



Estd. : 1939

Karnatak Law Society's

Gogte Institute of Technology

Belagavi 590 008 Karnataka INDIA



Estd. : 1979

AICTE & UGC approved | NBA *Accredited [* Civil, Mech, EE, EC ,CSE,MBA,M.Tech. in Str & M.Des]
Autonomous Institution under VTU, Belagavi | NAAC A+ Accredited



Department of Information Science & Engineering

Lab Details



Lab No. 04 VLSI Design Lab

System Specification :

48 HP i5 Systems, 8GB RAM, 1 TB HDD,
Laser Printer, LCD Projector, 15 KVA UPS
No. of PC's =48

Room Specification :

Carpet Area (Sq.mt) 87.14,

Total Investments till date 70.09 Lakhs



Lab No. 09 Internet of Things Lab

System Specification :

20 C2D Systems, 1-2GB RAM, 80-200GB HDD,
LCD Projector, Network Components, 7.5 KVA UPS
No. of PC's = 20

Room Specification :

Carpet Area (Sq.mt) 115.57

Total Investments till date 70.09 Lakhs

LEGAL SOFTWARE

- Microsoft Campus Agreement
- MSDN Academic Alliance License
- Linux Freeware
- Applications on Windows Platform
- Applications on Linux Platform
- Database Packages
- Programming Languages
- Antivirus and General Tools



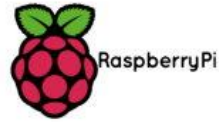
APPROVALS/RECOGNITIONS



STUDENT CHAPTER



Equipment and Facility Catalogue



Raspberry Pi 3 Model B



RASPERRYPI-MOdB-1GB



RPI-MOdB-16GB-NOOBS

Technical Specification:

- Broadcom BCM2837 64bit ARMv7 Quad Core Processor powered Single Board Computer running at 1.2GHz
- 1GB RAM
- BCM43143 WiFi on board
- Bluetooth Low Energy (BLE) on board
- 40pin extended GPIO
- 4 x USB 2 ports
- 4 pole Stereo output and Composite video port
- Full size HDMI
- CSI camera port for connecting the Raspberry Pi camera
- DSI display port for connecting the Raspberry Pi touch screen display
- Micro SD port for loading your operating system and storing data
- Upgraded switched Micro USB power source (now supports up to 2.4 Amps)
- Expected to have the same form factor has the Pi 2 Model B, however the LEDs will change position

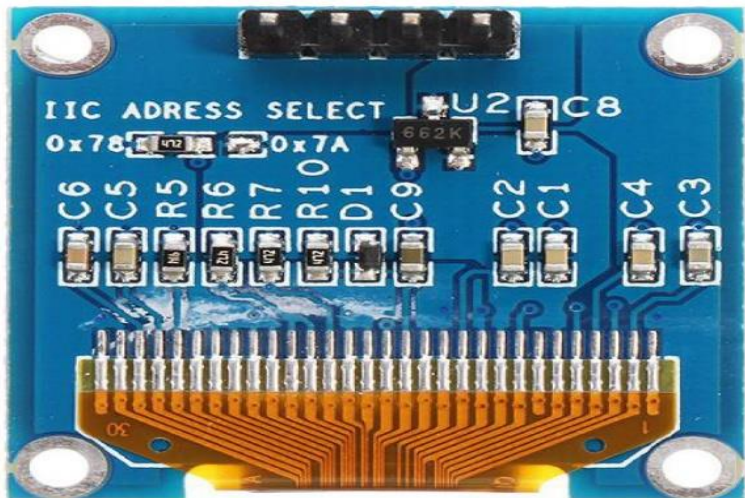
Raspberry Pi 4 B (4GB RAM)



