VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD-500051
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Name of the Course: **INTERNET OF THINGS**

ASSIGNMENT -2

Name of the Faculty: **S Vinay Kumar** Date of Submission: **01-04-24**

Class : **B.E. 3/4** Time: **11.40 AM -12.40 PM**

Section: **A**

Sem: **VI**

Academic Year : **2023-24**

Set-I (1602-21-733-005,012,013,020,026,029,032,036,037,063)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Build an intruder alert system using a Raspberry pi 3.Intruder alert system should use be inside the room and if any obstacle is detected by the PIR sensor, it must glow the bulb. It should also simultaneously take the photo of the intruder. Whenever the light glows, an SMS notification is to be sent to the owner of the house. Intruder alert system should use the following function: · The Smart home security system should be installed inside the room if any obstacle is detected by the pir sensor, the bulb glows. · It also simultaneously clicks the photo of the intruder. · Whenever the light glows, an alert email is send to the owner of the house along with the photo as an attachment.	5	3	2, 3	1,2, 3

SET-II (1602-21-733-001 to 004, 006,007,008)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Develop an application to control the LEDs, Task a: a Python program should read the switch status and turn on or off the LED blinking. In addition to time and loop functionality, use callbacks to detect switch activity. Task b: When a second switch is pressed it must control the blinking rate, i.e., it must toggle between a fast (1 second) and slow (4 seconds) blinking rate. Task c: Connect a PIR sensor to Raspberry Pi. Perform measurements to determine the range of the sensor, i.e., start with a small distance (e.g., a few cms) and see if the motion sensor responds. Repeat these for increasing distances until the sensor stops responding. Report the measured distance. Task D: Develop a garbage monitoring system that captures the amount of garbage and send a notification to the user when it reaches the threshold.	5	3	2, 3	1,2, 3

SET-III (1602-20-733-009 to 011, 014 to 017)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Develop an application by using the Humidity/Temperature Sensor to monitor the humidity and temperature. a. Report these sensed data to Mosquitto platform every minute. b. Show the monitored data using the Mosquitto IoT platform.	5	3	2, 3	1,2, 3

	c. When the temperature goes above 30 degrees Celsius, the IBM Watson IoT should send an action to the board to turn the Red color on the LED. d. When the temperature goes below 25 degrees, the Red color should be turned to green. e. When the temperature reaches 20 degrees or less, the Blue color on the LED should be turned on. f. When the temperature goes above 50 degrees, all LEDs must show red color.				

SET-IV (1602-21-733-018,019,021 to 025)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Write a client-server based application using Bluetooth, read data from 2 sensors based on the data read apply conditions to initiate an action on other device. Test the client and server programs on two RPis simultaneously.	5	3	2, 3	1,2, 3

SET-V (1602-21-733-027 to 028, 030,031, 033 to 035)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Build a complete IoT system that does something meaningful using at least 2 RPis, 2 sensor devices (not used in lab so far), 1 output device, and the MQTT broker. Connect sensors to one RPi and output devices to another RPi. Monitor the sensor data subscribed to a MQTT topic and generate output using the output device attached to second RPi.	5	3	2, 3	1,2, 3

SET-VI (1602-21-733-038 to 044)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Develop an application to post sensor's data to Firebase realtime database.Write a python script (or HTML / Javascript or Android) which retrieves these posted data from Firebase and presents it to the user in an android app.	5	3	2, 3	1,2, 3

SET-VII (1602-21-733-046 to 049 051, 052 to 054)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Go through the first few pages of AT32Uc3C's specification document Does it accept analog inputs? If yes, how many simultaneous analog inputs it can support? What is the maximum supported sampling rate of analog input? What is done to minimize errors due to digitization? What is (i) I2C bus and (ii) CAN bus?	2	3	2, 3	1,2, 3
2	Develop a prototype to develop a pollution monitoring system that captures different gases in the air and generates an alarm.	3	3	2	1,2, 3

SET-VIII (1602-21-733-055 to 061)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Develop a prototype to generate data related to temperature, humidity and rain in a particular area and publish the data to a cloud server. Send a notification to the user in a android mobile the temperature data every 15 min and the prediction of rain.	5	3	2, 3	1,2, 3

SET-IX (1602-21-733-062, 064 to 067, 135, 136)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Pick one IoT startup incubated in SIDBI Innovation & Incubation Center of IIT Kanpur. Describe (i) The problem they are addressing and (ii) Their solution.	2	3	2	1
2	Develop a prototype to develop a smart alarm clock that generates alarm based on the sunrise timings, plays music automatically and switches on the light of a room.	3	3	2	1,2, 3

SET-X (1602-21-733-301 to 307)

Q.No.	Description of the Question	Marks	BTL (1/2/3/4/5/6)	Mapped	
				CO	PO
1	Name any two companies, other than automakers, which make IoT solutions for automobile. How does their solution differ from the inbuilt solution in automobile? Who is their customer – Automakers or End users?	2	4	2, 3	1,2, 3
2	How is Yulu Bike making use of IoT technologies for delivering great experience to their users?	3	4	3	1,2, 3