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	Mag Coil Fluctuation Test		001	1 of 3

Test Title	Report Author (Full name, NetID)	Date Written (MM/DD/YYYY)
Magnet Coil Fluctuation Test	Philip Naumann	02/3/2022
Purpose	Success Criteria	
Confirm that the H-bridge Magnet Coil system is functional long term	Magnetorquers generate expected magnetic field	

## 1. Test Conditions

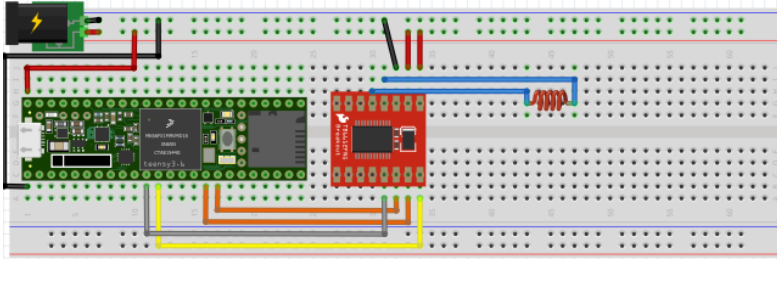
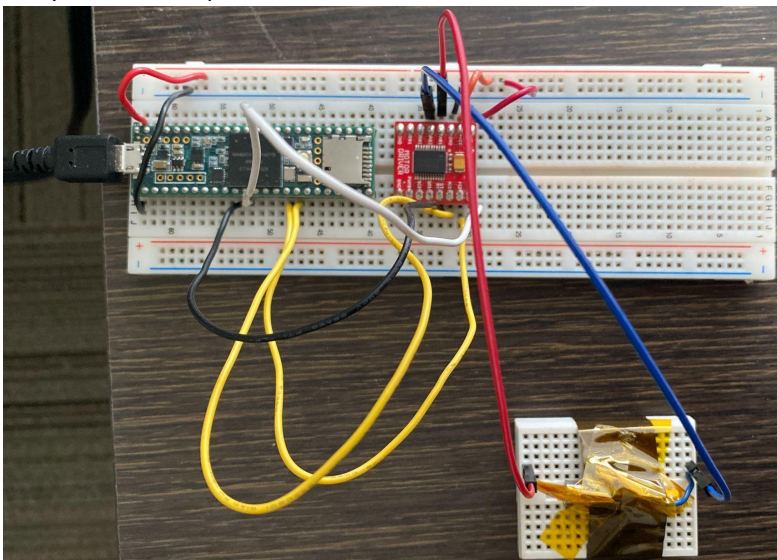
Date/Time (MM/DD/YYYY 24hrs)	Testing Officer (Full name, NetID)	Assisting Officer (Full name, NetID)	Additional Personnel (Full names, NetIDs)
02/2/22	Philip Naumann pn246	Josh Umansky-Castro	
Environment		Temperature (°C)	Humidity (Relative %)
ESD Bench, Rhodes B30			



## 2. Test Components

Item	Component	Quantity	Part Number	Unit
1	Teensy 3.6	1	N/A	N/A
2	Sparkfun TB6612FNG H-bridge	1	N/A	N/A
3	Mag coil	1	N/A	N/A
4	Breadboard	1	N/A	N/A
5	Breadboard Wires	11	N/A	N/A
6	Micro-USB cable (in cleanroom)	1	N/A	N/A
7	Computer	1	N/A	N/A
8	Magnetic compass or magic wand	1	N/A	N/A

## 3. Test Procedure

Step	Procedure	Notes	Pass/Fail (P/F)
1	Collect all of the materials on an ESD safe bench.		P
2	Setup the test according to the following wiring diagram: *Note: The inductor represents the magnetic coil. **Note: The mag coil may be set up on a different bread board. Please connect the wires between the H-bridge and the other breadboard as the mag coil copper wires are frail and may break.		P

			
3	<p>Verify that the setup looks as follows:</p> 		P
4	Connect the Teensy 3.6 to a computer though a micro-USB		P
5	Confirm the Arduino IDE and Teensyduino are installed on your computer.		P
6	Verify that the computer recognizes that the Teensy is on. (It should be listed as one of the "Port" options in the Arduino IDE).		P
7	Upload "FluctuationTest.ino" to the Teensy 3.6. Be sure to set the correct microcontroller type and port in the Arduino options (follow Eleanor's code upload guide if unsure).		P
6	Test to make sure that the magnet coil is working by using a magnetic compass or magic wand. The dial should rotate randomly and sporadically. This test should test the magnetic coils ability to make rapid and large changes.		P
7	Unplug it from the computer and plug the USB into a powersource ~4V. This is done to test the Fluctuation of the system. The system should be on for at least one day (24 hours).		P
8	Test the system after one day (24 hours) with the magnetic compass or magic wand. Verify that the system is still functional (the dial rotates sporadically and randomly). Click on <a href="#">this link</a> for an example.		P

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#### 4. Test Results

4.1 Execution (*Describe changes made to the above procedure. Add test setup photos.*)

4.2 Analysis (*Present all data from the test (plots/values/etc)*)

Need to debug serial monitor

4.3. Pass/Fail Assessment (*State if the success criteria was fulfilled (include data where appropriate)*)

Pass