Charotar University of Science and Technology

Devang Patel Institute of Advance Technology and Research

Department of Computer Science and Engineering

Subject: Internet of Things **Semester:7 Subject Code:** CS449 **AcademicYear:2023-24**

Course Outcomes (COs):

After completion of the course students will be able to:

1. **Explanations of the technologies and the standards relating to the Internet of Things.**
2. **Creation and utilization of IoT for the latest trend in IT sector.**
3. **Integration of Existing technology for development of IoT Applications**
4. **Develop a program which works on sensors.**
5. **Addressing security, privacy and standardization issues in development of IoT system.**

Practical List

Sr. No.	Aim Of the Practical	Hrs.	COs
	Part-1		
1.	Installation and configuration of Instant Contiki OS with Cooja.	2	1
2.	Study of different types of motes and deploy them using IoT	2	3

architecture.

	Simulate Hello World program using Cooja.		
3.	Create a scenario by adding some motes. Do the simulation for the same. Also observe the result for said scenario. When one mote sends the signal then led should turn green while one receives then it should show red colour.	2	2
4.	Simulate BGP and RPL protocol in Cooja.	2	5
5.	Simulate client server architecture using UDP on contiki-OS	2	4
6.	Demonstrate message publish & subscribe mechanism of MQTT protocol using node red.	2	3 4
7.	Simulate CoAP protocol in Contiki-OS	2	5
8.	Implement mini project and connect with IBM Bluemix & Thingspeak for data collection on cloud and plot the graph of it. Plotting data on thingspeak.com. Take analog input from ESP and pass that data to api.thingspeak.com and prepare an online graph.	2	
9.	Uses of Mishellium gateway for Zigbee Communication.	2	1
10.	Study on Tiny OS architecture.	2	1,2,3
1.	**<u>Part-2</u>** **Project** while utilizing IoT concept should be build by the student and it should be submitted in the end of semester. 1. Market Survey Report 2. Hardware Feasibility Report 3. Uses and Feasibility in Indian scenario Students can do the project in the group or individual it depend upon the capacity of project and project should be approved by the lab teacher before start do work on it.	10	1,2,3, 5