| | Pi3 Model B | Pi3 Model B+ | Pi4 Model B |
|--------------------------|---|--|---|
| Processor | Broadcom BCM2837A1(B0), Quad-core Cortex-A53 64-bit SoC@ 1.2GHz | Broadcom BCM2837B0, Quad-core Cortex-A53 64-bit SoC@ 1.4GHz | Broadcom 2711, Quad-core Cortex-A72 64-bit SoC @ 1.5GHz |
| Memory | 1GB LPDDR2 SDRAM | 1GB LPDDR2 SDRAM | 1GB, 2GB or 4GB LPDDR4 SDRAM |
| Connectivity | 2.4GHz IEEE 802.11.b/g/n/ac wireless LAN, Bluetooth 4.1, BLE 4 x USB 2.0 ports | 2.4GHz / 5.0GHz IEEE 802.11.b/g/n/ac wireless LAN, Bluetooth 4.2, BLE 4 x USB 2.0 ports, Gigabit Ethernet over USB2.0 (max. 300MPS) | 2.4GHz / 5.0GHz IEEE 802.11.b/g/n/ac wireless LAN, Bluetooth 5.0, BLE 2 x USB 2.0 / 2 x USB 3.0 ports delivering true Gigabit Ethernet |
| Access | Extended 40-pin GPIO header | Extended 40-pin GPIO header | Extended 40-pin GPIO header |
| Video & Sound | 1 x full size HDMI, 1 X MIPI DSI display port 1 X MIPI CSI camera port 4 pole stereo output and composite video port | 1 x full size HDMI, 1 X MIPI DSI display port 1 X MIPI CSI camera port 4 pole stereo output and composite video port | 2 x micro HDMI, 4k video 1 X MIPI DSI display port 1 X MIPI CSI camera port 4 pole stereo output and composite video port |
| Multimedia | H.264, MPEG-4 decode (1080p30), H.264 encode (1080p30), OpenGL ES 1.1, 2.0 graphics | H.264, MPEG-4 decode (1080p30), H.264 encode (1080p30), OpenGL ES 1.1, 2.0 graphics | H.265 decode (4kp60) H.264 decode (1080p60), H.264 encode (1080p30), OpenGL ES 1.1, 2.0, 3.0 graphics |
| SD card support | Micro SD format for loading OS & data storage | Micro SD format for loading OS & data storage | Micro SD format for loading OS & data storage |
| Input Power | 5V/2.5A DC via micro USB connector 5V DC via GPIO | 5V/2.5A DC via micro USB connector 5V DC via GPIO PoE enabled | 5V/3A DC via USB type C connector 5V DC via GPIO PoE enabled |

Equipment Details

0.96 Inch 4 Pin Lic 12C Blue Oled display Module for Arduino



This 0.96 Inch I2C/IIC 4pin OLED Display Module BLUE can be interfaced with any microcontroller using SPI/IIC/I2C protocols. It is having a resolution of 128×64. The package includes display board, display, 4 pin male header pre-soldered to board.

NXP OM5577 PN7120 NFC controller



Development kit for PN7120 plug'n play NFC controller. It is a flexible and easy to use single board computer (SBC) Kit for the PN7120 NFC controller. Three different development kits are available and make the integration of NFC easy to different platforms such as Raspberry Pi, BeagleBone Black and any boards featuring Arduino compatible header, including many LPCXpresso, Kinetis and i.MX boards. Suitable for use in all devices running in an Android or Linux environment, TVs, set-top boxes, Blu-ray decoders, audio devices, home automation, gateways, wireless routers, home appliances wearables, remote controls, healthcare, fitness, printers, IP phones, gaming consoles and accessories.

