IoT Systems Lab # 4

Task 0:

- Write python codes to simulate different appliances on a Raspberry Pi. Create classes for each type of appliances and model them as state machines.
- Run the SSID scan example code on NodeMCU to list all the available access points inside the SPCOM lab.
- Connect to “IITMandi_A10_302” point and print the following on the serial terminal of the nodeMCU (a) IP address, (b) MAC address, (c) SSID, (d) DNS, (e) Subnet and (e) RSSI.
- Use USB input node available on NodeRED to read simulated sensor values

IoT Systems Lab # 4

Task 1:

- Python socket programming
  - Implement UDP server-client: Server will be running on one of the Raspberry Pis and client will run on either on your laptop or the other Raspberry Pi.
  - Implement TCP server-client: Same as above

TCP/ UDP client

Client will request for a particular value after every T sec.

TCP/ UDP server

Server will generate random numbers and store in local variables. If a client requests to the server for the value stored in a particular variable, then it will send the content of that variable to the client. A new set of values will be generated and replace the stored valued after a pre-decided interval.

IoT Systems Lab # 4

Task 2:

- GUI for a home automation system using NodeRED
  - Simulated sensor data will be read using USB input node (task 0)
  - Communication with the simulated appliances using TCP/UDP sockets (task 1)
  - Graphical interface for controlling appliances, visualizing sensor data