

MSD Team P17453

Weekly Update

Week 4

2/9/17 - 2/16/17

Weekly Accomplishments:

- Figured out the hardware/software setup to control the solenoid valves
 - Successful completion of solenoid relay test using a function generator
 - Successful completion of solenoid relay test using Signal Express and the DAQ
 - Delay at end/start of loop was present
 - Solved by measuring the delay with a 60 fps camcorder and adjusting the outputs accordingly
- Began machining L brackets for solenoid valves
- Updated solenoid coil wiring diagram, switched ground wire to common
- Decided to create a YouTube channel to display videos of testing/progress
- Received orders from 8020 and MSC Direct
- Updated Problem Tracking
- Assembled 8020 frame
- Added fittings with teflon tape to the back pressure air tank

To do by next week:

- Verify completion of the main components
 - Valve seat block, valve housing, collector
- Complete pressure test on back pressure tank
- Determine proper software setup to mimic pressure curve analyzed in Matlab
- Complete air test of solenoid valves firing using the Signal Express software and DAQ
 - Use pressure curve timing and vent to atmosphere
- Finish machining 8020 L brackets to hold the solenoid valves
- If parts machined by Tuesday, do pressure test for leakage on P16452's tank
- Continue assembling separate systems
 - 8020 frame with air tank
 - Solenoid valve attachment brackets
 - Pressure vessel assuming parts are completed
 - Hose connections
 - Electrical wiring setup
- Create YouTube channel and upload first few test videos
- Subsystem presentation on Thursday (2/23/17) from 12 - 1 pm

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Meeting Notes

2/14/17

Meeting Accomplishments:

- Tried figuring out the hardware software setup required in the lab
 - Discovered that we were given incorrect information about how to hook up the 120 V ac power supply, were blowing breakers
- Successfully demonstrated the relays working with an external signal generator after failing to get the software and DAQ to work
- Decided we most likely needed to use digital signals in the DAQ instead of analog signals
- Decided to create a YouTube channel to display videos of testing/progress

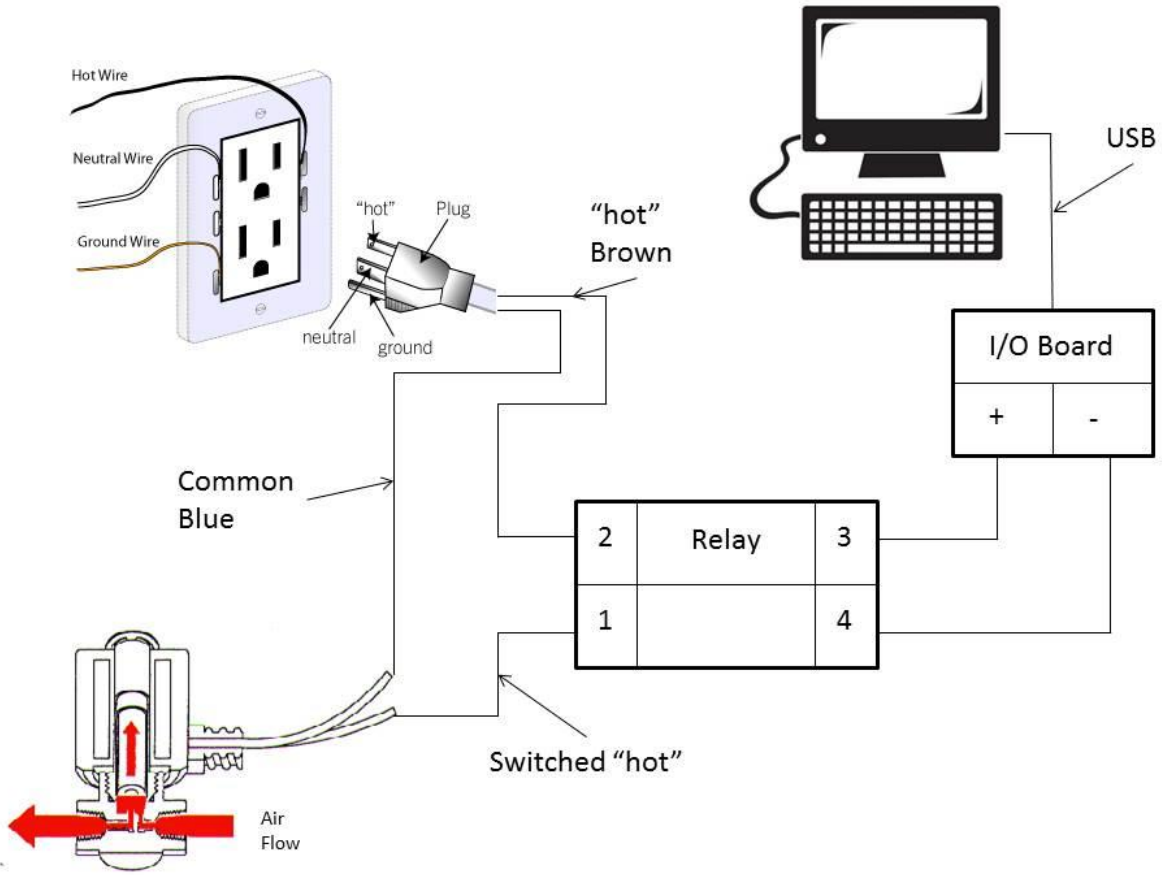
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Meeting Notes

