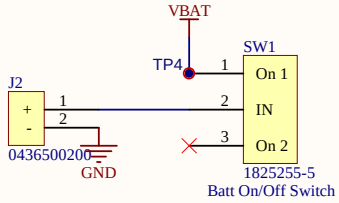
1 - Table of Contents
2 - Connectors
3 - Battery Manager
4 - Motor and MCU Power Supplies
5 - Motor Drivers

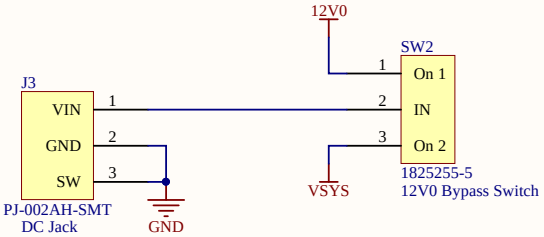
4/1/16	MV	A	Initial Full Design
4/2/16	MV	A.1	Fixed non-plated through hole footprints
4/2/16	MV	A.2	Fixed clearance violations on motor drivers
4/3/16	MV	A.3	Fixed title block/board info, aligned vias
4/3/16	MV	A.4	Final DRC, Added header pinout silk screen
4/3/16	MV	A.5	Added I sense wires and moved to 30 pin header
4/4/16	MV	A.6	Corrected DFM errors
4/4/16	MV	1.0	RELEASE VERSION
4/20/16	MV	1.1	Swapped 3.3V buck to 5V buck and adjusted passives Corrected missing power trace between 12V in and vsys. Flipped D2 to be in reverse bias

Title	***Table of Contents***		*Senior Design Project* *Prosthetic Hand* *Matthew Varas* *Rachel Mertz* *Donnell Jones*
Size: A4	Number:1	Revision:1.1	
Date: 4/26/2016	Time: 9:12:46 PM	Sheet 1 of 5	
File: E:\Dropbox\Senior Design Team Folder\PCB Projects\Hand Motor Driver Test Board\TOC.SchDoc			

