COMSATS University
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LAB TASK

UML DIAGRAMS AND IMPLEMENTATION

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Software Design and Architecture

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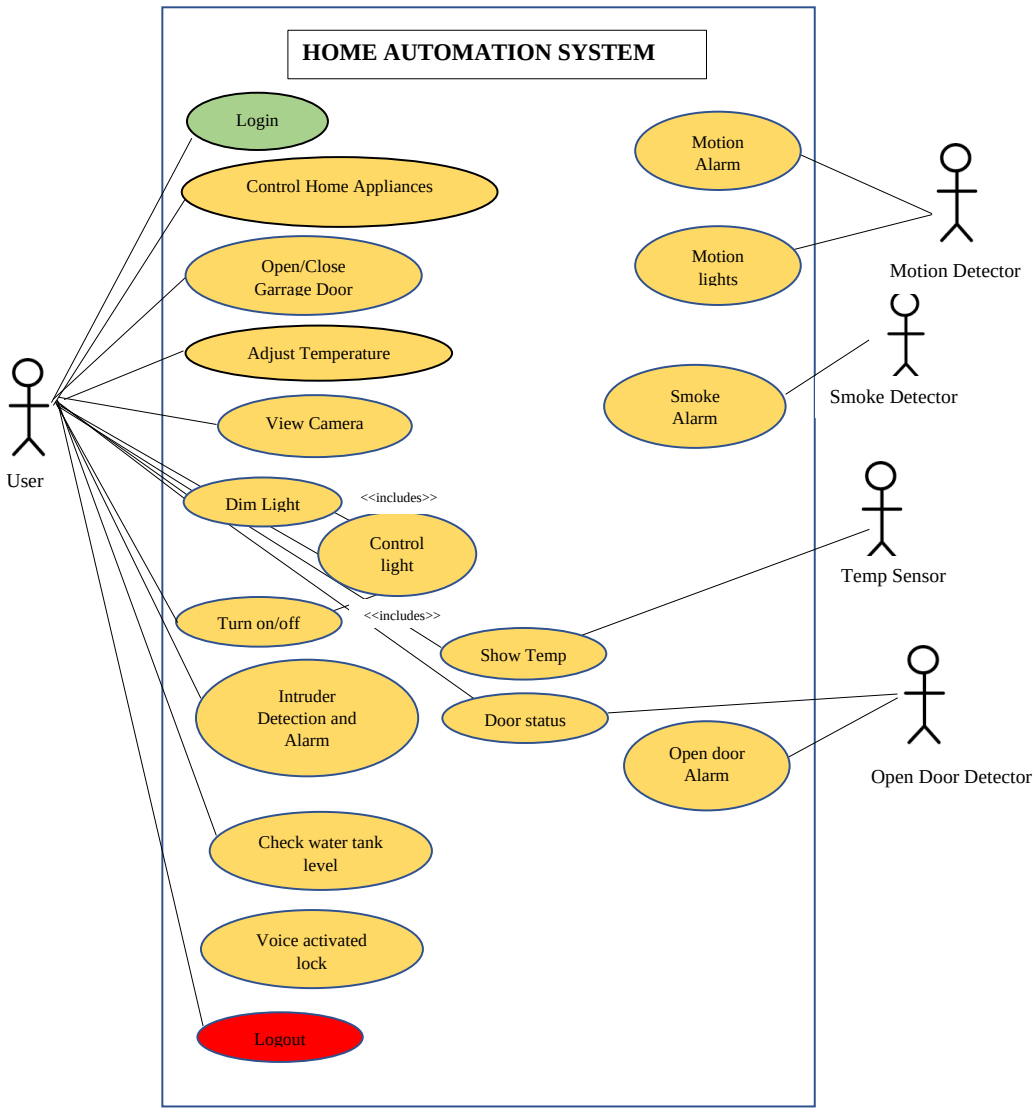
CASE STUDY: HOME AUTOMATION SYSTEM

