SUP'COM
Ecole Supérieure des Communications de Tunis

GreenHouse

Concept Notebook
Smart Greenhouse

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Academic year : 2022/2023

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1. Context of the Project

The worldwide farming sector has been put under great strain as a result of climate change, decreasing resources, and increasing populations. As unpredictability rises, growers are increasingly using cutting-edge technologies to improve production efficiency and crop resilience. In agriculture, the Internet of Things (IoT) is more prevalent than ever before, and smart greenhouses are a great example.
It is a task of monitoring the climatic conditions permanently in a greenhouse, to detect variations and to implement corrective action to maintain optimum conditions for plant growth.In our work, we propose to design a smart solution for greenhouses called"Smart Greenhouse'" to ensure optimal productivity.

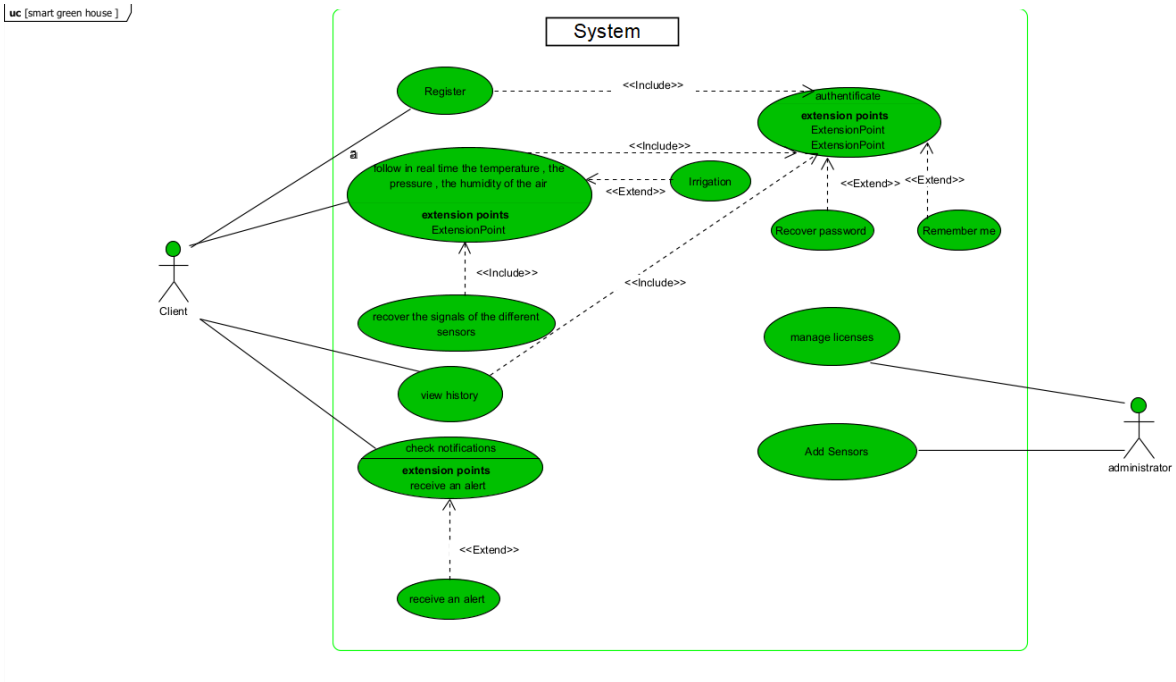
2. Objectives of the Project

Our SmartGreenhouse solution offers advanced microclimate control and optimization energy.
Growers can monitor and control the parameters mentioned below to ensure a better growth rate of the crop:
- Pressure management within the greenhouse
- Temperature acquisition
- Soil moisture management
- Secure the greenhouse door in case of violation with an alarm . Also an alert will be sent to the user (farmer) through a mobile application .

So growers can monitor the following parameters to understand the plant growth cycle and take proactive action by receiving alerts if any of the factors are affected.

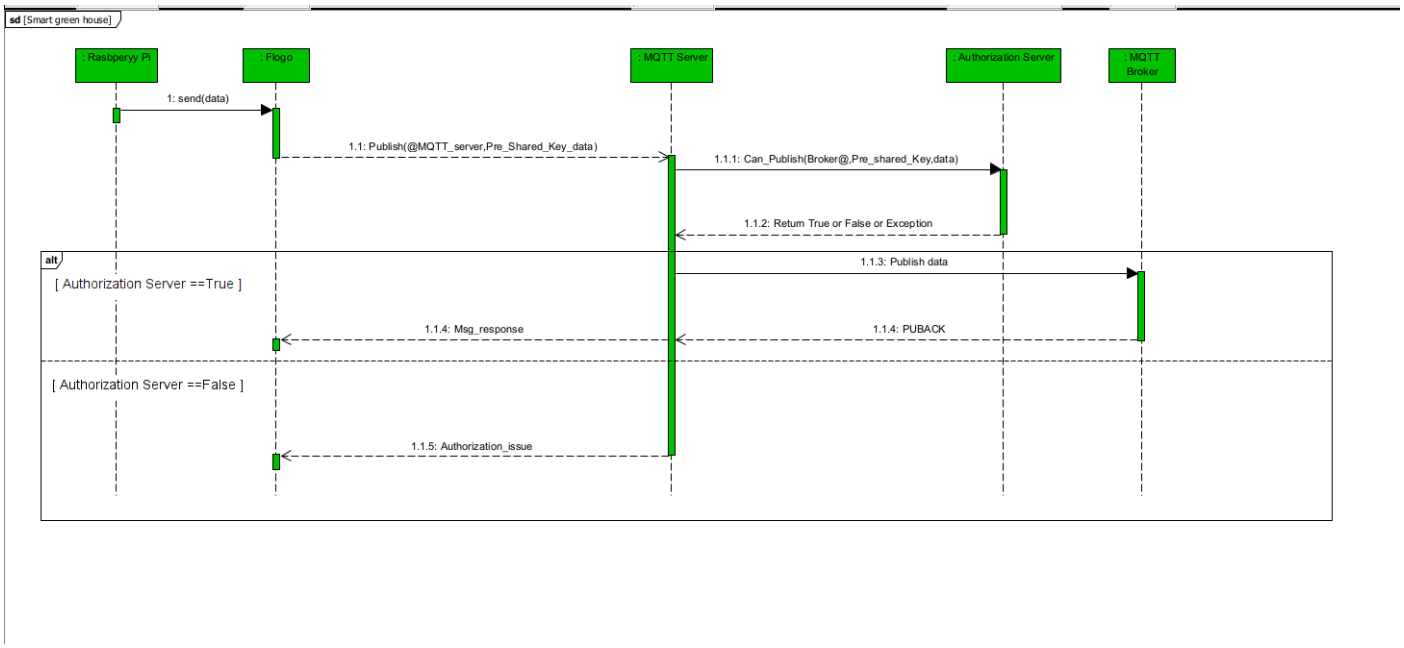
3.Use Case Diagram

A use case models an interaction between the computer system to be developed and a user or actor interacting with the system. More precisely, a use case describes a sequence of actions performed by the system that produces an observable result for an actor.

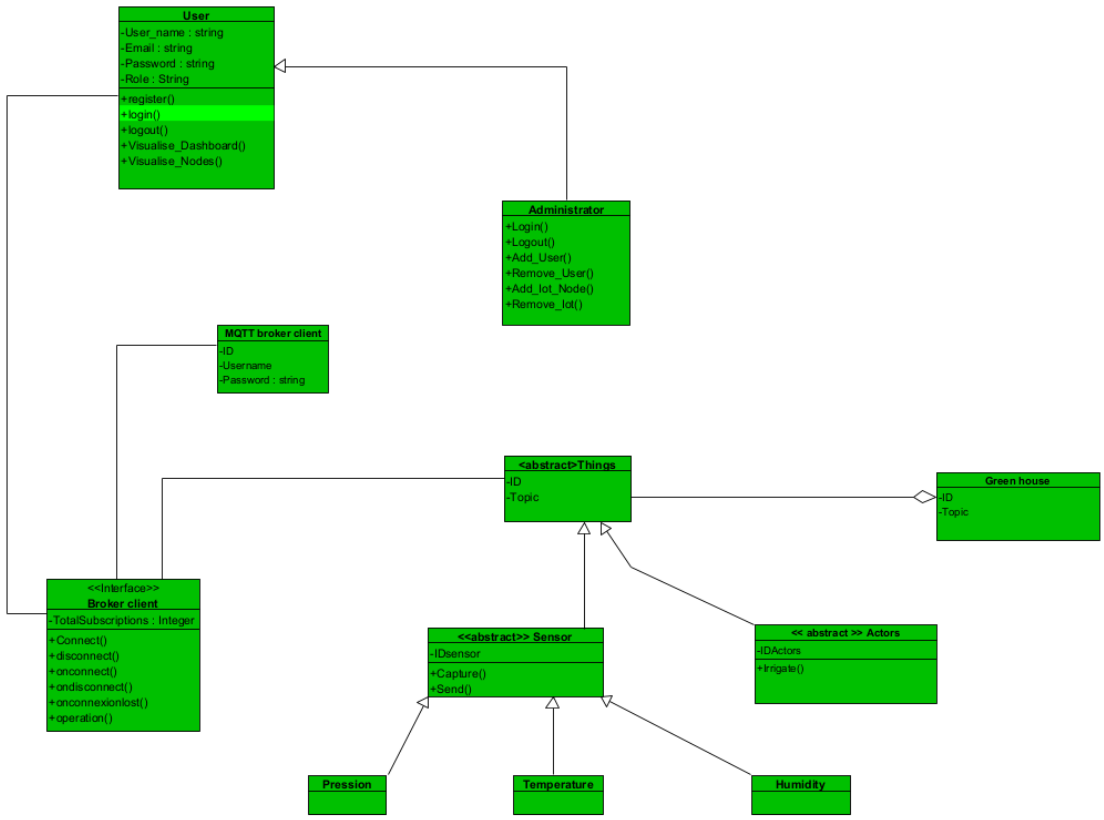


4. Sequence Diagram

This diagram is the graphical representation of the interactions between the actors and the system.



6. Class Diagram



Conclusion

This notebook is devoted to the analysis and design of the system, first we explained the needs of the users. These needs were translated using UML diagrams. We started with the application level which concerns the functionalities of the application.
using the diagrams (use case, sequence and activities) which allowed us to define the candidate classes to arrive at determining the database. At this stage of development, we are ready to begin the stage of realization which will be represented in the
next chapter.