

ECE 492 Weekly Report MAY 1607 Week 11

(4/05/2016-4/11/2016)

Advisor: Jaeyoun Kim

Client: Honeywell, FM&T

Members (roles): Gregory Kuhn (Weekly Report), Noah Bergman (Team Leader) Michael Kelly (Key Concept Holder), Garrett Hembry (Webmaster)

Project Title: Microscope Embedded Display for Assembly Work Instructions

Weekly Summary:

We were incorrect in believing that we had finished designing the materials needed to hold the lenses and the optical engine. Several of the dimensions in our original designs were inaccurate so we had to make some modifications. We also made substantial progress in programming the microcontroller.

4/07/16/Group Meeting in TLA

Duration: 240 min **Members Present:** All

Purpose and Goals:

The objective for this meeting was to install the lens and optical engine holder we had designed in AUTOCAD software the prior week. Unfortunately we made some minor errors in the initial fabrication and therefore had to make some alterations which will be discussed below.

Achievements:

We managed to successfully fix these errors and would upload the modifications in our AUTOCAD folder. The first error we made was that the holes used to hold the eyepieces were not wide enough by a small but significant amount. To solve this we used a file to increase the width of the two holes. The second error was we that we forgot to have two holes to put for the screws that would be used attach the optical engine to the mechanism. So in order to fix this error we drilled in two screw-holes each 37mm apart from the center. The third and final problem was that we needed to be able to create a device to adjust the lenses. We did this by using a clamp-like device to attach between the lenses and our device holder. Thus allowing the lenses to be attached firmly let allow the user to adjust them.

4/09/16/Group Meeting in TLA

Duration: 240 min **Members Present:** All

Purpose and Goals:

Our objective in this meeting was to use code maker software to control our microcontroller. We would like to be able to demonstrate that we can control the micro-projector and send data to the mini-projector via a computer.

Achievements:

We successfully managed to accomplish both of these two tasks. In order to begin we first had to physically attach our microcontroller to the computer via the I²C data bus. After that we decided the best way to demonstrate we could control the microcontroller was by toggling it's on board LED and by using the switch to turn it on and off. The ability to toggle the LED was simply done by initializing the LED and then by making sure it turned on and off every microsecond. Then we initialized the switch and set it so that every time the switch's interrupt was called the power state would go either on or or off.

We were also successful in transmitting data from the microcontroller. This was accomplished by initializing and enabling both the send and receive interrupt of the microcontroller so every time the switch was moved data was sent.

Pending issues

- 1) Install the manufactured main board so that it could integrate with our DLP.
- 2) Continue to further integrate the micro-projector circuit with EVM software.

Plans for next week

Next week we would like to continue to integrate the microcontroller with I²C and be able to use the code maker software to control the micro-projector circuit.

Individual Contributions (this week)

Gregory Kuhn-Worked on programming the microcontroller. Assisted in redesigning the lens and optical engine holder.

Noah Bergman-Worked on programming the microcontroller. Assisted in redesigning the lens and optical engine holder.

Garrett Hembry -Worked on programming the microcontroller. Assisted in redesigning the lens and optical engine holder.

Matthew Kelly- Worked on programming the microcontroller. Assisted in redesigning the lens and optical engine holder.

Total contributions for the project

Noah Bergman-76hrs

Gregory Kuhn-76hrs

Matthew Kelly-76hrs

Garrett Hembry-76hrs