Lesson 7
Raspberry Pi Prototype Development Platforms

Raspberry Pi

- Raspberry Pi 2 model B+ runs on quad core ARM Cortex and runs Window 10 IoT Core and additional distributions of Linux Operating systems
- Raspberry Pi 3 (Rpi 3) model B Latest (February 2016) single board SoC based computing and communication board

Raspberry Pi

- An Rpi runs on the OSes (Windows 10 IoT Core, RISC OS, FreeBSD, NetBSD, Plan9, Inferno, AROS and additional distributions of Linux such as Raspbian Ubuntu) on the board.
- The RPi includes hardware and software provides high performance computing and graphics.
- RPi clock speed about 40 times that in Arduino and larger RAM compared to Arduino.

Processors at Rpi Board

- Uses the processor (ARM Cortex quad core) plus a graphic processor (Broadcom VideoCore IV) for graphics and video.
- Power required is 4 W.

Memory at Rpi Board

- Memory on-board 1 GB, plus in the multimedia card module memory support plus SD card (model B) or MicroSDHC card (model B+) slot for external SD and microSD cards
- Rpi provisions for no real-time clock (RTC) and therefore external chip is used for including an RTC

RPi Applications

- Home automation and drones, for the devices which need an OS that is different
- from that of traditional PCs, such as Ubuntu Core (also known as Snappy)
- The core is a stripped down version of Ubuntu, designed to run securely on autonomous machines,

RPi OS for the Applications

- Home automation and drones, for the devices which need an OS that is different from that of traditional PCs, such as Ubuntu Core (also known as Snappy).
- Snappy, a stripped down version of Ubuntu, designed to run securely on autonomous machines, M2M and IoT devices

RPi Applications

- Media server IoT devices
- Board functions as a personal computer.
- In networked security camera systems in home automation
- ATMs applications and services
- Applications in IIoT.

RPi Features

- Computer like prototyping ease for developing media server and home or ATM surveillance systems IoT applications and services
- Coding in Python, C++, and the libraries

RPi Features

- Software runs on multiple environments, Python, Scratch, Squeek, IDLE, C, Linux and
- BSD OSes, Windows 10 and several OSes with external key board and display monitor
- Flexibility and ease of connecting the hardware to external systems,
- Connectivity of Rpi takes place through two USB hosts hub and Ethernet connector

RPi Features

- Connectivity to the extended memory through a Micro-SD slot
- Extended interfacing capabilities using, SPI, UART, I2C, 40 GPIO pins, supports Wi-Fi module,
- RPi best usages are the media applications for IoT such as photos, dtereo audio, video with Pi Camera module, and streaming High-definition HDMI output

Summary

We learnt

- The RPi with 1 GB and inclusion of media processor includes hardware and software providing high performance computing and graphics.
- RPi clock speed about 40 times that in Arduino and larger RAM compared to Arduino.
- Computer like prototyping ease for developing media server and home or ATM surveillance systems IoT applications and services

Summary

We learnt

- Coding in Python, C++, and the libraries
- Media server IoT devices
- Board functioning as a personal computer

End of Lesson 7 on
Raspberry Pi Prototype Development Platforms