1. Case Study:

Brief Overview: The Home Automation System allows users to control various appliances and features in their home remotely. Major functionalities include:

- Controlling lights, garage doors, and home appliances
- Monitoring smoke and motion detectors
- Viewing live CCTV camera streams
- Managing security alarms for intruder detection
- Voice-activated locking mechanisms
- Monitoring temperature, water tank levels, and more

2. Use Case Diagram:



3. Fully Dressed Use Case:

Use Case Name: Control Lights

Primary Actor: User

Stakeholders: User, Home Automation System

Preconditions: User must be logged into the system.

Postconditions: The lights are turned on or off, depending on the user's input.

Main Success Scenario:

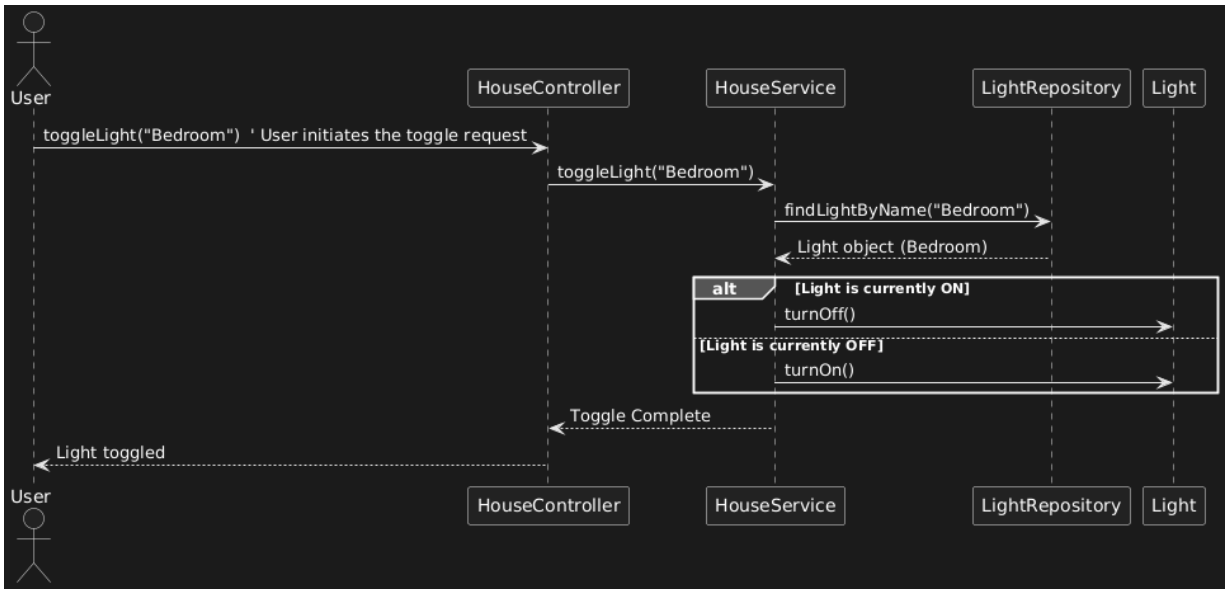
1. The user selects the option to control the lights.
2. The system displays the status of the lights (ON or OFF).
3. The user chooses to turn the lights ON or OFF.
4. The system changes the status of the lights accordingly and confirms the action.
5. User also control the dim settings by using slider
6. The user uses master control to set all light states in a single click.

