# Lab 3 Pre-lab Example

## Team Information

**Lab number:** Click here to enter text.

**Date:** Click here to enter a date.

**Team Members:** Click here to enter text.

**Team Number/Name:** Team Member Responsibilities

**Software Design:** Click here to enter text.

**Hardware Design:** Click here to enter text.

**Quality Assurance:** Click here to enter text.

**Systems Integrator:** Click here to enter text.

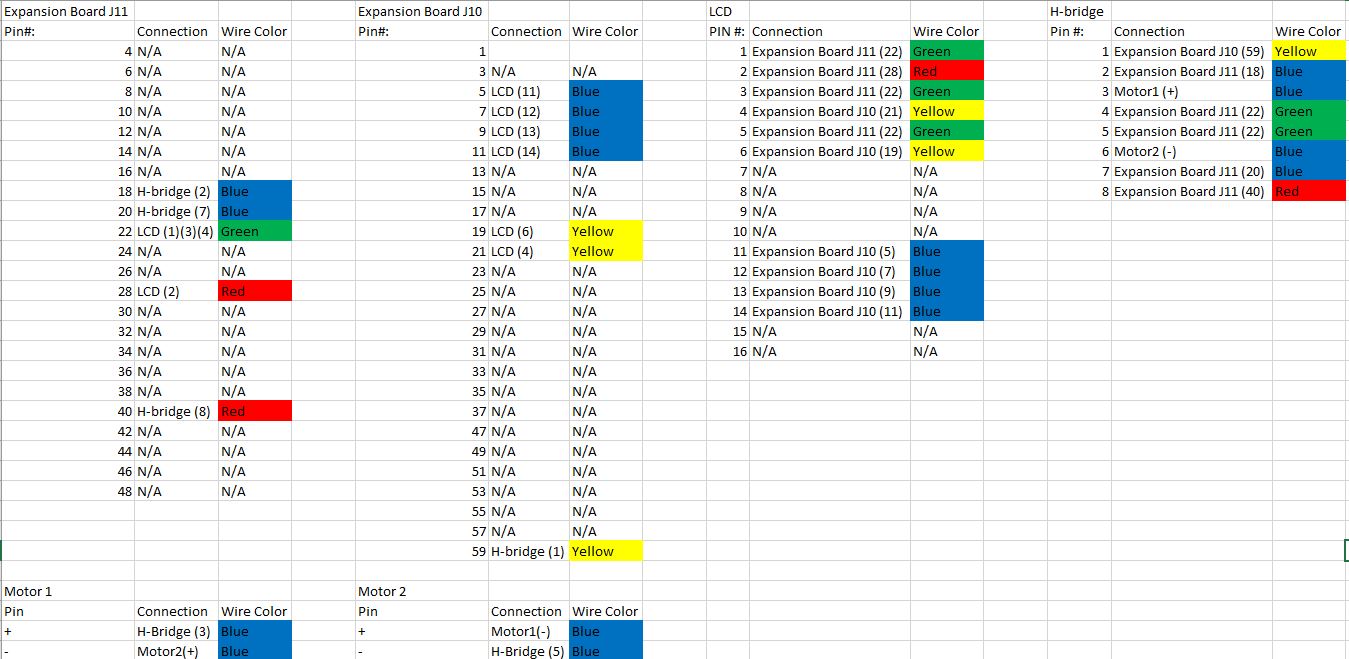
# Hardware

### Responsibility (2 pts)

Fill in the table below based on your responsibilities provided in the procedures and grading rubric. This will be what determines your individual grade for the lab.

|  |
| --- |
| Part 1 and 2 |
| * Connect H-Bridge With development board * Designate pins to connect OC modules to motor * Build robot and mount the development board, LCD, Battery, and H-bridge securely. * Make sure connections for H-Bridge, LCD, and Motors are permanent (wire-wrapping) |

### Part 1 (3 pts)



# Quality Assurance

### Responsibility (2 pts)

Fill in the table below based on your responsibilities provided in the procedures and grading rubric. This will be what determines your individual grade for the lab.

|  |  |
| --- | --- |
| Part 1 | Part 2 |
| Screenshots of output compare module are included  Output from H Bridge is tested using function generator and oscilloscope  Code is written to test the PWM module and ADC module | All connections have been tested  Proof of one other test is included |

### Part 1 (2 pts)

List the tests that you intend to do based on the Lab 2 procedures. 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 2.

|  |  |  |
| --- | --- | --- |
| Test Name | Tool | Description |
| Potentiometer Test | Digital Multi-meter | Test the potentiometer on the development board by verifying that is changes when spun |
| H-Bridge & Motors Test | Function Generator, DC Power Supply | Check that the motor speed increases as the duty cycle for the function generator increases (and decreases and the duty cycle from function generator decreases). |
| Output Compare Module Test | Oscilloscope | Test output of modules and verify they match up with duty cycle requirements |
| speedTest() | Oscilloscope | Function that cycles each output compare module through a variety of duty cycles to test control of the speed of the motors; test ability to spin motors forwards and backwards |

### Part 2 (1 pts)

|  |  |  |
| --- | --- | --- |
| Test Name | Tool | Description |
| Connectivity Test | Digital Multi-meter | Test all hardware connections |
| State Switch Test |  | Test that the switch properly moves through forward, idle, backward, idle states correctly |

# Software

### Responsibility (2 pts)

Fill in the table below based on your responsibilities provided in the procedures and grading rubric. This will be what determines your individual grade for the lab.

|  |  |
| --- | --- |
| Part 1 | Part 2 |
|  |  |

### Part 1 (2 pts)

List the relevant control registers for controlling the keypad and the LCD in Part 1 of Lab 2.

|  |  |
| --- | --- |
| Device: | Register(s): |
| Digital I/O |  |
| Change Notification |  |
| Open-Drain |  |
| Data Direction |  |

Also describe the function of the microcontroller software as a finite-state machine in Part 1 of this lab.

### Part 2 (1 pts)

List the relevant control registers for Part 2 of Lab 2.

|  |  |
| --- | --- |
| Device: | Register(s): |
| Timer |  |
| Digital I/O |  |

Also describe the function of the microcontroller software as a finite-state machine in Part 2 of this lab.