Raspberry Pi

Raspberry Pi
Introduction to RPi

a. Board

b. ARM SoC (system-on-chip) architecture

c. Hardware interfaces

Software for RPi

a. Raspbian OS (Linux Desktop)

Hands-on Projects

a. setting up the RPi – Raspbian OS

b. Booting the RPi

c. networking the RPi

d. File-sharing on the RPi

e. Audio playback on the RPi

f. Video playback on the RPi

g. connecting a USB webcam

h. video streaming on the RPi.

Raspberry Pi Cabling/Setup/Startup

- Cable connections
- Preparing the SD card
- Install the operating system
- Explore the Linux OS

Basic Programming of the Pi

- Hello World
- Access the World Wide Web
- Play audio
- Control Peripherals with a Pi

- Control LEDs
- Get switch feedback
- Get the temperature
- Detect light

Raspberry Pi Starter Kit includes

- Raspberry Pi
- 4GB Flash SD Card
- Breadboard (a.k.a. protoboard)
- Pi Cobbler and cable (to attach a Pi to a breadboard)
- Collection of LEDs
- Temperature/humidity sensor
- Momentary switch
- Collection of resistors
- Collection of connecting wires

After completing this course, students will be able to:
- Setup and operate the Raspberry Pi
- Understand the basics of the Linux OS used on the Pi
- Understand the basics of the X Windows System (the GUI environment)
- Program the Pi for a simple GUI-based game
- Program the Pi to access a network
- Program the Pi to play audio
- Program the Pi to control light emitting diodes (LEDs) attached to the GPIO pins
- Program the Pi to get feedback from a switch connected to the GPIO pins
- Program the Pi to get the temperature from a sensor connected to the GPIO pins
- Program the Pi to detect room light from a photocell censor connected to the GPIO pins

Deliverables:

- Embedded Development Board with all peripherals will be provided to every student for practice in Lab.
- Printed Notes.
- CD Containing Sample programs, Tools & software's, study material, Datasheets, Technical manuals etc.
- Course completion certificate.

- Project completion certificate.

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