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| Team 09 – Useless Lock Box |
| Test Plan |
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| Rev 1.0  11-24-2016 |

REVISION HISTORY

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| --- | --- | --- | --- |
| Date | Version | Description | Author |
| 11/21/2016 | 1.0 | Initial release | Team 9 |
| 11/24/2016 | 2.0 | Test Plan Revision Meeting | Team 9 |
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# Objective

This document describes the test plan for the Useless Lock Box, Team 09’s practicum project in ECE411. This test plan document supports the following objectives:

* Identify project information about what should be tested.
* List of the recommended test equipment
* Identify the required human resources
* Provide an estimate of the test efforts

# Design documentation (see appendix)

* 1. Description, Rev 1.0
  2. PDS – Product Design Specification, Rev 2.0
  3. Block Diagram, Rev 2.0
  4. Schematic, Rev 5.0
  5. Board Layout, Rev 5.0
  6. BOM – Bill of Materials

# Test Equipment

* 1. Computer
  2. AVR Dragon or other development board
  3. Power Supply
  4. VOM – Volt Ohm Meter
  5. Oscilloscope
  6. 2 prototypes of the Useless Lock Box

# Human resources

The test team consists of 4 members. A member must be a senior student majoring in Electrical Engineering. Expected time length is 1.5 weeks (10 hours per weeks) for each team member.

Below is the detail staffing. Notice that each member should collaborate which others to fully understand test plan as a ECE411’s deliverable.

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| --- | --- | --- |
| Role | HR | Responsibility |
| Test manager | Dwayne | Provide direction for the team  Manage reports |
| Implementer | Thanh | Create/build necessary test unit |
| Code tester | Daniel | Test code for microcontroller |
| Mechanical tester | Ha | Test toggle switch and lock mechanism |

# System Tests

* 1. Unit/Module Tests

A complete test of a module’s functionality to ensure desired results.

* + 1. Servo
    2. Keypad
    3. Solenoid
    4. LCD Screen
    5. Switch
  1. Integration Tests

Complete testing of paths between modules to ensure they operate correctly together.

* + 1. Possible system paths
       1. Switch to LCD
       2. LCD to Keypad
       3. Correct Code Entered
          1. Keypad to Solenoid
          2. Keypad to Servo
          3. Servo to LCD
       4. Administration Code Entered
          1. Keypad to LCD
          2. LCD to Keypad
          3. Keypad to Servo
          4. Servo to LCD
       5. Incorrect Code Entered
          1. Keypad to Servo
          2. Servo to LCD
  1. Acceptance Test – Appendix A

Check to ensure the end result meets the conditions the customer defined in the PDS.

* + 1. Functionality
    2. Economic Goals
    3. Aesthetics
    4. Operational Physical Environment
    5. Size/Weight
  1. Stress Tests

Check behavior when extreme circumstances arise.

* + 1. Power Removed
    2. See User Error Tests
  1. Use Testing

Check typical user interaction.

* + 1. Flip Switch
       1. Correct Code
       2. Administration Code
       3. Incorrect Code
  1. Error Testing

Test for error conditions originating from non-prescribed user behavior and system bugs.

* + 1. User Error
       1. Double Key Press
       2. Obstruction of Arm Path
       3. Quick On Then Off of Switch
       4. 4 + n Keys Pressed
       5. 4 – n Keys Pressed
    2. System Errors
       1. LCD Timing
       2. PWM Timing
       3. Switch Doesn’t Get Flipped

# Appendix A

Design documentation can be found at: https://github.com/dandz12/ECE411-Practicum-Project

**Test Cases**



