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Article

Kickstart IoT (Internet of Things) With Raspberry Pi

By **Abdul Rasheed Feroz Khan** on **Apr 20 2016**

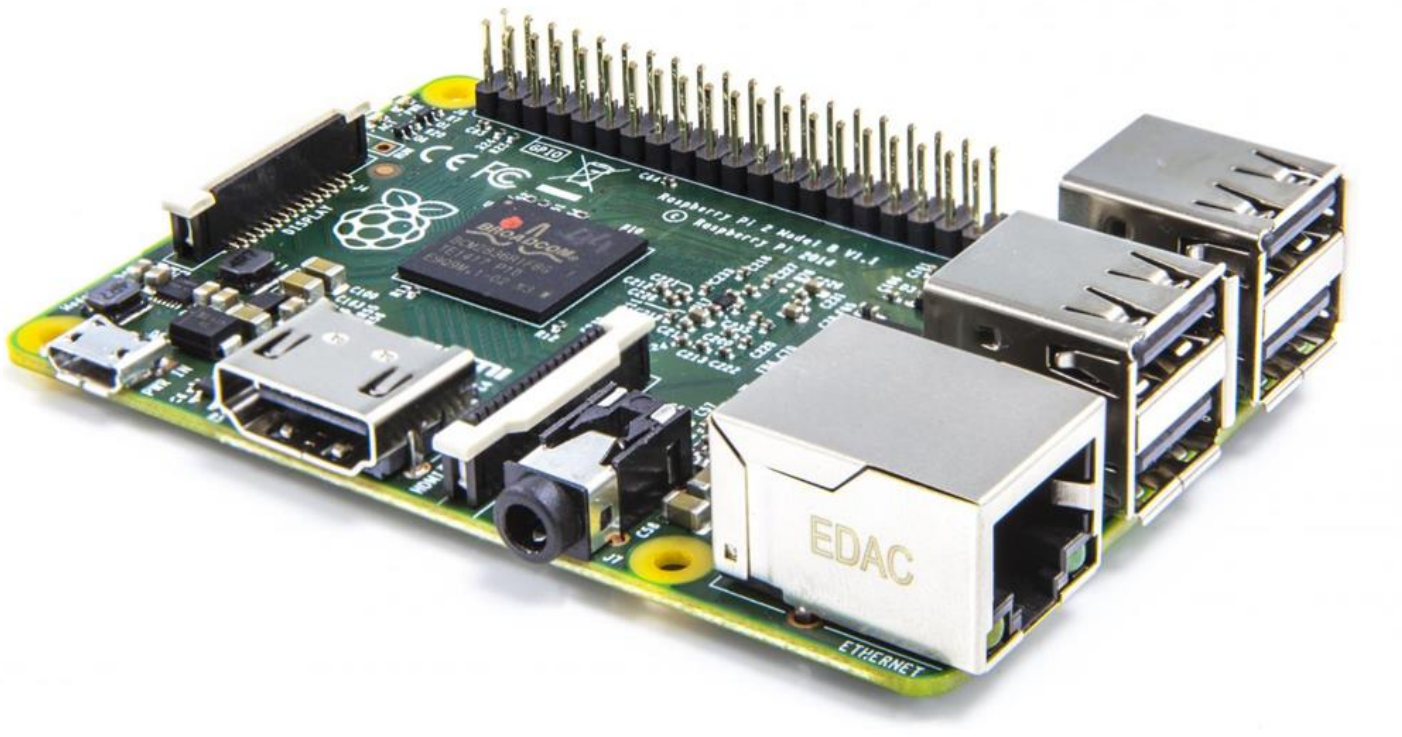
What is IoT

IoT (Internet of Things) is a device which can work with the combination of devices, data, cloud, sensors and whatever you imagine to write up with your thoughts. Microsoft supports IoT platform with Windows 10 IoT Core Operating System which can be used to deploy solutions on your Raspberry Pi device.

What is Raspberry Pi:

Raspberry Pi is an IoT device which can wrap up with various sensors, data, devices, cloud, etc., and can work with whatever instructions that has been given to it. This makes things much simpler to perform tasks with easy steps.

Image of Raspberry Pi 2 device:



