EE445L- Lab7: Requirements Document

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1. OVERVIEW

1.1 Objectives:

Our team decided to do a project that involves the user interacting with the system using light. The purpose of our project is to better develop our skills using user inputs to and changing our outputs based on those inputs.

1.2 Roles and Responsibilities:

Dalton will develop the GPIO files and timer interrupts. Harley will develop the finite state machine and the higher level functionality of the system. We will develop the hardware and PCB together to better understand how to design the software. The clients of our project are the TA's and judges of the Open House.

2. FUNCTION DESCRIPTION

2.1 Functionality:

The system will produce outputs of light for the user to then interact with using light of their own. The outputs of the system will then change based on the detection of light given from the user.

2.2 Performance:

The system will have to measure a certain light input given by the user, and then change the output quickly enough for the user to then give the correct inputs.

2.3 Usability:

The output interface will be a series of LED's and possibly the OLED screen. The inputs will be photo sensors that can detect a light beam that the user is holding. The inputs and outputs for our design will vary based on the cost of each.

3. DELIVERABLES

3.1 Reports:

The reports we will write are the Schematic, PCB Layout, Measurement Data, Testing Procedures, Testing Data, and Analysis and Discussion.

3.2 Outcomes:

3.2.1 Objectives

    1-page requirements document

3.2.2 Hardware Design

    Regular circuit diagram (SCH file)

    PCB layout and three printouts (top, bottom and combined)

3.2.3 Software Design

       Include the requirements document (Preparation a)

3.2.4 Measurement Data

       Give the estimated current (Procedure d)

       Give the estimated cost (Procedure e)

3.2.5 Analysis and Discussion (none)