x 13mm x 2.2 mm.	

1		
4	Bluetooth Low Energy Module HM-10BLE4.0 Bluetooth 4.0 module compliant with ISM 2.4 GHz (HM-10) Uses Texas Instruments CC2541 SoC chip with 256K Flash memory and 8K RAM Supports master and slave modes RX standard gain: 19.6 mA TX -6 dBm: 24 mA Frequency: 2402 - 2483.5 MHz in 20 kHz steps Modulation and Data Rate: 1 Mbps, GFSK Number of channels: 40 Output power: -23 to 4 dBm Reception sensitivity: -93dBm/-87dBm Stack: ATT, GATT, SMP, L2CAP, GAP Range: over 70 meters 10-bit ADC Serial interface: UART/SPI Wake-up interrupt, Watchdog Timer AES Security Coprocessor Power supply: ranges between 2V and 3.6V VDD ripple: 100mV max Current consumption (at 25°C with VDD = 3V): - Power Mode 3 (External Interrupts): 0.4uA - Power Mode 1 (3-μs Wake-Up): 235uA - RX Standard Gain: 19.6mA - TX -6 dBm: - Onerating temperature: -40°C to +85°C	5
5	Dimensions (mm): 27x13x1.6 Weight: 5 grams. NRF2.4Ghz Module Frequency: 2.4 GHz ISM band. Data Rates: 250kbps, 1Mbps, 2Mbps. Power Supply: 1.9V to 3.6V. Maximum Output Power: +20dBm. Range: Up to 1km in open areas, depending on data rate and antenna. Operating Current: Nominal: 50mA. Maximum: 250mA. Receive Mode (peak): 45mA. Power-down mode: 4.2uA. Communication Protocol: SPI. Channel Range: 125. Antenna Gain (peak): 2Dbi. Receive Sensitivity: < -90dB	5
6	<u>GSM2G/GPRS Module</u> SIM 900 General Specification: Quad-Band 850/ 900/ 1800/ 1900 MHz GPRS multi-slot class 10/8 GPRS mobile station class B Compliant to GSM phase 2/2+ Class 4 (2 W @ 900 MHz)	5

	Class 1 (1 W @ 1800MHz)	
	Dimensions: 24x24x3mm	
	Weight: 3.4g	
	Control via AT commands (GSM 07.07,07.05 and SIMCOM enhanced	
	AT Commands)	
	SIM application toolkit	
	Supply voltage range : 3.4V to 4.5V	
	Low power consumption: 1.0mA(sleep mode)	
	Operation temperature: $-40^{\circ}$ C to $+85^{\circ}$ C	
	NFC Reader and Modules	
	Voltage: $3.3V \sim 5V$	
	Support II2, SPI and HSU (High Speed UART)	
	$12C / UART: 3.3V \sim 24V TTL$	
	SPI: 3.3V TTL with 100-ohm resistors in series	
7	Communication distance: 5cm~7cm	5
	On-board level shifter. Standard 5V TTL for I2C and UART. 3.3V TTL	-
	SPI	
	Size: 43 X 41 X 4 (mm)	
	Package Includes:	
	1 x PN532 NFC RFID Module V3 kit reader writer breakout board	
	RFID Reader and Modules	
	Model Type: RFID Reader	
	Operating Frequency (MHz): 13 56	
	Reading Distance (m): 6	
	Model No · MF522-FD	
	Working Current $(mA): 13 - 26mA@ 3.3V$	
	Standby current( $m\Lambda$ ): 10 = 13m $\Lambda$ @3 3V	
8	Standoy current ( $11/4$ ) $10^{-15111}$ $10/5.5^{\circ}$	5
	$Pool Current(m \Lambda) : < 20m \Lambda$	
	Data communication snood : 10Mbit/s Max	
	Data communication speed : $10000075$ Wax Operating Temperature (°C) : 20 to 80	
	DCD Size $(I \times W)$ mm : 60 x 40	
	FCD Size (LX W) IIIII . 00 X 40 Shinning Weight : 0.07 kg	
	Shipping Weight: 0.07 kg	
	CDC Madula	
	Item Type: CDS Medule	
	Model No. NEO 6M	
	Passiver Type : 50 Channels CDS I 1 frequency	
	Main Chine MEO (M	
	Main Chip: NEO-0M	
	Navigation Update Kate SHZ	
0	Operating Temperature (°C): -24 to 84	~
9	Iracking Sensitivity (dBm) :-161 dBm	5
	Avg Cold Start Time (s) $\frac{27}{27}$	
	Warm Start Time (s) :27	
	Maximum Speed :500 M/s	
	Weight (g): 12	
	Shipping Weight 0.011 kg	
	Shipping Dimensions $11 \times 8 \times 2$ cm	

