ELEN4009: Software Engineering
Project Description

Ari Croock: 718005
Kanaka Babshet: 678851
Alice Yang: 597609
Daniel Weinberg: 547937

I. Description

This project entails the design of the power management system of a smart home network. The system allows the user to configure the behaviour of each device based on user's requirements.

The features to be designed are as follows:

- Remote on/off switching
- User configurable rules for appliances with triggers such as:
  - Motion detection
  - Temperature detection
  - Light detection
  - Time scheduling
- Power consumption monitoring
- Energy source management
- Human behavioural analysis
- User configured alerts

The front-end would be a webpage accessible to everyone within the household. This page would include:

- Authentication
- Manual switches
- Device configuration based on triggers
- Dashboard for diagnostics and measurements
- Adding/removing smart devices on network
- Notification and alert centre
- Communicating with the back-end of the system

The back-end connects and controls the respective devices on the local area network (LAN). Along with this it stores the data required for operation. Specifically, the tasks include:

- Communicating with the front-end
- Providing authentication
- Storing device information and configurations
- Controlling the device communication
- Monitoring energy consumption

II. Responsibilities

Alice and Daniel will be responsible for the front-end of the system, whereas Ari and Kanaka will be responsible for the back-end. However, the group members will assist each other when needed.

III. Inputs and Outputs

I. Inputs

- Human
- Light
- Heat
- Motion
- Time

II. Outputs

- Switch on/off
- Heating/cooling
- Diagnostics
- Notifications and alerts
- Switching between energy sources