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Assignment: Test Plans
Class: ECE 411

Test Plan for Initial Power Up of Practicum Project
Specific System being Tested: ATMega328
Required Materials: LEDs, Multiplexer/demultiplexer, 9v Battery, clock chip(DS3231), push buttons, LED screen

Test Case: Battery Test

Module	Make sure battery has correct Voltage
Inputs	Voltage Testing Device
Outputs	9V
Functionality	Functional Testing
Objective	Making sure we have a good battery

Test Case: Chip Testing

Module	Verify Chip Connections
Inputs	High Input for each configuration
Outputs	Verify expected output
Functionality	Functional Testing
Objective	In order to make sure the connections were soldered well

Test Case: Testing Each LED

Module	LED Test
Inputs	Send high signal to LED
Outputs	LED lights up
Functionality	Functional Testing
Objective	Making sure that each LED works

Test Case: Power Test

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Module	Verify System has enough Power
Inputs	9v Battery
Outputs	Voltage on decoder pins
Functionality	Functional Test
Objective	The system needs enough power to provide for the rest. One way of noticing this is checking the decoder pins have enough voltage.

Test Case: Installation Test

Module	Verify System has software needed to run clock program
Inputs	Arduino to burn bootloader into ATMega328
Outputs	No error messages when uploading a simple program
Functionality	Functional Test
Objective	The system needs to be able to run a program without any software issues.

Test Case: Integration Test

Module	Verify integration of ATMega328's software with the Multiplexer/demultiplexer & LEDs
Inputs	Power to Processor and Clock
Outputs	LEDs
Functionality	Functional Testing
Objective	Make sure that the clock impacts the output of the processor

Test Case: Use Test

Module	Press button to Set Clock

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Inputs	Button Press
Outputs	Correct Clock time on LED screen
Functionality	Acceptance Testing
Objective	Make sure that the clock is going at the right time

Test Case: Cycle time fast

Module	Time Go Fast
Inputs	Timing changes to the ATMega328
Outputs	Outputs should cycle through relatively quickly to avoid waiting hours
Functionality	Functional Testing
Objective	Verify that the inputs pass through the system and give the correct timing output

Test Case: Error Test

Module	No button press to change time in system
Inputs	N/A
Outputs	Expected wrong time
Functionality	Error testing
Objective	Stress Testing

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Test Plan 2
On another system, test involving one performance test from requirements

The performance requirement being tested on another system is

- Have LEDs bright enough to see in a well lit room

Black Box Testing: Testing a module or system only with knowledge of its external specification (e.g. inputs, outputs, functionality) and using only inputs and outputs.

This system test is checking that the button setting the clock input goes into the system and outputs the desired LED outputs.

Module	LED
Inputs	Coding will be substituted for clock inputs at a high cycle rate
Outputs	LEDs
Functionality	LED output testing
Objective	Cycle the LEDs in direct sun (if possible) and indoor lighting to determine if they are bright enough to be visible

Module	Entire System
Inputs	Coding will be substituted for clock inputs at a high cycle rate
Outputs	LEDs
Functionality	System Test
Objective	To test the whole system at an increased rate