IOT Lab Assignment 4

Log light sensor in database

Install Database

- wget https://dl.influxdata.com/influxdb/releases/influxdb-1.7.3_linux_armhf.tar.gz
- tar xvfz influxdb-1.7.3_linux_armhf.tar.gz
- cd influxdb-1.7.3-1 ; sudo cp -rp usr/* /usr ; sudo cp -rp etc/* /etc ; sudo cp -rp var/* /var
- sudo vi /etc/systemd/system/influxdb.service
- [Unit]
  Description=InfluxDB service
  [Service]
  ExecStart=/usr/bin/influxd
  NotifyAccess=main
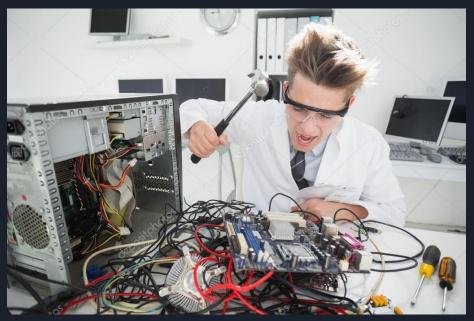 #WatchdogSec=10
  Restart=on-failure
  LimitNPROC=1
  ProtectHome=true
  ProtectSystem=full
- systemctl enable influxdb.service; systemctl start influxdb.service
- systemctl status influxdb.service

Create a database

- influx
- CREATE DATABASE sensordata
- exit

Install Influxdb python library

- sudo pip install influxdb
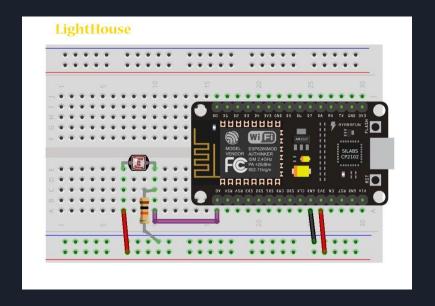
Python influxdb

```
# Set up a client for InfluxDB
dbclient = InfluxDBClient('0.0.0.0', 8086, 'root', 'root', 'sensordata')




#write value to db
receiveTime=datetime.datetime.utcnow()
message=msg.payload
val = float(message)
json_body = [
        {
            "measurement": msg.topic,
            "time": receiveTime,
            "fields": {
                "value": val
            }
        }
    ]
dbclient.write_points(json_body)
```

Python influxdb

```
#query db for average light value from past 30 secs
query = 'select mean("value") from "/light" where "time" > now() - 10s'

result = dbclient.query(query)

try:
    light_avg =  list(result.get_points(measurement='/light'))[0]['mean']
    print light_avg
except:
    print 'exception'
    pass
```

Photoresistor circuit

How to read analog sensor

Light_sensor = analogRead(A0);

Will return a value 0-1023

Assignment

- Wiring light sensor and led

- Send light sensor value to python script from esp

- Python script will save all light sensor values to influxdb

- Python script will query influxdb for average light sensor value from the last 10 seconds

- If value is low send message back to esp to turn led on (below 200)

- If it is high send message to turn led off

Assignment video