EE445L – Lab6: Design and Layout of an Embedded System

Harley Ross and Dalton Altstaetter

2/18/14

OBJECTIVES

EE445L- Lab7: Requirements Document

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3/6/14

1. OVERVIEW

1.1 Objectives:

Our team decided to do a project that involves the user interacting with the system using an accelerometer. 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 on a LCD that are based on the inputs that the accelerometer receives from the user. The outputs of the LCD will change according to the accelerometers measurements in acceleration and angles.

2.2 Performance:

The system will have to measure angles and forces made by the user, and then change the output quickly enough for the user to react to those new outputs.

2.3 Usability:

The output interface will be a LCD screen. The inputs will be the measurements read from the accelerometer. 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

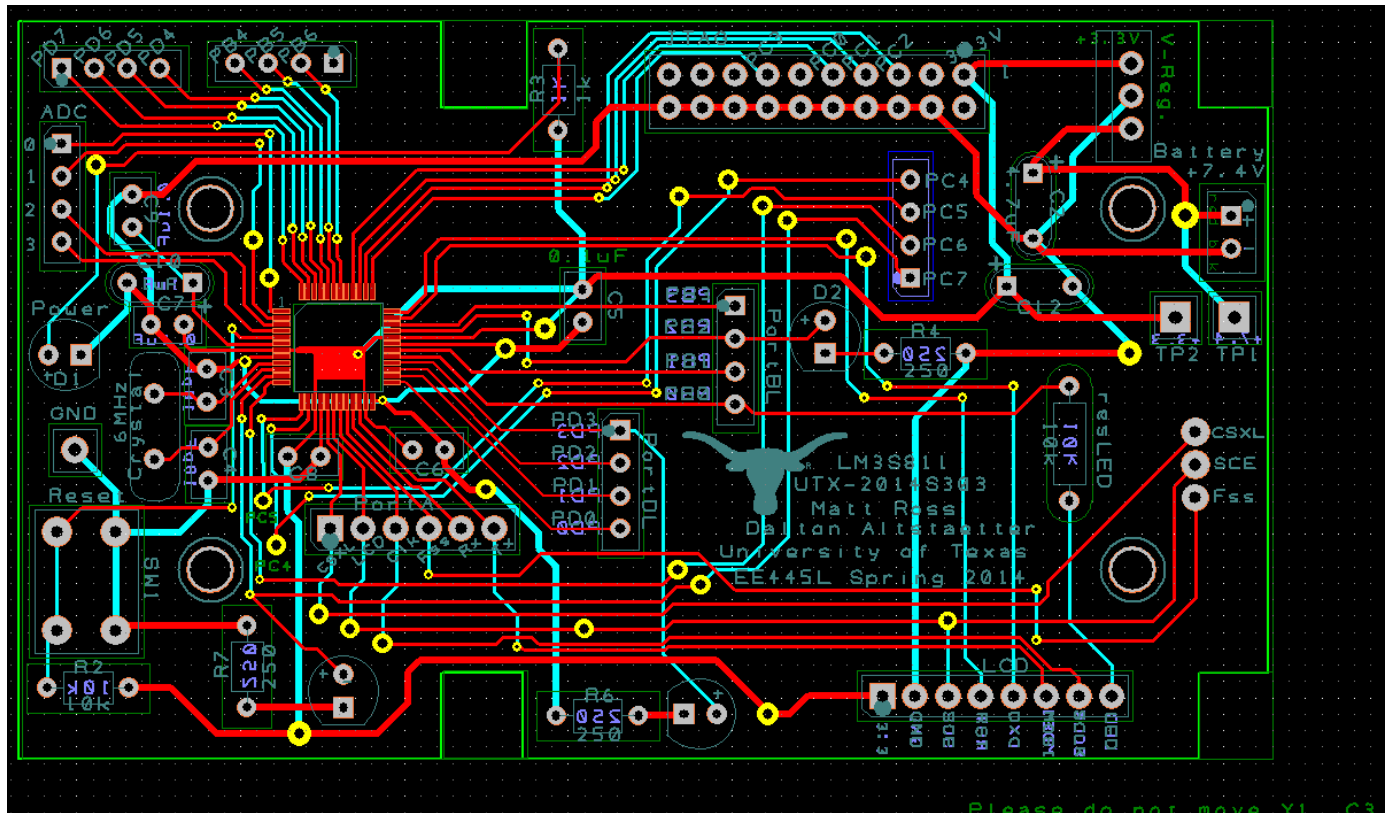Include the requirements document (Preparation a)

3.2.4 Measurement Data

Give the estimated current (Procedure d)

Give the estimated cost (Procedure e)

3.2.5 Analysis and Discussion (none)

HARWARE DESIGN
PCB

SCH

MEASUREMENT DATA
Estimated Current: 10 mA
Estimated Cost: $0.00