10	<u>Z Wave RF Modules</u> Model Name: ZGM230-RB4205B Core Architecture: ARM Core Sub-Architecture: Cortex-M33 Compatibility: BRD4205B Radio Board Silicon Core Number: ZGM230S Silicon Manufacturer: Silicon Laboratories Shipping Weight: 0.032 kg Shipping Dimensions :20 × 18 × 2 cm	5
11	<b>RF transmitter and receiver 433MHZ</b> Item Type: Wireless ModuleFrequency (MHz): 433Rated Voltage (VDC): 5Range in Open Space(m) :30Frequency Range (MHz): 433Sensitivity (dBm): 105 dBmReceiver Supply Current(mA) :3.5RX IF Frequency(MHz) :1Transmitter Supply (V):3 to 6Output Power(dBm) :4 to 12TX Module Size(mm) :13x12x4 (LxWxH)RX Module Size(mm) : 13x45x4 (LxWxH)Weight (g): 6Shipping Weight : 0.01 kgShipping Dimensions : $2 \times 5.5 \times 5$ cm	5
12	HC-12 Long Range RF ModuleItem Type: Wireless ModuleModel No.:HC-12Frequency (MHz):433Rated Voltage (VDC):3.2 to $5.5V$ Communication Mode :UARTTransmission power :20dBm (maximum)Reference Distance : 1000 meterWorking frequency band : $433.4 \sim 473.0$ MHzAntenna Interface :Spring Antenna/Antenna SocketOperating humidity :10% ~ 90%Operating Temperature (°C):-25°C ~ +75°CLength (mm): 27.5Width (mm): 13.5Height (mm): 4Weight (g): 2Shipping Weight : 0.005 kgShipping Dimensions : $5 \times 3 \times 1$ cm	5

SENSORS		
	Digital Temperature and Humidity Sensor DHT 22	
	Item Type: Sensor	
	Model Type: Temperature and Humidity Sensor	
	Rated Voltage (V): 3 to 5.5	
	Model No.: AM2302	
	Humidity Range : 0-100%RH	
	Operating Temperature (°C): -40~80°C	
1	Precision Rating : Humidity measurement : ±2%RH, Temperature	10
	measurement: $\pm 0.5^{\circ}C$	
	Length (mm): 43	
	Width (mm):15	
	Height (mm):10	
	Weight (g):7	
	Shipping Weight: 0.01 kg	
	Shipping Dimensions: $5 \times 4 \times 2$ cm	
	BMP280-Atmospheric Pressure Sensor	
	Model Type: Altitude Sensor, Barometric Pressure Sensor	
	Length (mm): 15	
2	Width (mm): 12	10
2	Height (mm): 2	10
	Weight (g): 2	
	Shipping Weight: 0.005 kg	
	Shipping Dimensions: $9 \times 7 \times 5$ cm	
	Soil Moisture Sensor	
	Item Type: Sensor	
	Model Type:Soil Sensor	
	Voltage Rating (VDC): 3.3 to 5.5	
	Output Voltage (V): $0 \sim 3.0$ VDC	
3	Operating Current (mA): 5mA	10
	Interface: PH2.54-3P	
	Dimensions (L x W x H) mm: 98 x 23 x 4	
	Weight (g): 15	
	Shipping Weight: 0.018 kg	
	Shipping Dimensions: $12 \times 4 \times 1$ cm	
	LM35 Temperature Sensor	
	Item Type: Sensor Module	
	Rated Voltage (V): 4 to 30	
	Current consumption:60µA	
	Scale Factor:+10 mV/°C	
	Measuring Accuracy:0.5°C	
4	Operating Temperature (°C): $-55 \sim +150$ °C	10
4	Signal Output: Analog	10
	Cable Length (cm): 20 (Dupant)	
	Length (mm): 35	
	Width (mm): 13	
	Height (mm): 5	
	Weight (g): 15	
	Shipping Weight: 0.018 kg	

