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Application Based Internet of Things Report - LAB 1

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1 Introduction

In this first LAB, students are proposed to create a simple Thingsboard backend and Dashboard for an IoT application. Students are supposed to follow steps listed in the Implementation section to finish the first Lab.

2 Implementation

2.1 Step 1: Create account and a device

A referent video is posted in the link below:

<https://www.youtube.com/watch?v=kWF5ZSkXfE4>

Please login to Thingsboard and create a device, named **IoT Project** for instance.

2.2 Step 2: Implement python source code

In this step, please create a github account and upload your source code to github. The link of your source code is required to present in this report.

<https://github.com/DecSP/iot-lab1>

The manual video for this step can be found at:

https://www.youtube.com/watch?v=pJKTgCq_J7Y

At this step, two random values simulated for the temperature and humidity are sent to the server every 10 seconds.

2.3 Step 3: Simple Thingsboard dashboard

Design a simple dashboard with 2 labels to display the values of temperature and humidity. The manual for this step can be found at:

<https://www.youtube.com/watch?v=8eQ0ag5Ymfo>

2.4 Step 4: Use advanced UI in Thingsboard

Please use a UI in the Analogue Gauge and Digital Gauge in your dashboard, to present the value of temperature and humidity.

Publish your dashboard and present the link in this report

[https://demo.thingsboard.io/dashboard/911b7870-7831-11ec-9ed9-f9294d38ab44?
publicId=68347cc0-6d34-11ec-8159-03103585248e](https://demo.thingsboard.io/dashboard/911b7870-7831-11ec-9ed9-f9294d38ab44?publicId=68347cc0-6d34-11ec-8159-03103585248e)

A manual video is posted at:

<https://www.youtube.com/watch?v=LFellRi-5iU>



2.5 Step 5: Add a map to the dashboard

Finally, add a map to your dashboard. In this case, the **longitude** and **latitude** are required in your python source code. At this step, the latitude and longitude can be set to 10.8231 and 106.6297.

A manual video is posted at:

<https://www.youtube.com/watch?v=0XMqH8mdWi0>

3 Extra point (1 point)

Dynamic update the current longitude and latitude. Explain your implementation in python source code such as the library which is used, some main python source code to get the value of longitude and latitude.

I use Geocoder library to do this task by using my ip address. Implementation:

```
1 import geocoder
2 g=geocoder.ip('me')
3 latitude, longitude = g.latlng
```
