Tecnologías de la Información

Subject:
IoT Applications

Professor:
César Ortega Corral

Team:
Leal Cruz Nayeli
Pineda García Marlon Genaro

Group:
5A BIS

Team Project Proposal: Light Saver

Date:
July, 06 of 2021

Title: Light Saver

Objective:
  The principal objective is savings in electricity billing. Without a doubt, this is one of its best advantages, since the sensors will only activate the lighting at the moment the sensor detects movement. In this way, it is avoided to keep lights on uselessly that only produces electricity consumption and an increase in energy bills.
  The sensors can be used to demarcate a dangerous or unreliable area. If there is any area where it is better for outsiders to stay at a distance because they are environments where accidents or damage can occur.

  This is an app where it is based on a motion sensor where a light can be turned on in case any movement is detected near said sensor and also an alarm is sent that motion was detected. One of the configurations that can be made of the app would be that we can regulate how long you want the light to stay on since it detects movement, this will depend a lot on your use case, you can try different configurations. It is also possible to configure the time it stays on after it stops detecting motion. As well as the scope of the motion sensor can be adjusted. Sinceif we put a range of 2.5 meters the light will only turn on when we are very close to the sensor, and conversely, if we put a range of 6 meters the light will turn on whenever it detects movement at that distance. And as an extra, the intensity of the light could be modified when turning on.

Control light
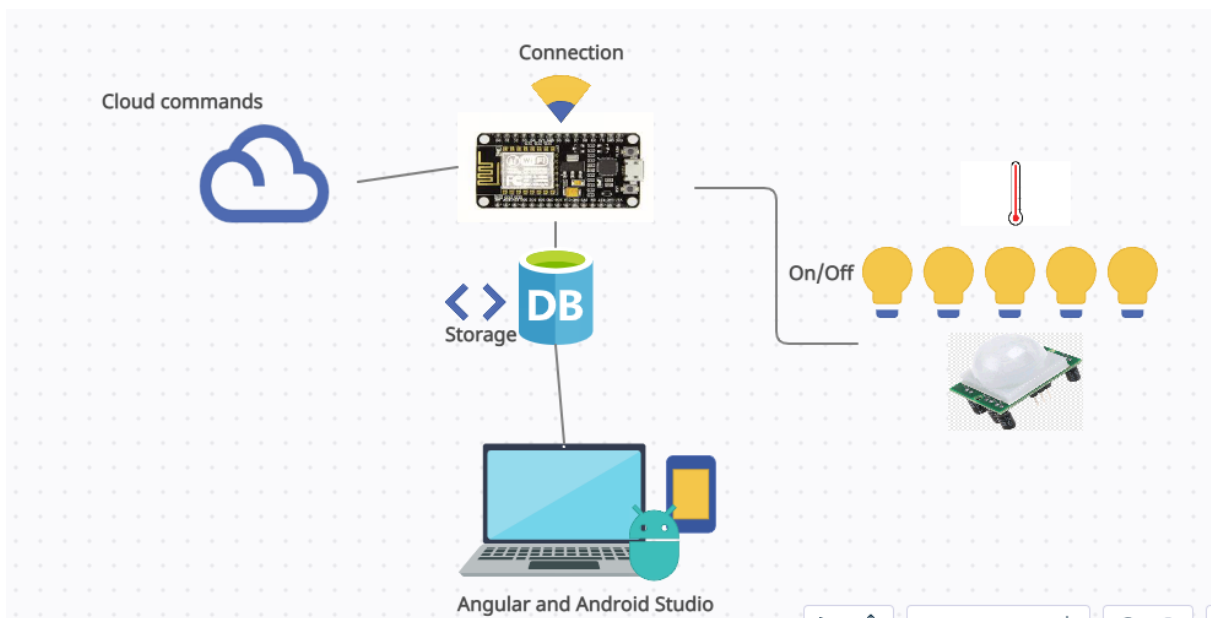
Layer of the World Forum IoT Reference Model:

1. **DEVICES**: Hardware required to be used in the project.

   PIR sensor used to measure the distance between the objects, LM35 used as a temperature sensor, the light system will be tested with LED (optional: RGB LED).

2. **CONNECTIVITY**: Using Python code connecting to an MQTT broker.

   With Python programming code and the use of applications like MQTTBox to test the messages and data recollection and finally incorporate this connection to a database.

3. **EDGE COMPUTING**: Python usage of backend.

   Python will be the principal language which the program is going to be developed; also using the JSON messages to send the data and stored it.

4. **STORAGE**: Data insertion in a MySQL database.

   With MySQL the JSON data will be stored there for future usage for the abstraction.

5. **ABSTRACTION**: Use of an API that will present the data.

   With the data from the API this information will be presented in a dashboard depending of the final device.

6. **APPLICATION**: Graph in a dashboard using Angular and Android Studio.

   The dashboard will be presented in Angular code and the mobile version will be done in Android Studio having two ways of observing the incoming data.

7. **COLLABORATION**: