***1. Insall Pymodbus***

**pip3 install -U pymodbus**

***2. Install mysql (***[***https://pimylifeup.com/raspberry-pi-mysql/***](https://pimylifeup.com/raspberry-pi-mysql/)***)***

sudo apt update

sudo apt upgrade

sudo apt install mariadb-server

sudo mysql\_secure\_installation

sudo mysql -u root –p (pwd: admin)

CREATE DATABASE grafana;

CREATE USER 'grafana'@'localhost' IDENTIFIED BY 'grafana';

GRANT ALL PRIVILEGES ON grafana.\* TO 'grafana'@'localhost';

FLUSH PRIVILEGES;

quit;

***3. Install Mysql-connector*** (<https://stackoverflow.com/questions/38007240/installing-mysql-connector-for-python-3-in-raspberry-pi>)

Or this link (<https://pimylifeup.com/raspberry-pi-grafana/>)

**sudo apt-get update**

**sudo apt-get upgrade**

**sudo apt-get -y install python3-mysql.connector**

***3. Install grafana (***[***https://grafana.com/tutorials/install-grafana-on-raspberry-pi/#3***](https://grafana.com/tutorials/install-grafana-on-raspberry-pi/#3)***)***

**1. Add the APT key used to authenticate packages:**

wget -q -O - https://packages.grafana.com/gpg.key | sudo apt-key add –

2. **Add the Grafana APT repository:**

echo "deb https://packages.grafana.com/oss/deb stable main" | sudo tee -a /etc/apt/sources.list.d/grafana.list

3**. Install Grafana:**

sudo apt-get update

sudo apt-get install -y grafana

4. **Enable the Grafana server:**  
sudo /bin/systemctl enable grafana-server

5. **Start the Grafana server:**  
sudo /bin/systemctl start grafana-server

**Setup Grafana-server to query data in database**

SELECT

UNIX\_TIMESTAMP(time) as time\_sec,

CONVERT(lumen , integer) as value,

'lumen' as metric

FROM sensors

WHERE $\_\_timeFilter(time)

ORDER BY time ASC