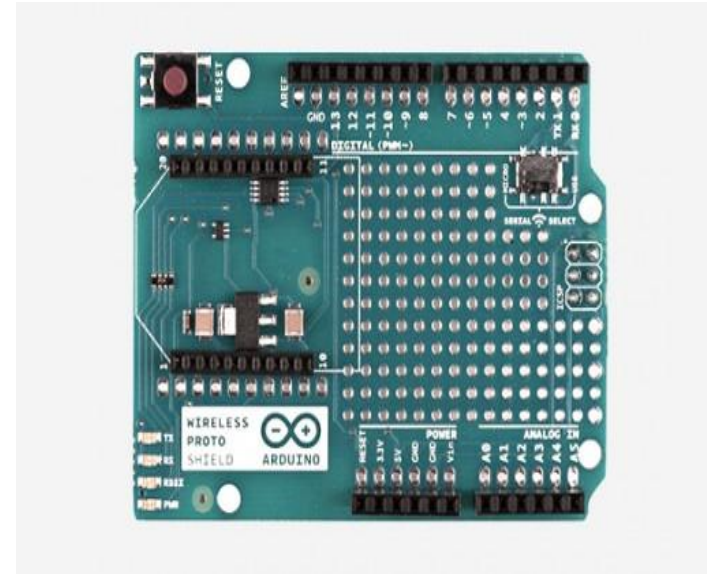
Equipment Details

AST Works New Bluetooth XBee Shield V03 Module Wireless Control For XBee ZigBee Arduino



The Xbee shield allows an Arduino board to communicate wirelessly using Zigbee. It is based on the Xbee module from MaxStream. The module can communicate up to 100 feet indoors or 300 feet outdoors (with line-of-sight). It can be used as a serial/USB replacement or you can put it into a command mode and configure it for a variety of broadcast and mesh networking options. The shields break out each of the Xbee's pins to a through-hole solder pad. It also provides female pin headers for use of digital pins 2 to 7 and the analog inputs, which are covered by the shield (digital pins 8 to 13 are not obstructed by the shield, so you can use the headers on the board itself). The Xbee shield was created in collaboration with Libelium, who developed it for use in their SquidBee nodes (used for creating sensor networks).

Arduino proto wireless shield



The **Wireless Proto shield** allows an Arduino board to communicate wirelessly using a wireless module. It is based on the [Xbee modules from Digi](#), but can use any module with the same footprint. The module can communicate up to 100 feet indoors or 300 feet outdoors (with line-of-sight). It can be used as a serial/usb replacement or you can put it into a command mode and configure it for a variety of broadcast and mesh networking options. The shields breaks out each of the Xbee's pins to a through-hole solder pad.

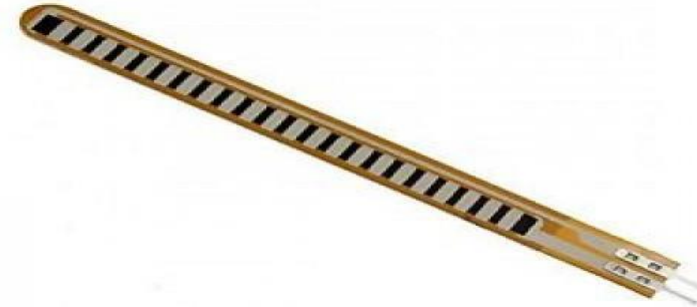
Equipment Details

3.5" Touch Screen LCD raspberry Pi



This small 3.5 inch touch screen Raspberry Pi Display module is designed especially for Raspberry Pi, using the latest Linux Core system. This is ideal for DIY anywhere, anytime and does not require any separate power source or case to hold it. The module sits right on top of Pi and an ideal alternative solution for HDMI monitors. The screen also comes with a stylus to interact with the small screen.

Flex Sensor for Arduino



A simple Flex Sensor 2.2" – Bend Sensor with a length of 2.2" which bends and flexes with a physical device. As the sensor is flex, the resistance across the sensor increases. A connector is 0.1" spaced and breadboard friendly. Applications in – Robotics, Gaming (Virtual Motion), Medical Devices, Computer Peripherals, Musical Instruments

Equipment Details

D Link DIR -816 Wireless AC750 dual band router



The DIR-816 Wireless AC750 Dual Band Router gives you lightning-fast combined wireless speeds of up to 750 Mbps and increased range. Using dual-band wireless, it allows you to operate two concurrent, high-speed Wi-Fi bands for ultimate wireless performance. The DIR-816 Wireless AC750 Dual Band Router is an affordable yet powerful wireless networking solution which combines the latest high-speed 802.11ac Wi-Fi specification with dual-band technology and fast Ethernet ports to deliver a seamless networking experience. The increased range and reliability of wireless AC technology reaches farther into your home, and advanced security features keep your network and data safe from intruders.

