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# SMART PLANT POT MONITORING SYSTEM

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# 1 General overview

The natural environment plays a quintessential part in our lives. Therefore, keeping it safe is a mandatory duty in order to live on a comfortable and healthy planet. That's why, we have to plant trees as the quote says 'Let's save our planet and plant a tree'. Unfortunately, Most people would love to have nice Ornamental plants inside their houses, but few have the time to maintain them. Above all, plants require the most important factors for the quality of plant growth temperature, humidity , and light. With Continuous monitoring of these environmental variables you can keep your houseplants perfect. Thus, they need to know about the basics of gardening, including the different plant types, how to look after your plants, detect anomalies, and give advice on what to do when things go wrong. For that reason, it is necessary to develop a smart plant pot monitoring system utilizing Cloud of Things technologies that allow the users to keep track of their plants in real-time: provide automatic watering, cooling, sunlight, and detect plant diseases and defects. This project aims to provide the following functionalities:

- measure the following climate variables: temperature, humidity, and light.
- perform the needed actions which can be supplying the plant with water, lighting, or changing the ambient temperature when one of the climatic parameters crosses the safety threshold which has to be maintained to protect the plants.
- Alert the user if an anomaly is detected based on the images retrieved from the camera
- Alert the user, when they are in proximity to the plant and the water level in the pump reaches a pre-defined threshold using the location-based service (LBS).

## 2 Use case diagram

The smart plant pot monitoring system has an actor: the user which is the owner of the plant pot. Figure 1 demonstrates the use case diagram for this actor:

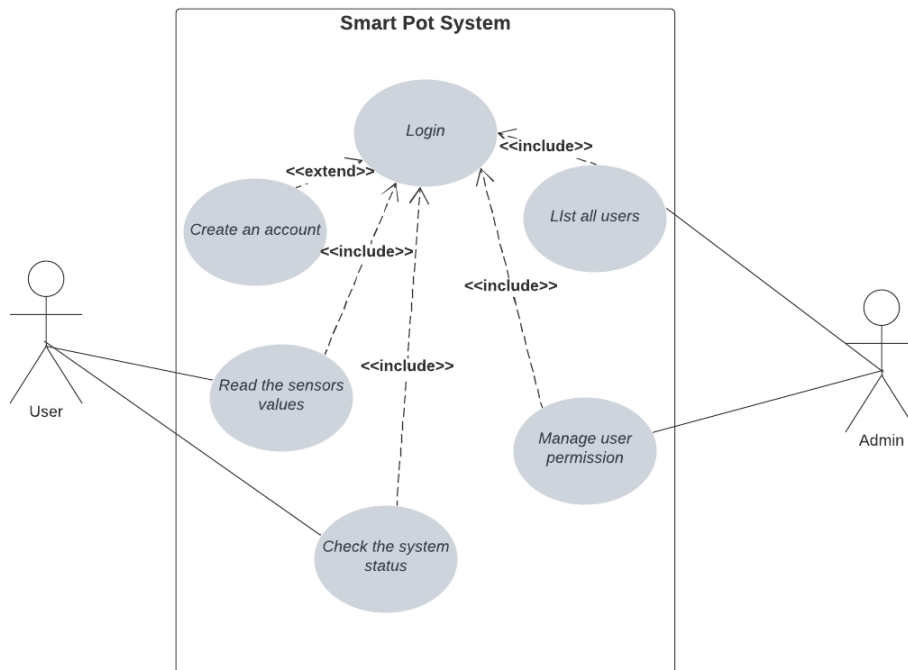


Figure 1: Smart plant pot monitoring system use case diagram

For each actor correspond a specific use case of the system:

- For users, their role consists of creating an account and accessing the mobile application to manage their plant pot.
- For the the administrator team, their role consists of maintaining and managing the functionalities of the application.