2/16/17

Meeting Accomplishments:

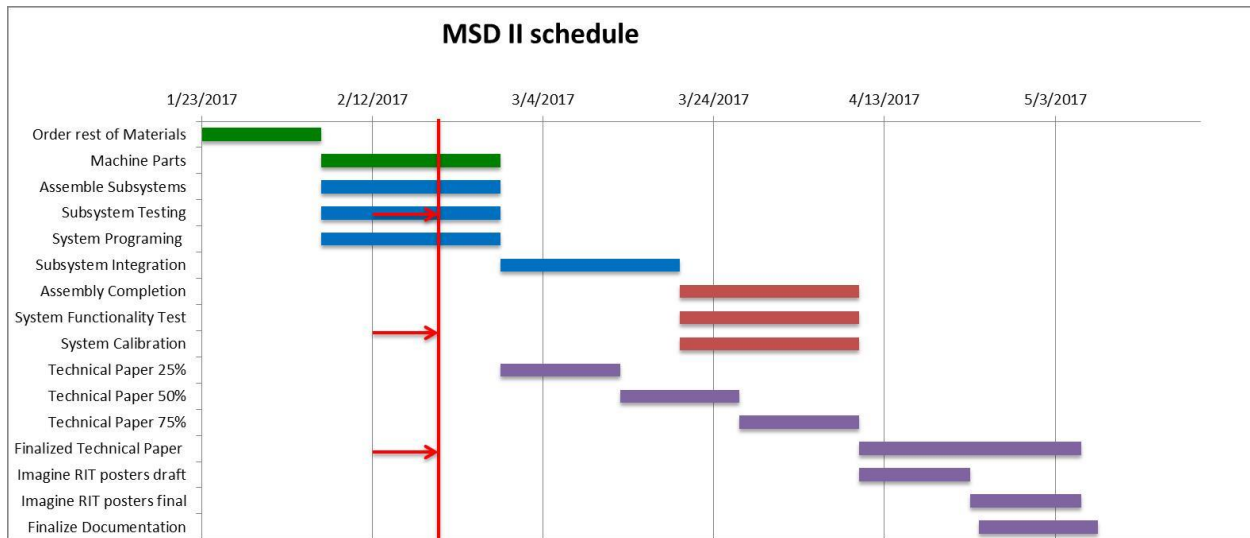
- Updated solenoid coil wiring schematic, switched ground wire to common
- Received orders from 8020 and MSC Direct
- Got the digital signals from the DAQ to control the relays
- Updated Problem Tracking
- Machined L brackets for holding solenoid valves
- Assembled 8020 frame
- Added fittings with teflon tape to the back pressure air tank
- Moved parts from 4th floor to the lab



Updated Solenoid Coil Wiring Diagram

	Identifying & Selecting Problem PSP 1	Analyzing Problem PSP 2	Generating Potential Solutions PSP 3	Selecting & Planning Solution PSP 4	Implementing Solution PSP 5	Evaluating Solution PSP 6
Rating	R1	R2	R3	Y4	Y5	G6
CRITICAL	Solenoid valve coils don't fit on new solenoid valves	The previous team's solenoid coils don't fit onto our valves	Drill out hole to make them fit, buy new solenoid coils	Dr. Kolodziej suggested buying new solenoid coils	Added correct coils to BOM and placed order	New coils received and successfully tested on valves.
MAJOR						
ORDINARY	How to mount solenoid valves on 8020 frame	There are no mounting threads or surfaces on the valves	Zip-ties, Velcro ties, hose-clamps, L-bracket between valve and hose	L-bracket would look and work the best, relatively easy to implement	L-bracket design completed with parts on order	
	Relief valve not rated for our pressures	The previous existing team's relief valve is not rated high enough	Order new pressure relief valve	We will get part _____ from _____	Part has been added to BOM and will be ordered	

Updated Problem Tracking: Revision D



Gantt Chart: Team progress through week 4.

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Subsystem Build & Test Demonstration Proposal

Week 5

2/23/17

Thursday 12 - 1 pm

Proposed Subsystem tests for demonstration

- Demonstrating the use of SignalExpress to open and close the solenoid valves
- Pressurizing the back pressure tank to hold pressure
- Pressurizing the back pressure tank to max out at 40 PSI with the pressure relief valve
- Display progress on the physical build

On Thursday February 23rd, 2017, team P17453 will have a subsystem demonstration from 12 - 1 pm in the lab across from the machine shop.