

# IOT WITH RASPBERRY PI

## SESSION 1:

### 1. Introduction to RASPBERRY PI

- Introduction to Open Source Hardware
- Brief Introduction to Hardware
- Parts & Usability
- IoT

### 2. Raspberry PI: Architecture & Hardware Specifications

- Introduction to ARM 11 microcontroller

### 3. Brief Introduction to LINUX (DEBIAN on Raspberry PI)

- Linux Terminal Commands
- Shell Scripting

## SESSION 2:

### 4. PYTHON: Programming Language

## SESSION 3:

### 5. Raspberry PI: Getting Started

- Setting UP the Board
- Booting the OS
- Displaying on Monitor working as CPU
- Getting familiar to GUI & Terminal Commands

### 6. Raspberry PI: Stepping UP

- Introduction to GPIO
- Enabling GPIO
- Coding: Python Programming over Raspberry
- Starting Up: *Hello World!*

### 7. IOT Architecture Overview

### 8. System Architecture

### 9. Description of proposed architecture

### 10. Hardware implementation

## **SESSION 4:**

### **11. Give sensor to PI**

- What are sensors!
- Interfacing PIR Sensor
- Interfacing Ultrasonic Sensor

### **12. PWM**

- Generating PWM using Python & GPIO

## **Projects**

- LED Glow & Toggle
- Generating LED Patterns
- Bash Scripting on LINUX
- Distance Calculator
- Human Detection using PIR
- Generating PWM in Raspberry PI
- Software CD

## **Kit Contents:**

- Raspberry Pi
- HDMI to VGA Cable
- USB Cable (for Power Supply)
- LED Packet
- BreadBoard
- PIR Sensor
- ULTRASONIC Sensor
- Battery