### 3 Class diagram

A class diagram clearly represents the structure and different components of a system to help view the application. The figure below showcases the class diagram of the IOT system:

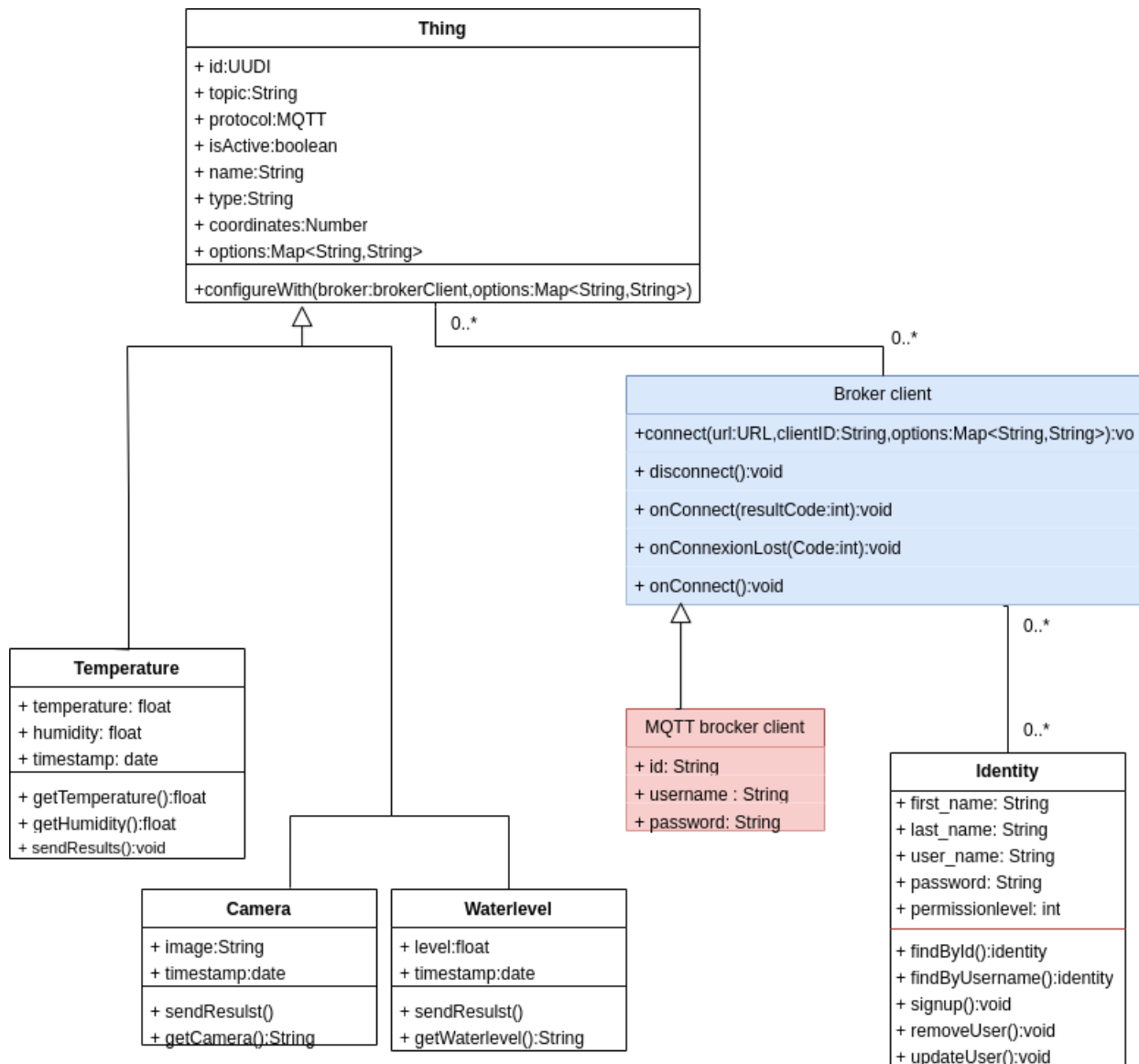


Figure 2: Class diagram

Sensors capture the information and communicate with each other via the broker. Communication is established through topics using MQTT protocol publish and subscribe method.