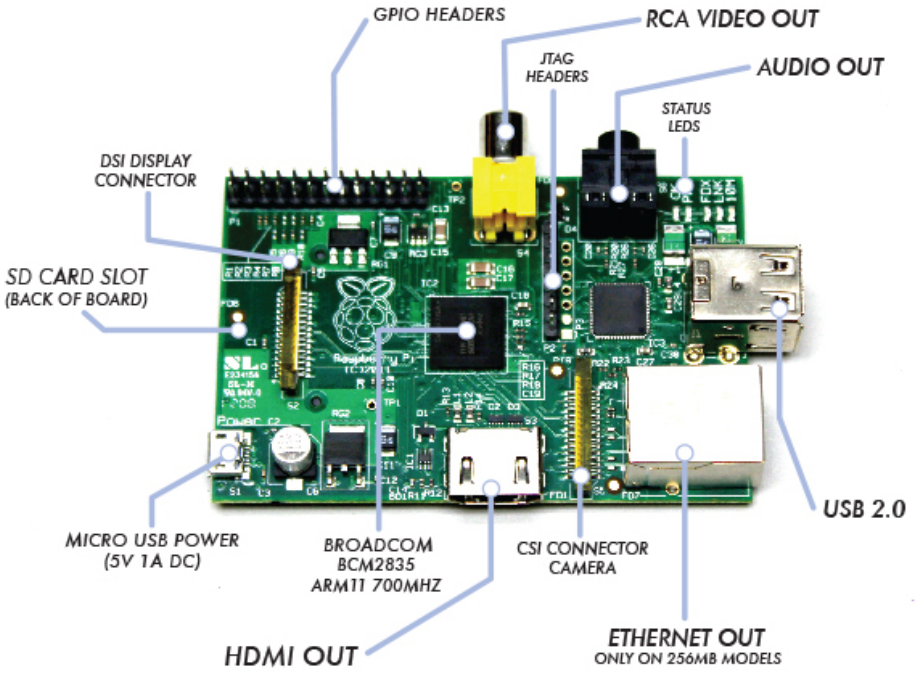
Different models of Raspberry Pi:

Raspberry Pi device could be described as a card size or palm size based computer which comes with different models and different configurations, different Operating Systems, etc.,

Raspberry Pi comes with different models as:

1. Raspberry Pi 1 – Compute Module
2. Raspberry Pi 1 – Model A+
3. Raspberry Pi 2 – Model B
4. Raspberry Pi 3 – Model B

Components of Raspberry Pi kit:



This Raspberry Pi kit holds different components as such same like a laptop or PC:

1. Processor (depends upon the configuration)
2. 4 - USB Ports (to connect for any USB devices like mouse, keyboard, etc.,)
3. 40 pin extended GPIO (general purpose input output pane)
4. Full Size HDMI
5. 4 pole stereo output and composite video port
6. CSI camera port and DSI display port.
7. Micro USB power source.

Configurations: Configuration of Raspberry Pi 3 Model B.

Processor	Broadcam BCM2837 64Bit Qaud Core processor powered Single Board Computer running at 1.2GHz
Processor Speed	Quad Core @1.2 GHz
RAM	1GB SDRAM @ 400 MHz
Storage	MicroSD
USB 2.0	4x USB Ports
Max Power Draw/Voltage	2.5A @ 5V
GPIO	40 pin
Ethernet Port	Yes
Wifi	Built in
Bluetooth LE	Built in

Configuration of Raspberry Pi 2 Model B:

Processor	Broadcam BCM2836 64Bit Qaud Core processor powered Single Board Computer running at 1.2GHz
Processor Speed	Quad Core @900 GHz
RAM	1GB SDRAM @ 400 MHz
Storage	MicroSD
USB 2.0	4x USB Ports
Max Power Draw/Voltage	1.8A @ 5V
GPIO	40 pin
Ethernet Port	Yes
Wifi	No
Bluetooth LE	No

Things required to work with:

1. **SD Card :** SD card of 8 GB with class 4 is recommended.
2. **Display & Connectivity cables:** Use a monitor supported with HDMI port for output display and have HDMI cables to plug in with your monitor.
3. **Mouse and Keyboard:** Use any USB wired or wireless mouse and Keyboard to work with Raspberry Pi device.
4. **Power Supply:**Use a 5V micro USB power supply to power your Raspberry pi device. You can even use a standard data cable connected with your laptop or PC to power your Raspberry Pi device.
5. **Internet (Ethernet cable or Wifi)**: Provide internet supply for your Raspberry Pi device either with help of Ethernet cable connected towards your Ethernet port at Raspberry Pi device or go with Wifi connectivity.
6. **Wifi modem (in case of Raspberry Pi 2 – model B)**: If you have Raspberry Pi2 – model B device than you should buy an USB Wifi Modem (Device name: COMFAST CF-WU810N). In Raspberry Pi 3 – model B the device holds Wifi modem which is inbuilt so no need to go for an external device.
7. **Headphones:** Not mandatory, if needed you can use earphones with a 3.5mm jack which can work with your Raspberry Pi device.

Operating Systems for Raspberry Pi:

Raspberry Pi device supports third party operating systems such as Windows 10 IoT Core, Ububtu Mate, OpenElec, PINET, etc., the officially supported OS of Raspberry Pi device are NOOBS and RASPBIAN.

Microsoft supports Raspberry Pi device with Windows 10 IoT core OS and this is the OS which is used by a large number of people for Raspberry Pi. This has a good GUI and makes things easily understood by a beginner. This Windows 10 IoT core OS supports devices only from Raspberry Pi 2 – Model B and Raspberry Pi 3 – Model B.

Read more articles on **Internet of Things (IoT)**:

- Ultrasonic Proximity Sensors In IoT Context (Raspberry Pi + Windows 10 IoT Core)
- Windows Remote Arduino - Part One