PUNE INSTITUTE OF COMPUTER TECHNOLOGY
DHANKAWADI, PUNE –43

LAB MANUAL

ACADEMIC YEAR: 2019- 2020

DEPARTMENT : **COMPUTER ENGG** DATE : **16/12/2019**

CLASS : **T.E** SEMESTER : **II**

SUBJECT : **Embedded System and Internet of Things Lab**

Sr .No.	PROBLEM STATEMENT	Revised On
	Group A Assignments (At least 03)	
1.	Study of Raspberry-Pi, Beagle board, Arduino and other micro controller (History & Elevation)	16/12/2019
2.	Study of different operating systems for Raspberry-Pi /Beagle board. Understanding the process of OS installation on Raspberry-Pi /Beagle board	16/12/2019
3.	Study of Connectivity and configuration of Raspberry-Pi /Beagle board circuit with basic peripherals, LEDS. Understanding GPIO and its use in program.	16/12/2019
4.	Understanding the connectivity of Raspberry-Pi /Beagle board circuit with temperature sensor. Write an application to read the environment temperature. If temperature crosses a threshold value, the application indicated user using LEDSs	16/12/2019
	Group B Assignments (At least 03).	16/12/2019
1.	Understanding the connectivity of Raspberry-Pi /Beagle board circuit with IR sensor. Write an application to detect obstacle and notify user using LEDs.	16/12/2019
2.	Understanding and connectivity of Raspberry-Pi /Beagle board with camera. Write an application to capture and store the image.	16/12/2019
3.	Understanding and connectivity of Raspberry-Pi /Beagle board with a Zigbee module. Write a network application for communication between two devices using Zigbee.	16/12/2019
4.	Study of different CPU frequency governors. Write an application to change CPU frequency of Raspberry-Pi /Beagle board	16/12/2019
	Group C (At least 02)	16/12/2019
1.	Write an application using Raspberry-Pi /Beagle board to control the operation of stepper motor.	16/12/2019
2.	Write an application using Raspberry-Pi /Beagle board to control the operation of a hardware simulated traffic signal.	16/12/2019
3.	Write an application using Raspberry-Pi /Beagle board to	16/12/2019

	control the operation of a hardware simulated lift elevator	
	Group D(At least 02)	16/12/2019
1.	Write a server application to be deployed on Raspberry-Pi /Beagle board. Write client applications to get services from the server application.	16/12/2019
2.	Create a small dashboard application to be deployed on cloud. Different publisher devices can publish their information and interested application can subscribe.	16/12/2019
3.	Create a simple web interface for Raspberry-pi/Beagle board to control the connected LEDs remotely through the interface	16/12/2019
	Group E (At least 01)	16/12/2019
1.	Develop a Real time application like smart home with following requirements: When user enters into house the required appliances like fan, light should be switched ON. Appliances should also get controlled remotely by a suitable web interface. The objective of this application is student should construct complete Smart application in group.	16/12/2019
2.	Develop a Real time application like a smart home with following requirements: If anyone comes at door the camera module automatically captures his image send it to the email account of user or send notification to the user. Door will open only after user‘s approval.	16/12/2019
	Mini-Project	16/12/2019

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