

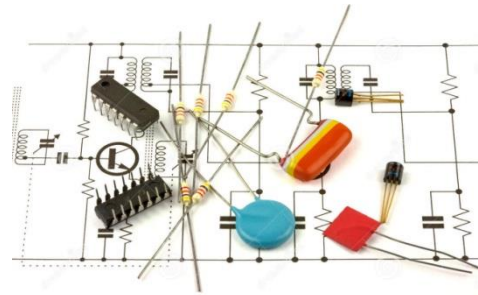
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## Internship Syllabus for 6 Month

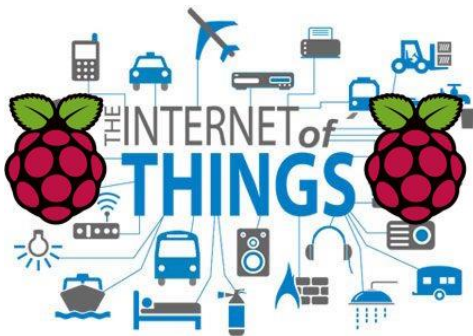
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**Arduino**

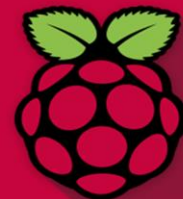


**Basics of Electronics**



**IOT**

Raspberry Pi



WORKSHOP

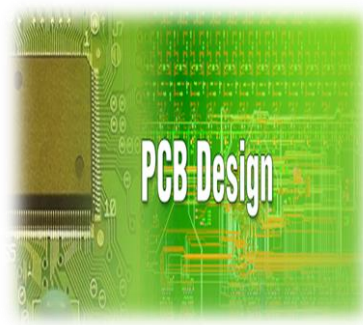
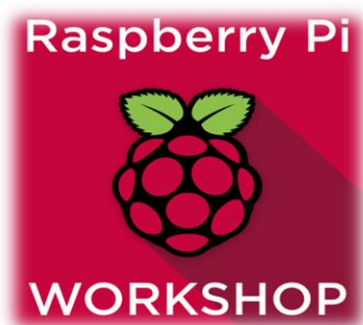
**Raspberry Pi**

## About the Team

MDB Electrosoft Pvt. Ltd. is conducting training program from last seven years we provide industry oriented training which helps to integrate academics with real time corporate world.

Our Mission is to develop the technically sound, well skill students for industries and create maximum employment.

MDB Electrosoft Pvt. Ltd. is grooming electronics and software product Development Company. We develop electronics and software products which help society to make life easy and interesting. Our team is always dedicated for the Development and Innovations. Our research in a product development makes the product outlined as per client requirement. Our development strategy gives throughput which inclined with the user requirements. Our vision is to develop society oriented products which always dole out better life. Our economic policies give lot in less. Our product development starts from user's requirement and ends on efficient and well develop product. Our team has well experience and skilled experts who are able to give efficient and in time solution. Every solution provided by us is unique and innovative. Our approach has been always customer and market communication centric. We create products keeping our target consumer and audience in mind. Our expertise always focuses on market requirement and development.



# 1. IOT based on Node MCU

Sr. No.	Content
1	Introduction to IOT
2	IOT Architecture
3	Introduction to Node MCU Introduction to NODE MCU <ul style="list-style-type: none"> <li>• Pinouts</li> <li>• NODE MCU firmware</li> <li>• Flashing the Firmware using ESPFlasher</li> </ul>
4	Introduction to ESP8266 wifi module. <ul style="list-style-type: none"> <li>• Arduino IDE + ESP8266</li> <li>• Integrating ESP8266 libraries to Arduino IDE</li> <li>• Updating the libraries</li> <li>• Basic blink LED program</li> </ul>
5	Switch Interfacing with Node MCU and programming
6	Introduction to cloud
7	Introduction to Thingspeak
8	1) Opening Account on Thingspeak 2) Creating Channel on Thingspeak
9.	Introduction to MIT App inventor for Android
10.	Android App development by MIT App inventor for Home appliance control.
11.	<b>Developing Complete application to control home appliances through IOT</b>
12.	Interfacing and programing of Temperature and Humidity Sensor
13.	Interfacing programming of Moisture sensor.
14.	Interfacing and programming of Ultrasonic Sensor.
15	Development of Reverse car parking system.
16	<b>Development of Complete project IOT Based smart farming.</b>
19.	Q & A Session and Security issues related with IOT.
21.	Discussion of Research area in the field of IOT

## 2.Arduino and Embedded 'C'

Sr. No.	Content
1.	Introduction to Arduino board
2.	Installation of Arduino Software
3.	Pin mapping of Arduino with ATMEGA 328/ 8
4.	Software Basics
5	Intefacing of LED with board. Writing a program to on and off the LED with interval of 1 second
6	Embedded C programing basics
7	If loop, For loop, While loop, Switch-case statement syntax
8.	Interfacing of 7 segment displpay and its programming.
9.	Interfacing of Buzzer to genrate different audio tones.
10.	Intefacing of switch and LED to Board
11.	Interfacing of 16x2 LCD display and its Programming. Writing program for different display patterns on LCD.
12.	Displaying Names of student on LCD
13.	Scrolling names on lcd
14.	Changing name pattern on LCD by switch
15.	ADC Programming Writing a program to display analog voltage on LCD.
16.	Design of temperature indicatior and controlling System.
17.	Water level indicator
18.	Home appliance control using remote
19	Interfacing of Ultrasonic sensor
20.	Serial Communication using Arduino
21.	Interfacing of Bluetooth Module
22.	Interfacing of Gas sensor
23.	Interfacing of Hall effect sensor

### 3. Raspberry Pi, Introduction to Python

Sr. No.	Content
1	Introduction to Raspberry Pi
2.	Istallation of Raspberry Pi and Operation system Raspbian
3.	Installation of VNC Viewer into laptop or system.
4.	Setting IP address and concifering Raspberry Pi with VNC Viewer.
5.	Introduction to Linux operating system and some basic functions
6.	<p>Introduction to Python and Some basic programs.</p> <p style="padding-left: 40px;">1) History of Python 2) Interactive Mode Programming 3) Script Mode Programming 4) Lines and Indentation 5) Assigning Values to Variables 6) Standard Data Types 7) Python Strings 8) Python Basic Operators 9) Python Loop 10) Developing python program to understand above concepts.</p>
7.	GPIO structure of Raspberry Pi
8.	Interfasing of LED and programming it for blinking using python language
9.	<p>Interfasing of switch programing it for different purposes</p> <p>Like Switching LED, Increment Display etc</p>
10.	PWM feature of Raspberry Pi 3
11.	Linking PWM feature with switch
12.	Interfacing of 7 segment display and its programing
13.	Design of counter to count the no. of events
14.	Interfacing of Temperature and Humidity
15.	Interfacing of Ultrasonic Sensor to measure Distance.
16.	<p>Interfacing of camera with Raspberry Pi and its programming</p> <p style="padding-left: 40px;">a) Programming Raspberry Pi to take snap after click b) Programming Raspberry Pi to take Salfy</p>
17.	<p>Other things that can be done by Raspberry Pi</p> <p style="padding-left: 40px;">a) Accessing internet b) Accessing Pen Drive c) Discussion about General things that can be done by Raspberry Pi</p>

## 4. Python

Sr. No.	Content
1	Introduction to Python.
2	Python Basic syntax
3	Interactive mode programing
4	Script mode programing
5	Python identifiers
6	Lines and indentation.
7	Variables in Python 1)Assigning value 2)Multiple assignment 3)Standard data type 4) Strings 5)Lists 6)Tuples 7)Dictionary 8)Data type conversion
8	Operators in Python 1)Arithmetic operator 2)Comparison Operator 3)Assignment Operator 4)Logical Operator 5)Bitwise Operator 6)Membership Operator 7)Identity Operator 8)
9	Python Loops 1)while loop 2)for loop 3)nested loop 4)if statement
10	Control Statement 1)break statement 2)continue statement 3)pass statement
11	Indexing, Slicing and Matrixes
12	Python Tuples
13	Python Date & Time
14	Python Function 1)Definition of Function 2)Syntax 3)Pass by reference and pass by Value
15	GUI Development using TKinter. a) Introduction to tkinter b) Developing code for button. c) Development of GUI for calculator. d) Develop GUI to send email
16	Game Design using Python a)Bacis of Game Design b)How to work with simple program c)How to take images inside game d)Development of complete game.