## 4 Sequence diagram

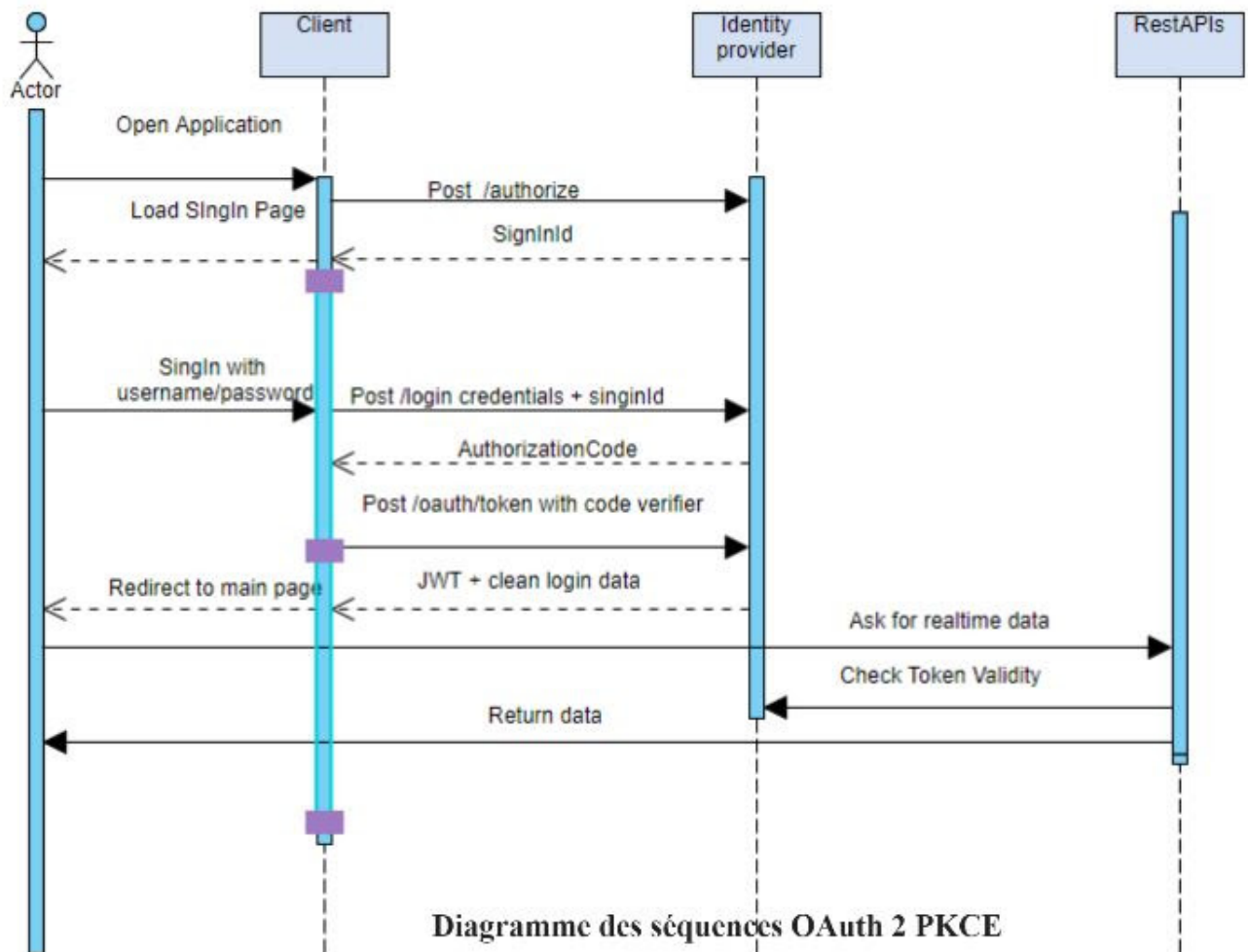


Figure 3: Sequence diagram OAuth2