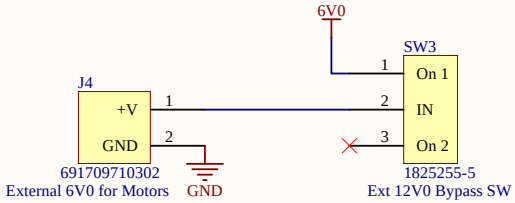
Battery Connection



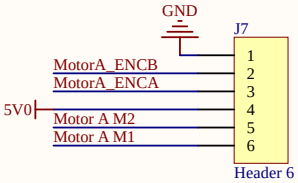
DC Input



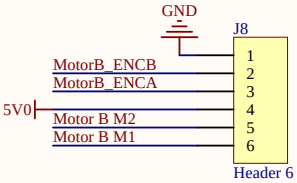
External 6V0 Motor Power



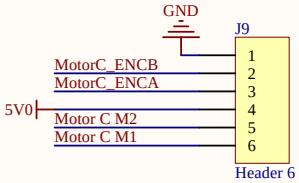
Motor A Header



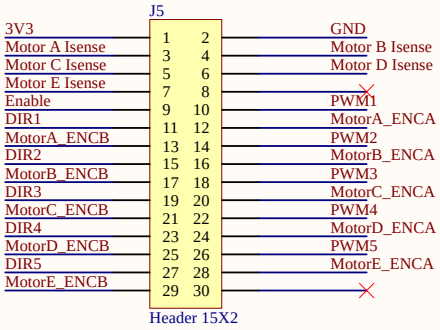
Motor B Header



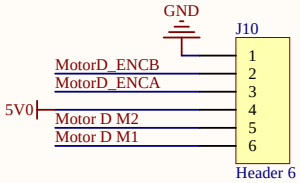
Motor C Header



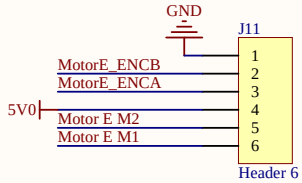
Main MCU Header



Motor D Header



Motor E Header



Title	***Connectors***		*Senior Design Project* *Prosthetic Hand* *Matthew Varas* *Rachel Mertz* *Donnell Jones*
Size: A4	Number:2	Revision:1.1	
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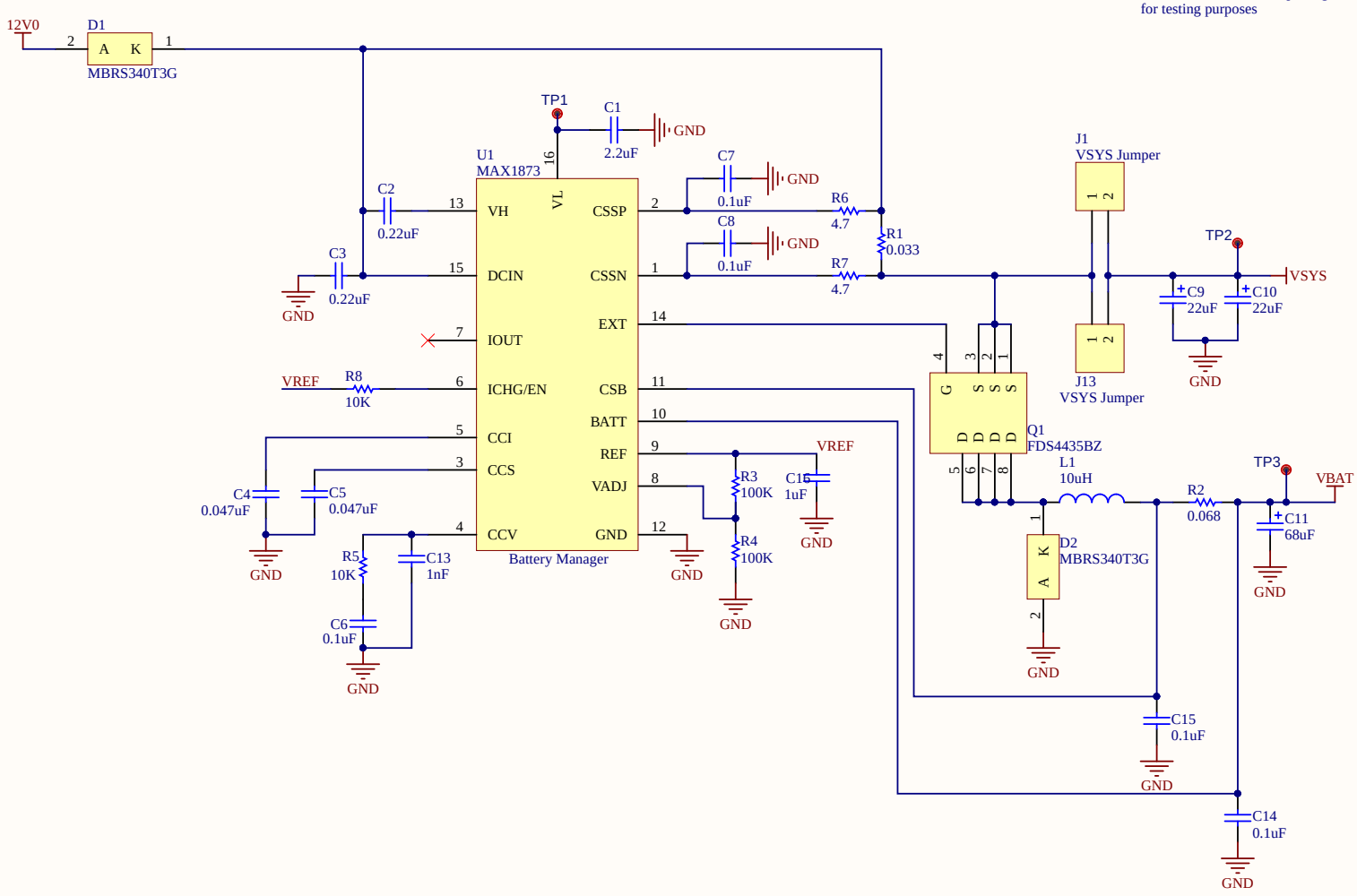
File: E:\Dropbox\Senior Design Team Folder\PCB Projects\Hand Motor Driver Test Board\Connectors.SchDoc			

