Introduction To Raspberry Pi

Rishabh Maheshwari
19BCY10145

Introduction to Raspberry pi, Different models of Raspberry Pi and its specifications.

Raspberry Pi is a small single board computer. By connecting peripherals like Keyboard, mouse, display to the Raspberry Pi, it will act as a mini personal computer.

It is popularly used for real time Image/Video Processing, IoT based applications and Robotics applications. Raspberry Pi is slower than laptop or desktop but is still a computer which can provide all the expected features or abilities, at a low power consumption.

Raspberry Pi Foundation officially provides Debian based Raspbian OS. Also, they provide NOOBS OS for Raspberry Pi. We can install several Third-Party versions of OS like Ubuntu, Archlinux, RISC OS, Windows 10 IOT Core, etc.

Raspbian OS is official Operating System available for free to use. This OS is efficiently optimized to use with Raspberry Pi. Raspbian have GUI which includes tools for Browsing, Python programming, office, games, etc.

We should use SD card (minimum 8 GB recommended) to store the OS (operating System).

Raspberry Pi is more than computer as it provides access to the on-chip hardware i.e. GPIOs for developing an application. By accessing GPIO, we can connect devices like LED, motors, sensors, etc and can control them too.

It has ARM based Broadcom Processor SoC along with on-chip GPU (Graphics Processing Unit).

MODEL	RPI 2 B	RPI 3 B	RPI 3 B+	RPI 4 B
SOC TYPE	Broadcom BCM2836	Broadcom BCM2837	Broadcom BCM2837B0	Broadcom BCM2711
CPU Clock	4 x Arm Cortex-A7, 900MHz	4 x Arm Cortex-A53, 1.2GHz	4 x Arm Cortex-A53, 1.4GHz	4 x Arm Cortex-A72, 1.5GHz
RAM	1 GB	1 GB	1 GB	1 GB/ 2 GB/ 4 GB
GPU	Broadcom VideoCore IV	Broadcom VideoCore IV	Broadcom VideoCore IV	Broadcom VideoCore VI
USB Ports	4	4	4	4 (2 x USB 3.0 + 2 x USB 2.0)
Ethernet	100 Mbit / s base Ethernet	100 Mbit / s base Ethernet	Gigabit Ethernet (max. 300 Mbps)	Gigabit Ethernet (no limit)
WiFi	No	WiFi 802.11n	WiFi 802.11ac Dual Band	WiFi 802.11ac Dual Band
Bluetooth	No	4.1	4.2 BLE	5.0 BLE
GPIO Pins	40	40	40	40
Memory	MicroSD	MicroSD	MicroSD	MicroSD