# Lab 2 Report

## Team Information

**Lab number:** 2

**Date:** 10/16/2015

**Team Members:** Abigail Francis, Jonathan Hawkins, Brandon Lipjanic, Pierce Simpson

**Team Number/Name: 203/PB&J** Team Member Responsibilities

**Software Design:** Brandon

**Hardware Design:** Jonathan

**Quality Assurance:** Pierce

**Systems Integrator:** Abigail

# Hardware

### Part 1

Draw the schematics or create a table detailing the connections for Part 1 of Lab 1. An example is provided.

Describe the cable that you will create for Part 2. Each connector should have a type and a **unique** identifying number. You can use a table like the one below, or you can draw a diagram.

**Include a picture of any cables constructed for this lab.**

# Tests

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Test # | Test Name | Method | Software req'd | Expansion board row pin | Expansion board col pin | Button | Probe/Keypad pin | Tools req'd |
| P1-1 | Connectivity on the connector and the header attached to the keypad | Test the resistance of each key press with multimeter. Should be high Z before press and low Z after |  |  |  | 1 | (+/3 , -/2) | DMM |
|  |  |  | 2 | (+/1 , -/2) | 2x probes |
|  |  |  | 3 | (+/5 , -/2) |  |
|  |  |  | 4 | (+/3 , -/7) |  |
|  |  |  | 5 | (+/1 , -/7) |  |
|  |  |  | 6 | (+/5 , -/7) |  |
|  |  |  | 7 | (+/3 , -/6) |  |
|  |  |  | 8 | (+/1 , -/6) |  |
|  |  |  | 9 | (+/5 , -/6) |  |
|  |  |  | \* | (+/3 , -/4) |  |
|  |  |  | 0 | (+/1 , -/4) |  |
|  |  |  | # | (+/5 , -/4) |  |
| P1-2 | Pulldown of column pins shorted to row pins | Short column pins to row pins on expansion board one at a time each with jumper cables and measure column pin voltage on the oscilloscope | Write all column pins high in software | J10 7 | J10 5 |  |  | Oscilloscope |
| J10 11 | J10 9 |  |  | 1x Scope probe |
| J10 15 | J10 13 |  |  | 1x M/M jumper cable |
| J10 17 |  |  |  |  |
| P1-3 | Check correctness of keypad datasheet | During test P1-1, verification of pin assignments in keypad datasheet will be apparent |  |  |  |  |  |  |
| P1-4 | Check configuration of pins |  | Check all tristate registers, port registers, and latch registers are assigned and working correctly by writing a testbench in software. |  |  |  |  |  |
| P1-5 | Check timer for delay | Check timing on oscilloscope. |  |  |  |  |  |  |
| P1-6 | Evaluate LCD working | Visually check LCD is printing values correctly. |  |  |  |  |  |  |
| P2-1 | Passcode database check | Check 2 passcodes are valid. Attempt to enter wrong passcodes to verify invalidity. Verify set code works by \*\* method. | Precode 2 passcodes into passcode database array. |  |  |  |  |  |

P1-1 is verified. By association, P1-3 is verified by verification of P1-1.

List the tests and their outcomes that you intend to do based on the Lab 1 procedures. **Also include any pictures, screenshots, or schematics involved with each test.** Describe the name of the test, the tool you intend to use, and a description of the test. Do this for each part in Lab 1.

For the software tests you have created **include code in the D2L submission.** However, your outcomes should be well-documented here. There is not time for your code to be tested once it is turned in. Therefore, make effort to show clearly what kind of test you did and what its outcome was. Take screen shots and include them here if you must

# Software

### Code

Please include all of your documentation in the submitted code. Please also submit your code with the test code made by Quality Assurance.

### Version Control

Include a screen shot of your commit history.