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6.	Introduction to Python and Some basic programs. 1) History of Python 2) Interactive Mode Programming 3) Script Mode Programming 4) Lines and Indentation 5) Assigning Values to Variables 6) Standard Data Types 7) Python Strings 8) Python Basic Operators 9) Python Loop 10) Developing python program to understand above concepts.
7.	GPIO structure of Raspberry Pi
8.	Interfacing of LED and programming it for blinking using python language
9.	Interfacing of switch and programing it for different purposes Like Switching LED, Increment Display etc
10	PWM feature of Raspberry Pi 3
11.	Linking PWM feature with switch
12.	Development of program in python to read data from URL
13.	Introduction to HTML
14.	Write HTML code to develop button and to send data to URL
15.	<b>Developing Complete application to control home appliances through IOT</b>
16.	Introduction to Thingspeak
17.	Write Python code to develop button and to send data to URL
18.	<b>Developing Complete application to control home appliances through IOT</b>
19.	Introduction to Thingspeak
20.	1) Opening Account on Thingspeak 2) Creating Channel on Thingspeak
21.	Programming Raspberry Pi to send data on Thingspeak
22.	Demonstration of interfacing of Web Cam.
23.	Introduction to Image Processing using Raspberry PI
24.	Q & A Session and Security issues related with IOT.
25.	Discussion of Research area in the field of IOT

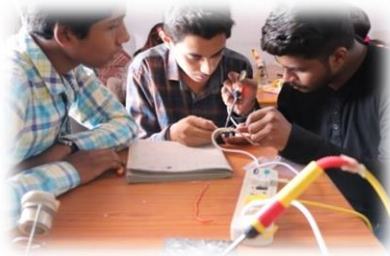
## 6. Basics of Electronics & PCB Design

Sr. No.	Content
1.	<b>Introduction &amp; Practical application of various components</b>
	a) Resistor b) Capacitor c) Inductor d) Diode e) LED f) Multimeter g) Breadboard
2.	<b>Introduction to Breadboard</b>
3.	Practicals Performed with above components
4.	Practicals Performed with above components
5.	h) Transistor I) Switches j) LDR
6.	Practical Aspects of Above Components And Mini Project of Street Light Control
7.	<b>PCB Design Using CAD tool (PCB Design Software)</b>
8.	a) Types of PCB b) PCB Design Rules c) Introduction to PCB Design Software e) Practice of the software by designing of the PCB for various circuits d) How to print Soft design on actual PCB e) Etching of PCB f) Drilling of PCB
9.	<b>Regulated Power Supply</b> i) Circuit Design
10.	ii) PCB design iii) Etching of PCB iv) Drilling of PCB
11.	<b>Introduction to soldering</b> a) What is soldering Iron b) What is soldering c) Soldering Techniques e) Soldering practice
12.	<b>Introduction to datasheet</b>
13	<b>Running LEDs</b> a) Clock Design b) Introduction to 4017 c) Development of Running LEDs
14.	<b>Counter Design</b> a) Introduction to 4026 b) Introduction to Seven segment common K and Common A and testing. Counter Design.
15	<b>Tester for Remote control</b> a) Introduction to IR receiver b) Introduction to IR Transmitter Design of Remote control Tester
16.	<b>Water Indicator Alarm</b>
17.	<b>Variable Power Supply</b> i) Circuit Design ii) PCB design iii) Etching of PCB iv) Drilling of PCB v) Component mounting vi) Testing of Power Supply.



# A Glimpse of Workshop

**Summer Internship 2018 (Student From Various Colleges such as COEP, IIT Nagpur, PRMITR, PRCEAM, HVPM COET, G.H.Raisoni)**



**STTP Workshop 2018 at P.R.Pote (Patil) Engg**



**RC Plane & Drone Workshop 2017 at P.R.Pote (Patil) Engg**



**IOT & Raspberry Pi Workshop At Ram Meghe Institute of Tech.Badnera**



# Our MOU Partner



**Government Polytechnic, Amravati**



**P.R.Pote (Patil) College of Engg.  
&  
MGMT, Amravati**



**Government Polytechnic, Arvi**



**Ram Meghe Institute of Technology  
&  
Research, Badnera-Amravati**



**H.V.P.M College of Engg. & Tech.  
Amravati**



**Matoshri Vimlabai Jr College, Amravati  
&  
Independent Jr College Rural Institute,  
Amravati**