Extensions

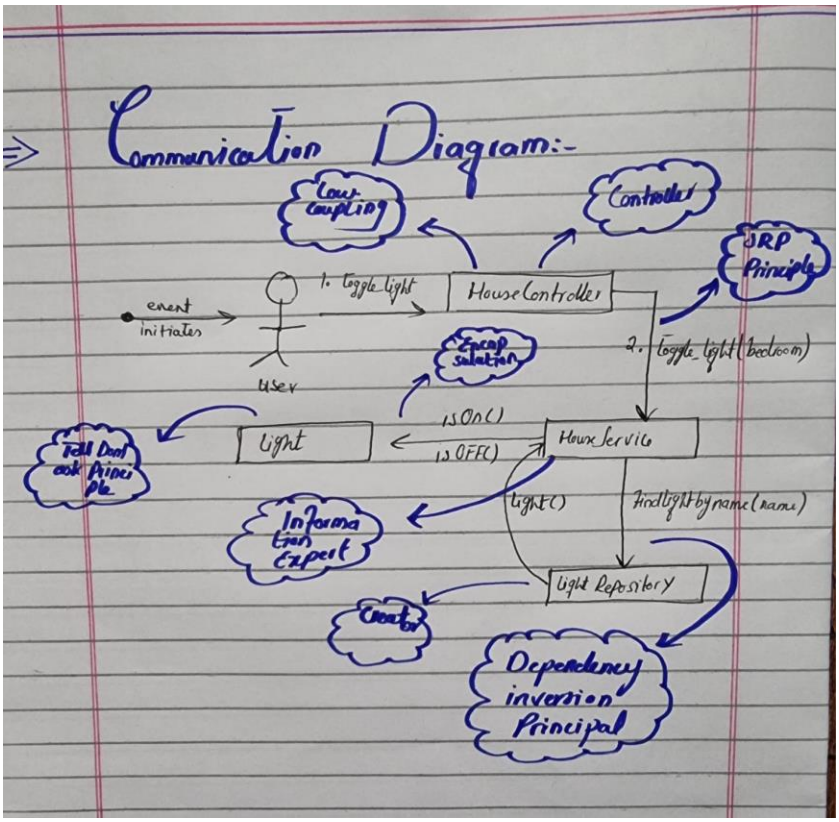
2a. If there's an error in retrieving the status of the lights, the system will show an error message.

3a. If the system cannot control the lights due to a failure, the system will notify the user.

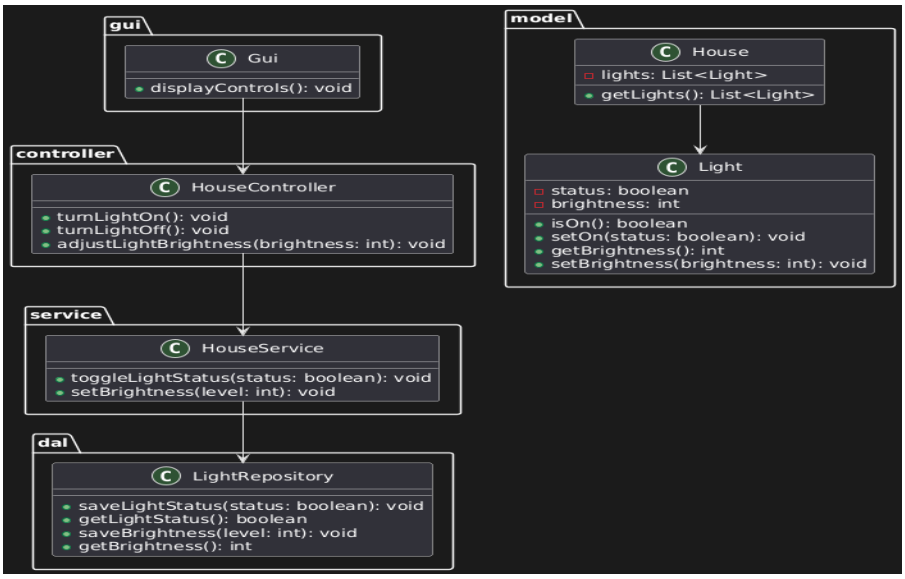
4. System Sequence Diagram:



5. Communication Diagram:



6. Class Diagram:



7. Package Diagram: