Smurfs - Smart Universial Farm System

For increasing the quality and productivity of farming products, our university would like to develop a system (Smurfs) for building and controlling smart farms.

Such the system allows the users to control all the *actuators* (IOT device) in their farm. For example, a vegetable farm may have a *pumping system* and/or a *fertilizing system* to provide the plants in the farms with water/fertilizer/plant nutrients/… For another example, a shrimp farm may have an *oxygen supply system* to provide more oxygen to the shrimps.

Importantly, the system has to provide the users the health of their farms based on data collected from the *sensors*, such as *moiture sensor*, *water level sensor*, *oxygen level sensor*, *pH level sensor*, etc. or some *health diagnostic system* based on image processing techniques.

The system then allows the users to configure actuators to work automatically based on scheduling or based on a formala of collected data.

The collected data for the system must be stored in a cloud-scale technology and can only be accessed by authorized persons.

The platform should be in multi-platform to allow the users access to the system using their working daily devices such as desktop and mobile.

Assume that, there is only one system and the users may need to register and configure their farms to the system before use.

Project guidelines

1. **Team & teamwork**
    a. Teams are formed randomly by the lecturer.
    b. Each team member has to perform all works, including requirement specification, architectural design and detail design.
    c. At the end of the semester, team members have to give feedback to each others and evaluation the individual and team performace

2. **Team meeting & meeting minus**
    a. Team meetings should be carried out one a week
    b. The first meeting should be focus on the team communication, commitment, common problems/risks and solving mechanisms …
    c. Meeting minuses are used to keep track of all works.

3. **Submissions**
    a. There are 04 individual documents:
        i. #1- requirement document: Functional/Non-Functional requirement and Use-case diagram.
        ii. #2- requirement document: Sequence/Activity or State-chart diagrams
        iii. #3-design document: Architectural design
        iv. #4-design document: Class and Method design, Class diagram
    b. All submissions are in .doc/.docx/.pdf format.
    c. Deadlines will be announced on the course e-learning site.