

# **Middle East Technical University**

## **Electrical and Electronics Engineering**

### **EE-493 Engineering Design**

#### **-Development Log-**

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#### **Introduction**

This notebook includes information about development progress of the project starting from scratch. Logs written in the progress section include one week of work. The interval of date is written in the beginning of each week's log.

#### **Progress**

**26.09.2021 - 02.10.2021**

At the beginning of the week, we meet with our studio coordinator and the other groups in the studio. Weekly meetings are adjusted and my group's weekly meeting time set as every wednesday 13:30 -14:00.

I attended the seminar on Fundamentals of Design given by Assist. Prof Ahmet Cemal Durgun. Also, a seminar named Concept Generation, Design Tools, and Problem Solving Tech. which is given by Assoc. Prof. Emre Özkan.

In one of the group meetings we divided the project research and I will research the Home Security System. I am planning to search literature for the project in the beginning and investigate similar applications if I could find.

**04.11.2021**

We had a meeting about the business statement report and my part was introduction and the project that I stated before.

**05.11.2021**

I wrote the introduction and one of the project descriptions for a business statement.

**09.11.2021**

The weekly topic of meeting is discussed and I sent the mail to the coordinator.

**10.11.2021**

Attended weekly meeting and seminar which was about Introduction to Image Processing given by Assoc. Prof. Elif Vural.

**12.11.2021**

I checked the problems associated with the Home Security System project. I found three problems;

**Identification of People in the House:**

This problem could be solved using face recognition or carrying id cards.

Problem in face recognition is that it is not easy to add or delete the visitors from the database once the network is trained. Also, if we want to keep track of the visitor or resident inside the house we need a deeper network with high quality feature extractors since it will be harder to recognize a person that is far from the camera.

Problem with id cards is that an intruder could copy or steal the id card to break into the house. Also, id cards would not help to identify people in the house. If a person does not carry an id card could not be found and even classified.

**Allow Users to Control Sensors Remotely:**

Cameras with IP support are not cheap and this might lead us to exceed the cost that is set by coordinators. Also, this might create a problem in the AI model if the image process will be used since the angle, light and resolution of the camera are important parameters in creating an accurate AI model.

**14.11.2021**

Attended to face to face meeting with the group. Pros and cons of the projects are discussed. I share my findings about the Home Security project.

**15.11.2021**

Sensors which could be used to implement orbiter projects are discussed with members namely, mert eren kandilli, kaan türker. Three different sensors mentioned namely, camera, lidar and sonar sensor. Lidar sensor seems to be a better choice since it scans everything in its surrounding.

Lidars output the object's position as a point and these points need to be processed to find objects' exact position and size.

**16.11.2021**

Attended seminar which was about Project Management given by Assoc. Prof. Uğur Murat Leloğlu.