Robodo AR6 Funduino USB Host Shield Module Supports UNO MEGA for Google and Roid ADK, Blue



The Arduino usb host shield allows you to connect a usb device to your Arduino board. The Arduino usb host shield is based on the max3421e (datasheet), which is a usb peripheral/host controller containing the digital logic and analog circuitry necessary to implement a full-speed usb peripheral or a full-/low-speed host compliant to usb specification rev 2.0. The shield is tinker kit compatible, which means you can quickly create projects by plugging tinker kit modules onto the board. The following device classes are supported by the shield: Hid devices: Keyboards, mice, joysticks, etc. Game controllers: Sony ps3, Nintendo Wii, xbox360. Usb to serial converters: Ftdi, pl-2303, acm, as well as certain cell phones and gps receivers. Adk-capable android phones and tables. Digital cameras: Canon eos, powershot, Nikon dslrs and p and s, as well as generic ptp. Mass storage devices: Usb sticks, memory card readers, external hard drives, etc. Bluetooth dongles.

Equipment Details

Raindrop Sensor



It is a tool used for sensing rain. It consists of two modules, a rain board that detects the rain and a control module, which compares the analog value, and converts it to a digital value.

pH sensor



A **pH sensor** is one of the most essential tools that's typically used for water measurements. This type of **sensor** is able to measure the amount of alkalinity and acidity in water and other solutions.

CO2 sensor



Carbon Dioxide Sensor Module (Carbon dioxide sensor) is a carbon dioxide sensor (CO₂) sensor is a Metal Oxide Sensor, which must heat the tank to the specified level. (With the method of supplying power) will cause heat vapour and separate CO₂ from the air. This sensor module has an MG-811 onboard as the sensor component. A signal output circuit for heating the sensor The MG-811 is highly sensitive to CO₂ and less sensitive to alcohol and CO. The output voltage of the CO₂ increases. Useful for greenhouses and medical projects. Sends an analog signal that decreases as the concentration of CO₂ increases. This module also includes a digital output pin with TTL output. The Potentiometer on board is used to set the Digital Output Setpoint. After setting the potentiometer threshold, once that threshold is reached, an LED on the sensor will illuminate and the digital pin will give a HIGH voltage signal.

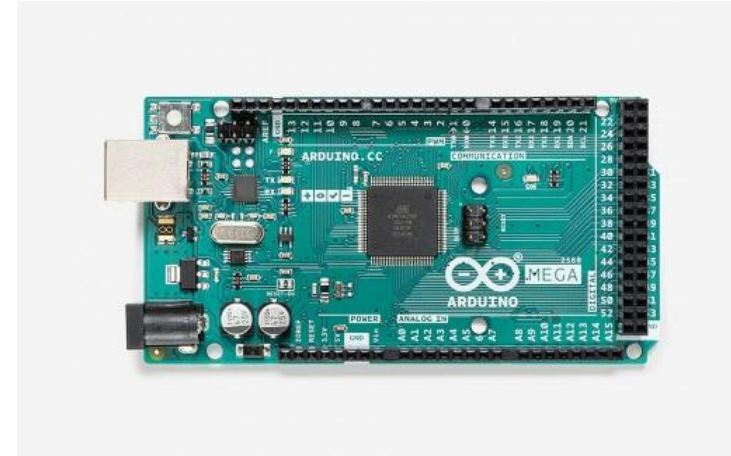
Equipment Details

ARDUINO UNO



The **Arduino UNO** is the best board to get started with electronics and coding. If this is your first experience tinkering with the platform, the UNO is the most robust board you can start playing with. The UNO is the most used and documented board of the whole Arduino family.

