Final Project Requirement Document
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03/10/16

1. Overview

1.1. Objectives: Why are we doing this project? What is the purpose?

The objectives of this project are to design, build and test an embedded system. Educationally, we are learning how to create a stand-alone system using PCB. It also serves as a comprehensive review of the materials we learned throughout this semester, such as Speaker, LCD, switch interfacing. Our goal is to create a stand-alone smart display system.

1.2. Roles and Responsibilities: Who will do what? Who are the clients?

The client is our TA Mahesh. Michael and Jack will deisgn the smart display system together. Michael will design the PCB and work on system software. Jack will work on Wifi module and data acquisition through web services. Together Michael and Jack will integrate the engire system.

1.3. Interactions with Existing Systems: Include this if you are connecting to another board

Our system will be connected to a wifi board. It will be connected to an LCD (could be touch screen), and a speaker.

2. Function Description

2.1. Functionality: What will the system do precisely?

The system is a stand-alone display device used for social media notifications, scheduler, and an alaram. More precisely, it will be placed on a desk and display time, any important schedule, social media updates all in one. It will pull data from SNS such as twitter, facebook, and google.

2.4. Performance: Define the measures and describe how they will be determined.

The performance will be measured based on the time it takes to retreive data from a server and data loss.

2.5. Usability: Describe the interfaces. Be quantitative if possible.

Our system will be interfaced with a wifi module. It will also be interfaced to an LCD screen using SSI and to a speaker. Our speaker circuit will include a DAC and an audio amplifer so that the device can play a song for the alarm. We might have an input device depending on how we want our system to be.

3. Deliverables

3.1. Reports: Simply state the reports for Labs 7 and 11 will be written

Reports for Labs 7 and 11 will be written.

3.2. Outcomes: Simply copy/paste the Lab 7 and Lab 11 deliverables.

Lab7:

A) Objectives

1-page requirements document

B) Hardware Design

Regular circuit diagram (SCH file)

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

C) Software Design

Include the requirements document (Preparation a)

D) Measurement Data

Give the estimated current (Procedure d)

Give the estimated cost (Procedure e)

E) Analysis and Discussion (none)

Lab11:

A) Objectives

2-page requirements document

B) Hardware Design

Detailed circuit diagram of the system (from Lab 7)

C) Software Design (no software printout in the report)

Briefly explain how your software works (1/2 page maximum)

D) Measurement Data

Include data as appropriate for your system. Explain how the data was collected.

E) Analysis and Discussion (none). The YouTube video is required