	Ultrasonic Sensor HCSR-04	
	Model No.: HC SR04	
	Operating Voltage (V): 5	
	Avg. Current Used (mA): 2	
	Frequency (Hz): 40000	
5	Sensing Angle :15°	10
5	Max. Sensing Distance (cm) :450	10
	Weight (g): 9	
	Sensor Cover Dia. (mm) :16	
	PCB Size ( L x W ) mm :45 x 20	
	Shipping Weight: 0.014 kg	
	Shipping Dimensions: $5 \times 4 \times 3$ cm	
	Light Dependent Resistor (LDR)	
	Brand: Generic	
	Light Resistance: 10K Ohm @ 10Lux	
6	Dark Resistance:1.0M Ohm @ 0 Lux	10
	Max Voltage:150 volt	
	Size:5mm dia	
	Max Power:100 mW	
	PIR Motion Sensor	
	Item Type: Sensor	
	Model Type: Motion Sensor Module	
	Model No.: HC SR501	
	Operating Voltage (V): 4.5 to 20	
	Avg. Current Used (mA): $0.06$	
7	Distance Measure (cm): $300 \sim 700$	10
/	Output Type: (High/ Low-level Signal) 3.3 V 11L output	10
	Dimensions (L x W x H) mm :32 x 24 x 18 $W_{1}$ :14 (a):10	
	weight (g): 10 On exerting Terring exertises (%C): 20 to 80	
	Operating Temperature (°C): -20 to 80 Detection Angles $\leq 140^{\circ}$	
	Delection Angle: <140 Deley Times 5 to 200g (Can be A divised Default 5g + / 20/)	
	belay Time: 5 to 2008 (Can be Adjusted, Default 58 +/- 5%)	
	Shipping Weight: 0.013 kg	
	TSO PID Transmitter and Dessiver	
	Detecting frequency: 38KHz	
	Detection angle: 90 degree	
8	Input Voltage: 3-5V	10
0	Min Fe irradiation: 0.35 mW/m2 typ	10
	Operating Temperature Range: $-25$ C to $+85$ C	
	Operating current: 0.4 to 1.0 mA	
	IR Transmitter and Receiver	
	IR Transmitter	
9	Package type: leaded	
	Dimensions: 5mm	10
	Leads with stand-off	10
	Peak wavelength: $\lambda p = 870 \text{ nm}$	
	Angle of half intensity: $=\pm 10^{\circ}$	
	Low forward voltage	

	High modulation bandwidth: $fc = 24 \text{ MHz}$	
	IR Receiver	
	Package type: leaded	
	Dimensions: 5mm	
	Radiant sensitive area (in mm2): 0.78	
	Daylight blocking filter matched with 870 nm to 890 nm emitters	
	High bandwidth: 100 MHz at VR = $12$ V	
	The angle of half sensitivity: $\pm 20^{\circ}$	
	Microphone (Sound Sensor)	
	Operating Voltage: Typically, 3.3V to 5V DC.	
	Microphone Sensitivity (1kHz): Usually around 52-48 dB.	
	Microphone Impedance: Generally, 2.2 k $\Omega$ .	
	Microphone Frequency: Often in the range of 16-20 kHz.	
10	Signal-to-Noise Ratio (S/N): May be around 54 dB.	10
10	Outputs: Can provide both digital (high/low) and analog outputs.	10
	Operating Current (Vcc=5V): Typically 4-8mA.	
	LM393 Comparator: Used to compare the microphone output to a	
	threshold, triggering a digital output when the sound level exceeds the	
	threshold.	
	Induction Distance: May be around 0.5 meters.	
	Jovstick Sensor	
	Dimensions: 34 x 34 x 15 (LxWxH) mm.	
11	Weight: 10gm (without Hat).	10
	2.54mm pin interface leads.	
	Operating Voltage: 5V.	
	Accelerometer and Gyroscope GY521 MPU6050	
	Model Type: Accelerometer Sensor, Gyroscope Sensor	
	Operating Voltage (VDC): 3 to 5	
	Driver IC:MPU-6050	
	Communication Mode: I <sup>2</sup> C protocol	
12	Gyroscope :Range: $\hat{A} \pm 250$ , 500, 1000, 2000 $\hat{A}^{\circ}$ /s	10
	Acceleration (g): $\hat{A} \pm 2 \hat{A} \pm 4 \hat{A} \pm 8 \hat{A} \pm 16g$	
	Length (mm): 20	
	Width (mm): 16	
	Shipping Weight: 0.01 kg	
	Shipping Dimensions: $3 \times 2 \times 1$ cm	
	Limit Switches	
	Item Type: General Limit Switch	
	Voltage Rating (V): 125 VAC	
13	Current Rating (A): 5A	
	With Cable $(Y/N)$ : No	
	Operating force: 0.49N	
	Lifespan:30 Million	10
	Length (mm): 20	
	Width (mm): 15	
	Height (mm): 16	
	Weight (g): 5	
	Shipping Weight: 0.01 kg	
	Shipping Dimensions: $5 \times 5 \times 3$ cm	