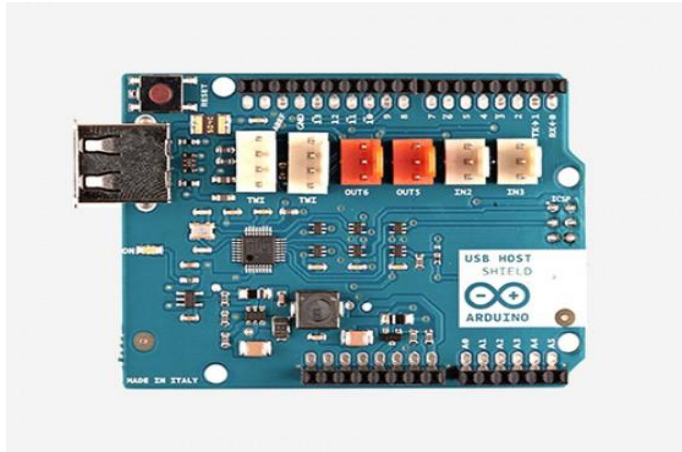
ARDUINO MEGA



The **Arduino Mega 2560** is a microcontroller board based on the [ATmega2560](#). It has 54 digital input/output pins (of which 15 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Mega 2560 board is compatible with most shields designed for the Uno and the former boards Duemilanove or Diecimila.

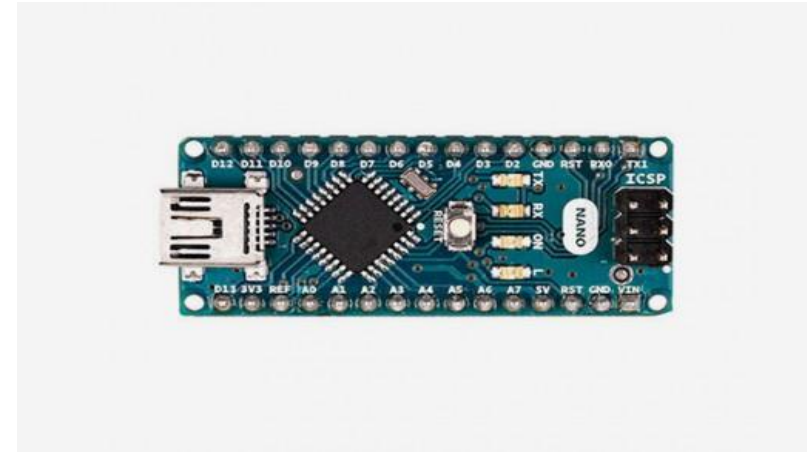
Equipment Details

ARDUINO MEGA ADK



The Arduino USB Host Shield allows you to connect a USB device to your Arduino board. The Arduino USB Host Shield is based on the MAX3421E ([datasheet](#)), which is a USB peripheral/host controller containing the digital logic and analog circuitry necessary to implement a full-speed USB peripheral or a full-/low-speed host compliant to USB specification rev 2.0.

ARDUINO NANO



The Arduino Nano is a small, complete, and breadboard-friendly board based on the ATmega328 (Arduino Nano 3.x). It has more or less the same functionality of the Arduino Duemilanove, but in a different package. It lacks only a DC power jack, and works with a Mini-B USB cable instead of a standard one.

Equipment Details

BRAINSENSE



Technical specification

- **Module – TGAM 1**
- **Electrodes – Main Electrode & Ear clip electrode(Ground)**
- **Type of Electrode – Non-Invasive | Dry**
- **Battery – 3 AAA Battery**
- **Standup Time – 6 Hours run time**
- **Connectivity – Bluetooth v2.1 class**
- **Comptability – Windows | Linux | Android | Raspberry Pi | Arduino**
- **Measure – Meditation | Attention | EEG Bands (Alpha, Beta, Gamma, Delta & Theta) | Raw EEG with Eyeblink**

- Brainsense is the device that works under the Principle of BCI - Brain-Computer Interface, that is analyzing brain with EEG – Electroencephalography, the study of the electrical activity of brain neurons and developing brain actuated applications using this device.
- In this generation, every industry is trying to build AI bots that are highly intelligent than Humans, which may be a threat to Humans. On the other hand, some industries are working to enhance the human, using this BCI technology. Industries such as Neuralink by Elon Musk, designing thinner electrode, can be planted around the skull, can be used to monitor the brain activity.
- The Brainsense is also one of the BCI devices, which has Non-invasive types of electrodes i.e, Electrodes can be just placed in the scalp of the brain, instead of injecting the electrode into the brain tissues and also it is a dry electrode, which doesn't require any gel before use.