Vision and Scope

Smart Door

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Vision

What the client wants

The client wants an Android application for user authentication to control room access. This application will run on a tablet that is mounted to a door. When a person is within view of the device camera, facial and voice recognition should be used to identify that person, greet him/her and to detect whether he/she is authorized to have room access.

A user should be able to post messages to the application via Twitter. Users that walk by must be able to view the messages displayed, clearly visible, on the screen.

In the future this project may be expanded to a “Smart Room” or even to a “Smart Building”. For now the client only expects the Android application to be implemented. There is no need to implement the mechanical part of a door system. The application must be implemented in such a way that one can easily expand on it.

Existing eco system

Currently the client uses a card swiping system for access control. This is an old and unreliable method for authenticating users. Cards can easily be stolen or counterfeited which is a security risk. The aim of this project is to replace this system with a more modern system using modern authentication methods like facial and voice recognition.

Scope

Actor description

Normal user: Any human user that wants to use the system to gain access to a room or find more information about the room.

Twitter: Each device has it’s own twitter account linked to it that will display all of the related tweets. Twitter will use the device to display it’s tweets on the device’s home screen.

High-level use case

The following is a list of use cases for each type of actor.

Normal user:

Detect Motion	- When a user walks past the device
Login User	- When the user wants to log into the system
Input Commands	- When the user gives the device commands

Twitter account:

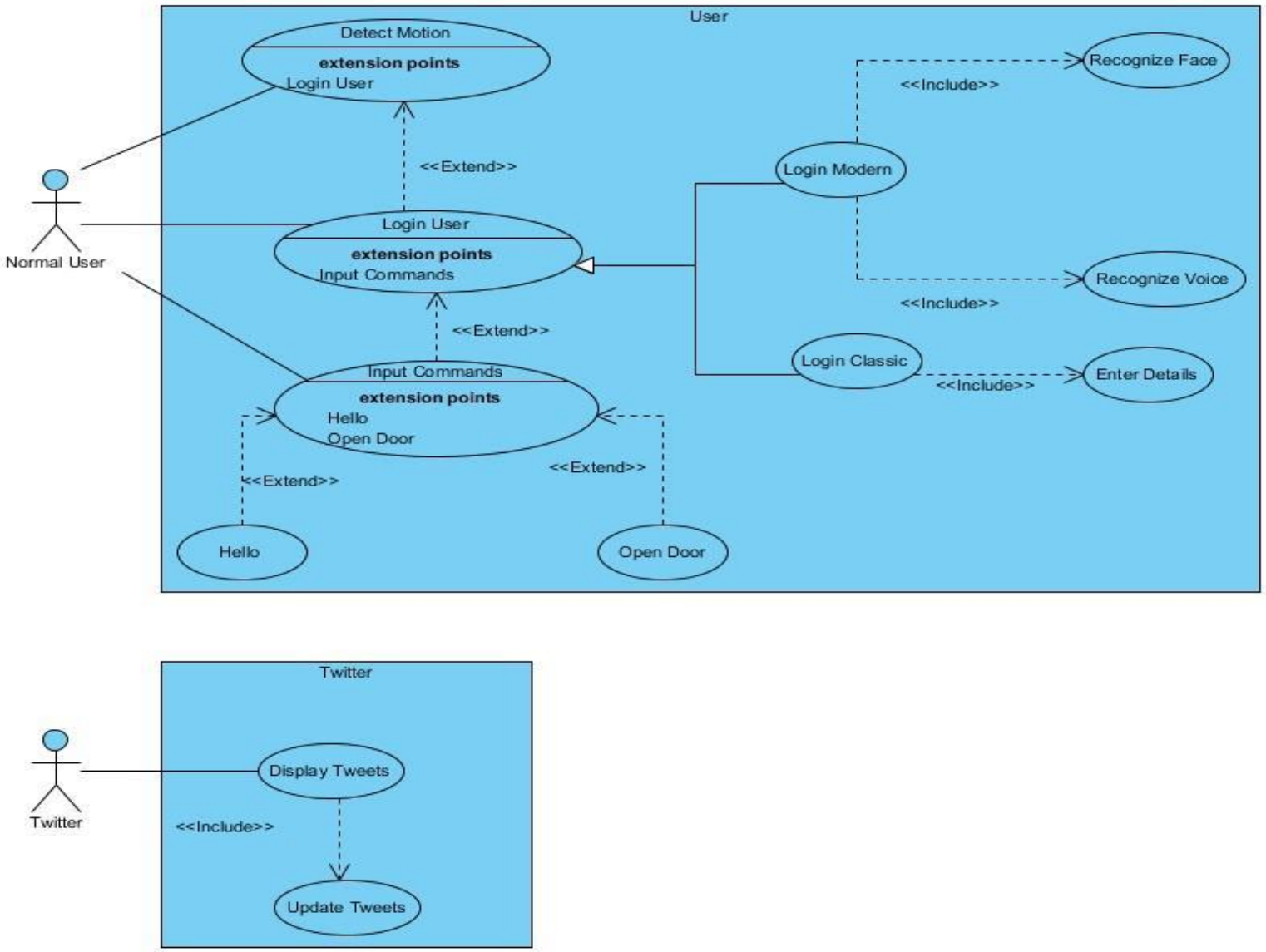
Display Tweets	- Twitter needs to be able to display its content

Concrete use cases

The following is a list of use concrete cases.

Login Modern - by using voice and face recognition.
Login Classic - by using a normal username and password.
Hello - The user greets the device
Open Door - The user wants to open the door

The following is a high level use case diagram depicting the relationships between the Actors



and the use cases. It also shows each individual use case's relationships with other use cases.

(Diagram 1: High level use case diagram)

List of Exclusions/Limitations

- No booking system for the rooms should be inplemented. This is considered to be out of scope and not part of our project. The system should however be designed in a way to allow integration with an external booking system.

- The system does not have to be optimised in any way to reduce the impact on battery life. For the scope of this project we will assume that the tablet device will have a permanent power supply connected to it.

- The system will have a limitation of not being backwards-compatible to any Android version prior to version 4.0.3.

- The system will be using open source libraries for the Facial and Voice recognition. This causes limitations based on the performance of those libraries. It is considered to be out of the scope of this project to improve on the performance of these libraries.

- Integration with the existing Cmore system is considered to be a bonus feature. This implies that the system would not have to be integrated with the Cmore system and because of this we consider it to be out of scope. This however does not rule out the possibility of it becoming part of the scope at a later stage.

- “Call”, “Notify” and “Where is” commands are bonus features and thus would be considered to be out of the scope of the project. This however does not rule out the possibility of it becoming part of the scope at a later stage.