	Reed Switch	
14	Category: Switches, Magnetic, Reed Switches Type: Glass Body Reed Circuit: SPST-NO Operate Range:10 ~ 15AT Current - Switching:180mA (AC), 250mA (DC) Voltage - Switching AC:120 V Voltage - Switching DC:170 V Power - Rated:10W Operate Time:450 µs Release Time:0.2 ms Mounting Type: Surface Mount Termination Style: Gull Wing Length - Overall:0.540" (13.72mm) Size - Body:0.071" Dia x 0.276" L (1.80mm x 7.00mm) Height Above Board:0.090" (2.28mm) Operating Temperature:-40°C ~ 125°C Capacitance:0.3 pF Current - Carry:500mA (DC)	10
15	Rotary EncoderModel: KY-040Cycles per revolution (CPR) 20Working voltage: 0 – 5VMaterial: PCB + BrassDimensions: 3 x 2 x 1cmsWeight: 25 grams	10
16	Vibration SensorModel Type: Vibration Sensor ModuleOperating Voltage (VDC): $3.3$ to 5Dimensions (L x W x H) mm: $40x15x7$ Weight (g): 3Shipping Weight: $0.005$ kgShipping Dimensions: $6 \times 4 \times 3$ cm	10
17	Capacitive Touch SensorItem Type: Electronic SwitchModel Type: Touch SwitchOperating Voltage (VDC): 2 to 5.5Response Time (mS) :220 mSLength (mm): 24Width (mm): 24Height (mm): 2Weight (g): 0.6Shipping Weight: 0.085 kgShipping Dimensions: $3 \times 3 \times 1$ cm	10

	Push Button	
	Operating Voltage: 12VDC	
	Operating Current: 50mA	
	On/Off Function: Push to ON	
	Switch Type: Momentary	
	Mounting Type: Through-hole	
	Contact Material: Aluminum allov	
	Contact Resistance: $50m\Omega$	
	Insulation Resistance: $100M\Omega$	
	Operating Temperature Range: $-20^{\circ}$ C to $+70^{\circ}$ C	
18	Operation Force: About 3-5N	10
10	Operation Stroke: 1.05mm	10
	Body Material: Plastic	
	Mech & Electrical Life: 300,000 Cycles	
	Length: 12mm	
	Width: 12mm	
	Height: 7.2mm	
	Weight: 2 am	
	Deskoga insludesi	
	1 x Tastila Dush Dutton Switch	
	1 x Downd Com	
	DC522 DEID Deaders	
	Model Type: REID Reader	
	Operating Frequency (MHz): 13 56	
	Peading Distance (m): 6	
	Model No · ME522 ED	
	Working Current $(m \Lambda)$ :12 $26m \Lambda @ 2.2V$	
	Standby surrout(mA) $\cdot 10 = 12m A @ 2.2V$	
19	Standby current (IIIA) $.10 - 15 \text{IIIA}(0.5.5 \text{ V})$	10
	Sheep Mode Current . $\sim 80174$ A	
	Peak Current(IIIA). SoliiA	
	Data communication speed : 101/101/s Max	
	DCD Size $(I = W)$ merce $(C)$ : -20 to 80	
	PCB Size ( $L \times W$ ) mm:00 x 40 Stringing Weight 0.07 las	
	Shipping Weight: 0.07 kg	
	Snipping Dimensions: 8 × 5 × 2 cm	
	Model No 14 US011D	
	$\begin{array}{c} \text{Nodel No.:Ansults} \\ \text{Sympley Value on } (V) \in (V) \end{array}$	
	Supply voltage (v): 5 (v)	
20	Operating Temperature (°C): -3~150°C	10
20	Sample Rate: 500ms	10
	$1ypical accuracy (\% \text{ RH}):\pm 10\%$	
	Shipping Weight: $0.023 \text{ kg}$	
	Shipping Dimensions: 11 × 8 × 1 cm	
21	<u>I ilt Sensor</u> Madal Taraa Tilt Sansar Madula	
	Nodel Type: The Sensor Module	
	Operating voltage (VDC): 3	10
	Vialeriai: rK4	
	Length (mm): 25; which (mm): 15 Unight (mm): $7$ . Weight (m): 2	
	Height (mm): /; Weight (g): 2	