Note: R1 currently set for 3A input limit. The following parts allow for alternate limits
* 4A input limit: 0.025 ohm, 1W, Vishay WSLT2010R0250FEB18
* 5A input limit: 0.02 ohm, 1W, Vishay WSLT2010R0200FEB18

Note: R2 currently set for 3A charge limit. The following parts allow for alternate limits
* 2A charge limit: 0.1 ohm, 2W, Vishay WSL2816R1000FEH
* 1A charge limit: 0.02 ohm, 2W, Vishay WSH2818R0200FEA
Note: This has incorrect package size for current design, but should fit for testing purposes



Title **Battery Manager**		*Senior Design Project* *Prosthetic Hand* *Matthew Varas* *Rachel Mertz* *Donnell Jones*
Size: A4	Number:3	Revision:1.1
Date: 4/26/2016 Time: 9:12:46 PM	Sheet3 of 5	
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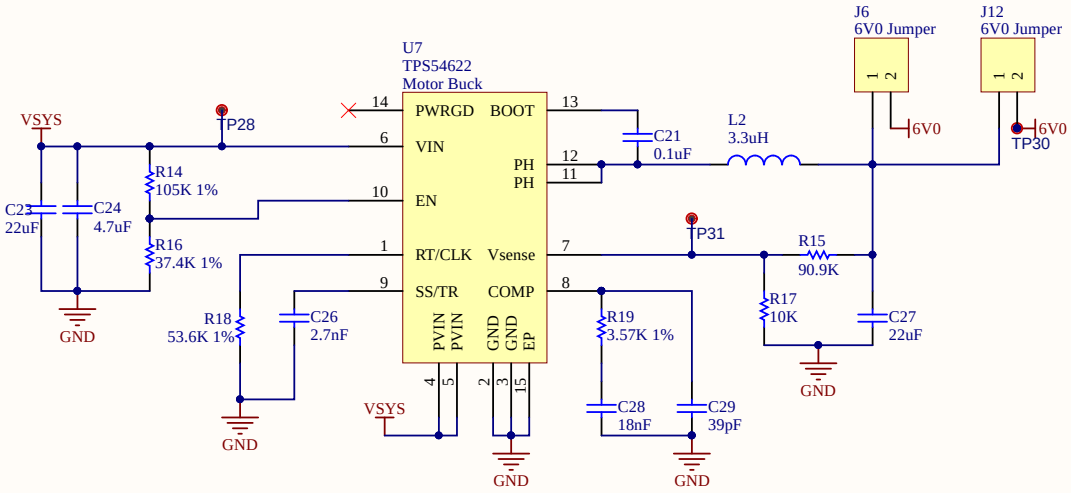
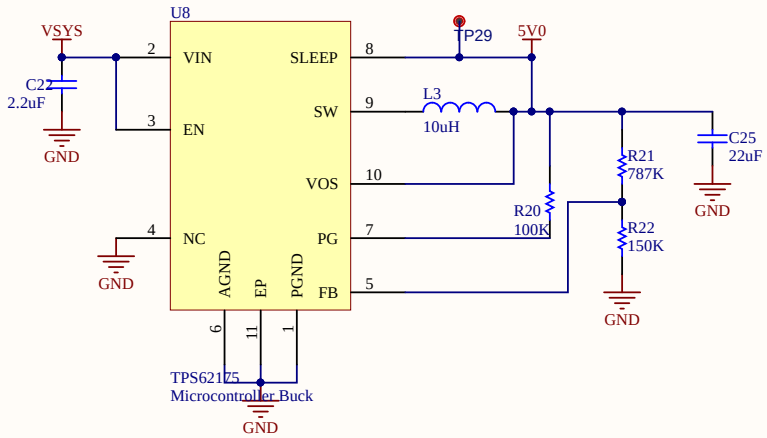
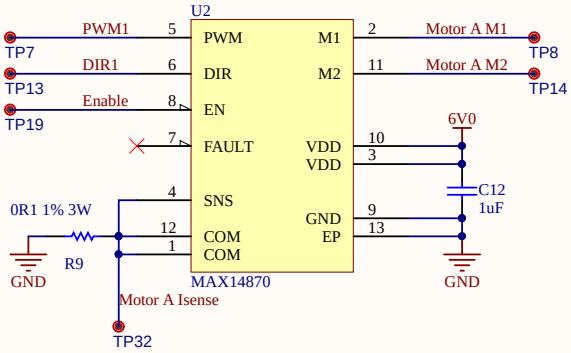


