1. Introduction
2. progress so far, giving details of what functionality has been achieved
3. A comparison with achievements to date and the original planned iterations,
4. Adapted plan
5. product scope, high level overview of technologies and components, database design,
6. dataflow and/or class diagrams, any other useful diagrams, descriptions of any input/output documents and files
7. how the system has been tested for technical correctness and assessed against expectations

# Introduction

## Purpose

This document describes the beta design of the Future House System and the work that has been done so far. It includes details of the progress and the functionalities that been achieved during the first few weeks of the semester. A comparison with achievement to date and the original planned iteration, as well as our adapted plan. In addition, it includes high level overview of technologies, components and database design. Also, it explains how the system has been tested for technical correctness and assessed against expectations.

This document is intended to be read by:

1. Esteem and their appointed representatives: for the client to gain an insight and understanding of what exactly the end product will be capable of.
2. Optimizers Software Engineering: to act as a guide for us during the remaining of the development process.
3. Our line manager: Professor M. Hamdan.

## Scope

The scope of stage 2 report is not as wide as stage 1 report. This document only covers information regarding the development of the Future House System from after the stage 1 deadline up to stage 2 deadline. However, this document will be further extended and incremented for stage 3, when the full application is ready.

# Progress

## 2.1. Overall Work Done

* Database: building tables for all the different entities that we will need is completely done.
* Backend server: most of the functionalities needed on the backend server has been done.
* iOS App: main authentication functionalities, plus retrieving and adding homes.
* Android App: main authentication functionalities, plus retrieving and adding homes.
* Frontend Web APP: main component wrapper, plus overall look and design.

## 2.2. Functionalities

### 2.2.1. Backend server

* Registering users
* Logging in users
* Logging out users
* Updating users’ profile
* Change email
* Forgot password/Change password
* Adding houses
* Retrieving houses
* Updating houses
* Deleting houses
* Adding rooms
* Retrieving rooms
* Updating rooms
* Deleting rooms
* Adding IoT devices
* Retrieving IoT devices
* Updating IoT devices
* Deleting IoT devices
* Creating reports
* Retrieving reports
* Updating reports
* Deleting reports
* Sending feedback
* Asking a question
* Reporting a bug

### 2.2.2. iOS App

* Registering users
* Logging in users
* Logging out users
* Adding houses
* Retrieving houses

### 2.2.3. Android App

* Registering users
* Logging in users
* Logging out users
* Adding houses
* Retrieving houses

# Database design

## User model:

* ID
* Name
* Age
* Email
* Username
* Password (hashed)
* Profile picture: OneToOne relation with profile picture model.
* Code: code sent to the user’s email when the user forgets the password.
* Code trials: a counter for the number of times the user tried to enter the code sent to his email (for security, after 5 trials a new code will be generated and sent).

## Profile picture model:

* ID
* Uri: storage location of the photo file

## House model:

* ID
* Manager: Foreign Key from User model
* Dweller: Foreign Key from User model
* Display name
* Timestamp
* Location
* CMU ID (Central Monitoring Unit ID)
* Cover photo: one to one relation with cover photo model.

## Room model:

* ID
* House: Foreign Key from House model
* Display name
* Cover photo: One to One relation with cover photo model
* Timestamp

## IoT Device Model:

* ID
* House: Foreign Key to House model
* Cover photo: One to One relation with cover photo model
* Display name
* Battery level
* State (on/off)
* Average Consumption
* Timestamp

## Cover Photo Model:

* ID
* Uri: storage location of the photo file

## Report Model

* ID
* House: Foreign Key from House model
* Room: Foreign key from Room model
* Energy generated
* Energy consumed
* Energy wasted
* Energy saved
* Timestamp

A report is auto generated for every house and every room every 24 hrs.