	D18 B20 Contact Temperature sensor module	
	Item Type: Sensor Module	
	Rated Voltage (V): 3 to 5.5	
	Digital Output: Resolution 9 to 12 bits	
	Measuring Temperature (°C) :-55°C to +125°C, (accurate to 0.5°C.)	
22	Response Time (mS):750 ms	10
	Length (mm): 19	10
	Width (mm): 15	
	Height (mm): 6	
	Weight (g): 9	
	Shipping Weight: 0.014 kg	
	Shipping Dimensions: $5 \times 3 \times 1$ cm	
	Water flow sensor	
	Model Type: Water Flow Sensor	
	Max Water Flow(L/min): 1 to 30	
	Working water pressure(MPa):≤1.75	
	Operating Temperature (°C): $-25 \sim +80$	
	Operating humidity :35% – 80% RH	
	Accuracy: ±10%	
	Duty cycle :50% +-10% output	
23	Rise Time :0.04µsec (output)	10
	Pulse :450 per liter	
	Output fall time (µsec) :0.18	
	Outer Diameter [OD] (mm): 20	
	Length (mm): 62.5	
	Width (mm): 36	
	Height (mm): 35	
	Weight (g): 50	
	Shipping Weight :0.089 kg	
	Touch sensor	
	Main Chip: LM393	
	working voltage (V): 5V	
24	PCB Color: Red	10
	Pin Connector to board: 4 Pins	
	Dimensions: $4.3 \times 1.6 \times 1.5 \text{ cm}$	
	Produces includes: 1 v KV 026 Metal Tauch Sangar Madula	
	Finger print sensor	
	Item Type: Scanner	
	Model Type: Fingerprint Scanner	
25	Flectro scattering time (s) :0.1	
	Electro scattering time (s) .0.1 Current Consumption $(mA)$ : <75mA	
	Verification Sneed :0.2 sec	
	Scanning Speed :0.3 sec	10
	False Accentance Rate:<0.0001%	10
	False Rejection Rate :<0.1%	
	Resolution: 500 DPI	
	Operating Temperature (°C): $-20 \sim +50$ °C	
	Length (mm): 46:Width (mm): 21	
	Height (mm): $23.5$ ·Weight (g): $20$	
	1101gar (11111). 25.5, Weight (5). 20	

	Turbidity sensor	
	Model Type: Turbidity Sensor	
	Operating Voltage (VDC): 5	
	Working Current (mA): 30mA [MAX]	
	Response Time (mS): <500 msec	
26	Insulation Resistance (MOhm):100MΩ [Min]	10
20	Operating Temperature (°C): $30 \sim +80$	10
	Length (mm): 33	
	Width (mm): 20	
	Weight (g):55	
	Shipping Weight: 0.059 kg	
	Shipping Dimensions: $8 \times 5 \times 5$ cm	
	Load Cell weight sensor	
	Weighing Load (kg): 20	
	Hysteresis: 0.03% F.S	
	Rated Output: $1.0 \pm 0.1 \text{mV} / \text{V}$	
	Non Linear Output: $\pm 0.03\%$ F.S	
	Repeatability: 0.05% F.S	
	Creep: 0.03%F.S./30min	
27	Cable Length (cm): 18	10
27	Zero Balance : $\pm 0.1 \text{ mV} / \text{V}$	10
	Protection Standard : IP65	
	Insulation Resistance (MOhm): 2000	
	Output Impedance: $1000 \pm 10\% \Omega$	
	Operating Temperature (°C): -20 to 65	
	Weight (g): 29	
	Shipping Weight: 0.08 kg	
	Shipping Dimensions: $8 \times 3 \times 1$ cm	
	Gas Sensor MQ 135	
	Item Type: Air Quality Sensor	
28	Detecting Range: 100ppm to 1000ppm	10
	Shipping Weight: 0.01 kg	
	Shipping Dimensions: $4 \times 3 \times 3.5$ cm	
	<b>RTC DS1307</b>	
	Item Type: RTC Module	
	Battery: IR2032	
29	PCB Size ( L x W ) mm: 28 x 28	10
	Weight (g): 6	
	Shipping Weight: 0.01 kg	
	Shipping Dimensions: $6 \times 6 \times 2$ cm	
	Flex Sensors	
	Item Type: Flex Sensor	
30	Length (cm): 8	
	Sensor Length (mm): 80mm	
	Life Cycle: >1 million	10
	Height (mm):0.43mm (0.017")	
	Resistance (Ohm): Flat Resistance: 10K Ohms ±30%	
	Power Rating: 0.5 Watts continuous; 1 Watt Peak.	

	Dust Sensor	
	Item Type: Dust Sensor	
	Model No.: GP2Y1010AU0F	
	Operating Current (mA): 20	
	Sensitivity (dBm): 0.5V/(0.1mg/m3)	
31	Operating Temperature (°C): -10 to 60	10
	Dimensions (L x W x H) mm :46 x 34 x 18	
	Weight (g): 16	
	Shipping Weight: 0.02 kg	
	Shipping Dimensions: $5 \times 4 \times 1$ cm	
	PN532 NFC Reader	
	Model Type: RFID Reader, Writer Module	
	Operating Voltage (V): $3.3V \sim 5V$	
32	Communication Distance :5cm~7cm	10
52	Module Size (LxWxH) mm: 42.7 x 40.4 x 4 mm (LxWxH)	10
	Shipping Weight: 0.05 kg	
	Shipping Dimensions: $6 \times 5 \times 2$ cm	
	<u>Rpi Camera 5MP</u>	
	Item Type: Camera Module	
	Resolution: 5MP (2592 x 1944)	
	Operating Voltage (V): 3.3	
	Lens Focus : Fixed Focus	
	Image Size(Pixels) : 2592A—1944	
	Interface Type: CSI(Camera Serial Interface)	
22	Sensor: Omnivision 5647 fixed-focus	10
33	Aperture (F): 2.9 $\sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{j=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n$	10
	Focal Length (mm): 3.29 Lenge Viewing Angle (EQV): 72.4 $\hat{A}^{\circ}$	
	Lense Viewing Angle (FOV): 72.4A <sup>2</sup>	
	Width (mm): 23	
	Height (mm):	
	Weight (a): 3	
	Weight (g). 5	
1	ACTUATORS I2C OLED Display	10
2	Backlight LED	10
3	4 Channel Relay	10
4	RGB LED 9W	10
5	Solid State Relays 25A	10
6	Arduino Speaker	10
7	RPiTouchDisplay3.5'	10
8	E-InkDisplay2.7'	10
9	Buzzer module	10
10	LED	10
11	9W LED	10
12	12VDC Geared Motor 550 RPM	10

	<b>3D Printer with AMS to create Actuator components</b>	
	Build Volume(WxDxH): 256 x 256 x 256 mm <sup>3</sup>	
	Shell: Open frame (Printable Modplates Available)	
	Hot End: All-Metal	
	Nozzle: Stainless Steel	
	Max Hot End Temperature: 300 °C	
	Nozzle Diameter:0.4 mm (Included);0.2 mm, 0.6 mm, 0.8 mm	
	(Optional)	
	Build Plate Surface Compatibility: Textured PEI Plate, Cool Plate,	
	Engineering Plate, High Temperature Plate	
	Max Build Plate Temperature: 100°C	
	Max Speed of Tool Head: 500 mm/s	
	Max Acceleration of Tool Head: 20 m/s <sup>2</sup>	
13	Control Board Fan: Optional	1
	Chamber Temperature Regulator Fan: Optional	
	Auxiliary Part Cooling Fan: Optional	
	Air Filter: Optional	
	Supported Filament: Ideal: PLA, PETG, TPU, PVA, PET	
	Capable: PA, PC, ABS, ASA	
	Chamber Monitoring Camera: Low Rate Camera 1280 x 720/0.5fps	
	Timelapse Supported	
	Filament Run Out Sensor: Yes	
	Physical Dimensions:P1P : 386 * 389 * 458 mm <sup>3</sup> ,	
	Package size $485 \times 480 \times 528 \text{ mm}^3$ ,	
	Net weight 9.65kg, Gross weight 14.30 kg	
	Electrical Requirements: 100-240 VAC, 50/60 Hz, 1000 W @220 V,	
	350W@110V	

Rani

PRINCIPAL WOMEN'S ENGINEERING COLLEGE, PUDUCHERRY