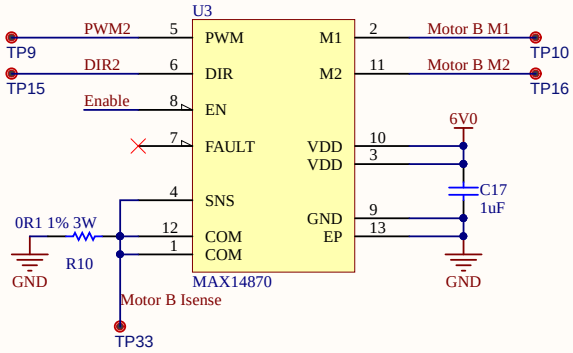


Title	**Power Supply**		*Senior Design Project* *Prosthetic Hand* *Matthew Varas* *Rachel Mertz* *Donnell Jones*
Size: A4	Number:4	Revision:1.1	
Date: 4/26/2016	Time: 9:12:46 PM	Sheet 4 of 5	
File: E:\Dropbox\Senior Design Team Folder\PCB Projects\Hand Motor Driver Test Board\Power_Supply.SchDoc			

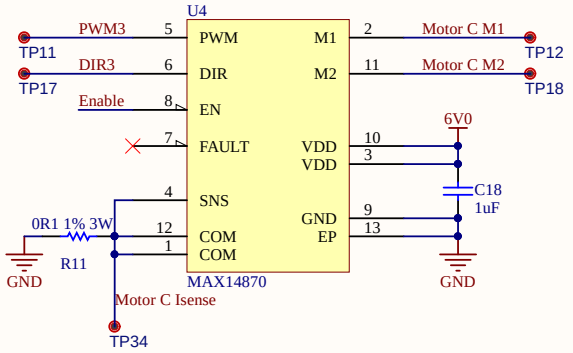
Motor Driver A



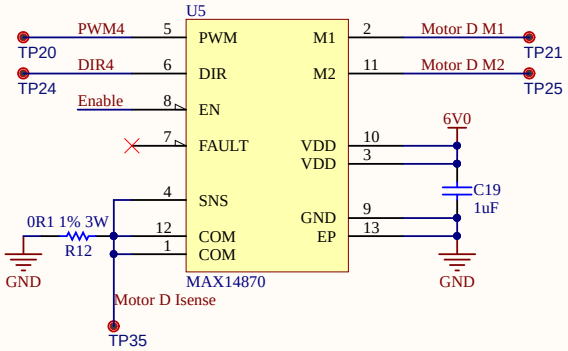
Motor Driver B



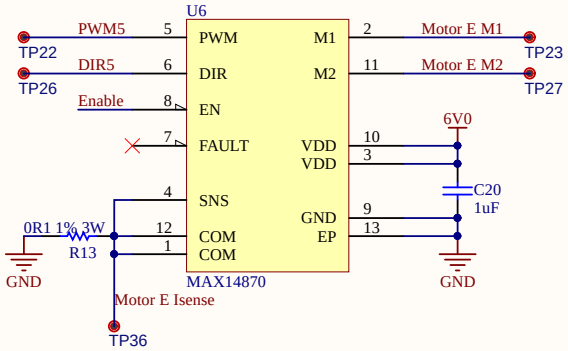
Motor Driver C



Motor Driver D



Motor Driver E



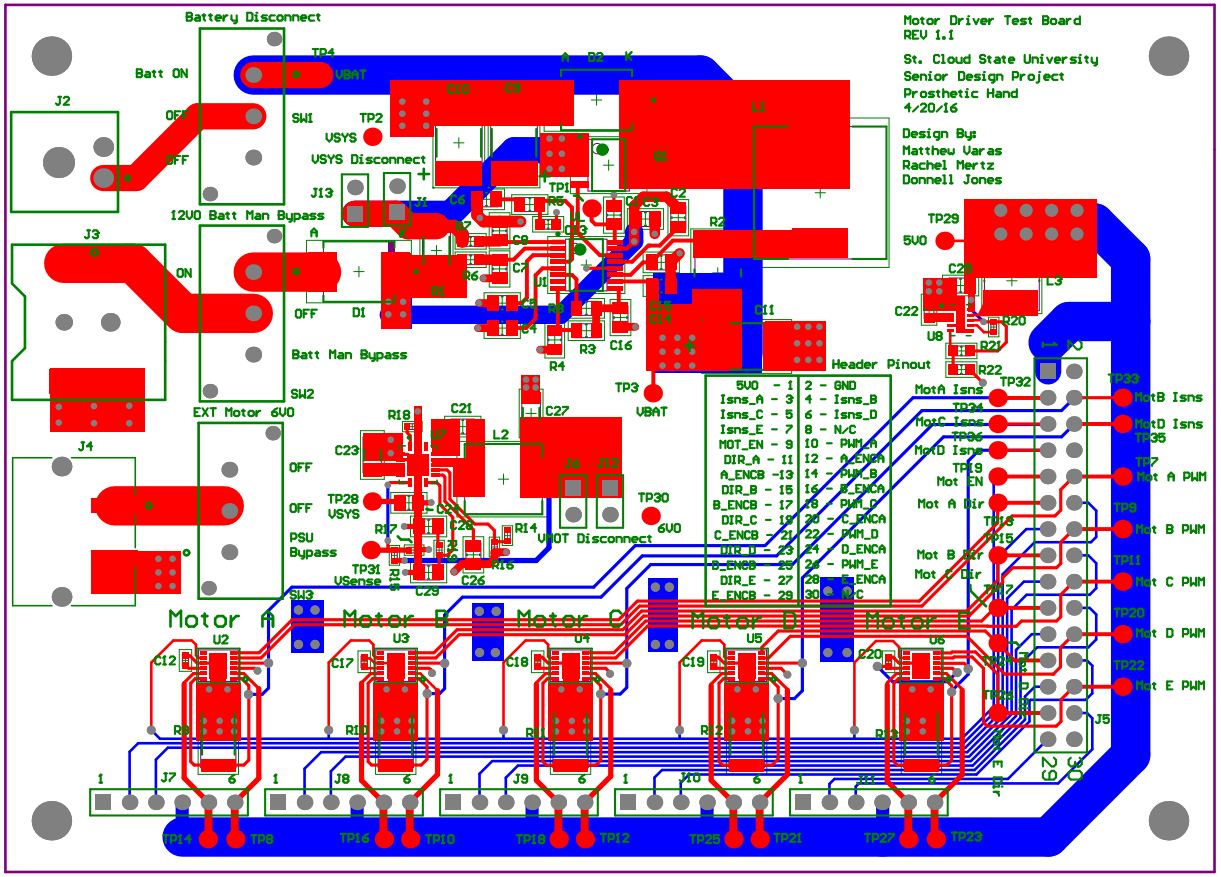
Title	**Motor Drivers**		*Senior Design Project* *Prosthetic Hand* *Matthew Varas* *Rachel Mertz* *Donnell Jones*
Size: A4	Number:5	Revision:1.1	
Date: 4/26/2016	Time: 9:12:46 PM	Sheet5 of 5	
File: E:\Dropbox\Senior Design Team Folder\PCB Projects\Hand Motor Driver Test Board\Motor_Drivers.SchDoc			

Motor Driver and PSU Test Board
REV 1.1

2 Layer FR4

TOP LAYER COMPONENT
BOTTOM LAYER COMPONENT
All Layers 1oz Copper
Total Board thickness : .062
Top & Bottom Solder mask Green
Top Overlay White, No Bottom Overlay
Lead Free
Finish = ENIG

Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0.40mil	3.5	
3	Top Layer	Copper	1.40mil		
4	Dielectric 1	FR-4	58.00mil	4.2	
5	Bottom Layer	Copper	1.40mil		
6	Bottom Solder	Solder Resist	0.40mil	3.5	
7	Bottom Overlay				



Bottom Overlay