

Project Status Letter Week 9

Covering Period from 10/21/2018 to 10/28/2018

Prepared by Alex Kmetz and Katie Lee

DYNO Integration Action Tracking

Task / Item	In Progress Projected (%)	In Progress Actual (%)	Complete	Dependencies
Motor Spinning in Dyno Room	25%	25%	No	Motor Purchased Motor Controller Purchased Pulley / Shaft Fabricated Motor Installed in Motor Mount MCS Installed in Fixture Pulley / Shaft Connected to Motor
Motor Purchased	33%	33%	No	
Motor Controller Purchased	50%	50%	No	
Motor Controller Connected to TSI, Cooling, and Motor in Dyno Room	16.67%	16.67%	No	Motor Controller Purchased MCS / TSI / Cooling Fixture Fabricated TSI Board Complete TSI Mounting Plate Complete
Motor Mount Fabricated	0%	0%	No	
Motor Installed in Motor Mount in Dyno Room	16.67%	16.67%	No	Motor Purchased Motor Mount Fabricated
Pulley / Shaft Fabricated	0%	0%	No	
Pulley / Shaft Connected to Motor and Mounted in Dyno Room	9.09%	9.09%	No	Motor Purchased Pulley / Shaft Fabricated
MCS / TSI / Cooling Fixture Fabricated	0%	0%	No	
Pedal Cluster Fabricated	0%	0%	No	
Dyno Room Testing Plan Complete	100%	0%	No	
Dyno Room Wiring Diagram Complete	100%	100%	Yes	
GLV Board Manufactured	85.71%	71.43%	No	
GLV Mounting Plate Manufactured	66.67%	66.67%	No	
Safety Loop Testing Panel Mounted in Dyno Room Rack	85%	15%	No	
Safety Loop Functional In Dyno Room	0%	0%	No	GLV Board Manufactured
TSI Board Manufactured	26.67%	6.67%	No	
TSI Mounting Plate Manufactured	33.33%	0%	No	
TSI Throttle / Brake Control Panel Manufactured	50.00%	12.50%	No	TSI Board Manufactured TSI Mounting Plate Manufactured
Cooling Loop Filled with Water and Tested For Leaks	66.67%	66.67%	No	
Cooling System Mounted on Fixture in Dyno Room	0%	0%	No	MCS / TSI / Cooling Fixture Fabricated
Cooling System Connected to MCS and Motor in Dyno Room	25%	25%	No	MCS / TSI / Cooling Fixture Fabricated
Cooling System Connected to TSI in Dyno Room	0%	0%	No	MCS / TSI / Cooling Fixture Fabricated
TSV Packs Manufactured	30%	0%	No	

TSV Packs Connected to Motor Controller in Dyno Room	0%	0%	No	
TSV PackMan Boards Fabricated	22%	0%	No	
TSV CellMen Boards Fabricated	25%	0%	No	
TSV SegMan Boards Fabricated	29%	0%	No	
				TSV Packs Manufactured PackMan Boards Fabricated CellMen Boards Fabricated SegMen Boards Fabricated Motor Controller Purchased Motor Purchased
TSV Powering Motor via Motor Controller	0%	0%	No	
SCADA Recording Data and Writing to a File	37.50%	25%	No	
SCADA Displaying Data to Rack Monitor in Dyno Room	50%	50%	No	
SCADA Communicating with GLV in Dyno Room	0%	0%	No	GLV Board and Mounting Plate Integrated
SCADA Communicating with TSI in Dyno Room	0%	0%	No	TSI Board and Mounting Plate Integrated
				TSV Packs Manufactured PackMan Boards Fabricated CellMen Boards Fabricated SegMen Boards Fabricated
SCADA Communicating with TSV in Dyno Room	0%	0%	No	
SCADA Communicating with Motor Controller in Dyno Room	25%	0%	No	
All Connecting Wires Produced with Correct Connector Types	0%	0%	No	
All Subsystems fully wired in Dyno Room	0%	0%	No	Dyno Room Wiring Diagram Complete
All Tests According to Test Plan Run in Dyno Room	0%	0%	No	Dyno Room Testing Plan Complete

For more data, visit website using link below:

https://sites.lafayette.edu/motorsports/files/2018/10/Week_9_DYNO_Progress.pdf

Project Item Completion Chart:

Team	Tasks Completed	Tasks Planned for Next Week	Proposed Changes	Overdue WBS Items
VSCADA	<p>Zian: SCADA.9.2 Back Display Designed and Delivered</p>	<p>Sam: SCADA.8.9 - Demo of Transitions between Vehicle States</p> <p>SCADA.4.3 - SCADA Outputs a throttle control to the Motor Controller</p> <p>Zian: SCADA.8.7 - SCADA Testing Plan Delivered</p> <p>SCADA.9.3 - Dashboard Interface Designed and Delivered</p>	none	<p>Sam: SCADA.5.1 - Demo of Transitions between Vehicle States</p> <p>Zian: SCADA.8.7 - SCADA Testing Plan Delivered</p>
TEST		<p>Hayden: TEST.1.1 - Motor Testing Plan</p> <p>TEST.2.1 - GLV Testing Plan</p> <p>TEST.3.1 - TSI Testing Plan</p> <p>TEST.4.1 - TSV Testing Plan</p> <p>TEST.5.1 - SCADA Testing Plan</p> <p>TEST.6.1 - DYNO Integration Testing Plan</p> <p>Alex: TEST.6.1 - DYNO Integration Testing Plan</p>	none	none

<p>GLV</p>	<p>Max: GLV.1.1 - GLV BoB Circuit Schematic Complete</p> <p>GLV.1.2 - GLV BoB PCB Layout Complete and Approved</p> <p>GLV.1.3 - GLV PCB Purchase Order Approved and Submitted</p> <p>GLV.1.5 - GLV BoB Mount Drawing Submitted to Machine Shop</p> <p>GLV.1.6 - GLV BoB Mount Fabricated</p> <p>GLV.2.2 - Left Side Panel BOM Purchase Order Submitted and Approved</p> <p>GLV.4.1 - GLV ICD Delivered</p> <p>GLV.4.2 - GLV Wiring Diagram Delivered</p> <p>GLV.5.1 - Pi2CAN GPIO Board Circuit Schematic Complete</p> <p>GLV.5.2 - Pi2CAN GPIO Board PCB Layout Complete and Approved</p> <p>GLV.5.3 - Pi2CAN GPIO Board PCB Purchase Order Approved and Submitted</p> <p>Robson: GLV.1.3 - GLV BoB PCB Purchase Order Approved and Submitted</p>	<p>Max: GLV.1.4 - GLV BoB Acquired</p> <p>GLV.5.4 - Pi2CAN GPIO Board Acquired</p> <p>GLV.6.1 - Dashboard Panel Block Diagram Delivered</p> <p>Robson: GLV.3.1 - Dyno Safety Loop Block Diagram Complete and Submitted</p> <p>GLV.3.2 - Dyno Power Supply Safety Loop On/Off Mechanism Delivered</p> <p>GLV.3.3 - Left Side Panel Connected to GLV in Dyno Room</p> <p>GLV.3.4 - Right Side Panel Connected to GLV in Dyno Room</p> <p>GLV.3.5 - Dyno Power Supply Connected to GLV Safety Loop</p>	<p>none</p>	<p>none</p>
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	<p>GLV.2.2 - Left Side Panel BOM Purchase Order Submitted and Approved</p> <p>GLV.2.6 - Right Side Panel BOM Purchase Order Submitted and Approved</p> <p>GLV.5.3 - Pi2CAN GPIO Board PCB Purchase Order Approved and Submitted</p> <p>GLV.6.2 - Dashboard Panel BOM Purchase Order Approved and Purchased</p>			
TSI	<p>Hongbo: TSI.4.3 - Firmware Testing Board Delivered</p> <p>Yuqiu: TSI.2.8 - VSCADA CANBus Communication Complete</p> <p>Xiaonan TSI.1.2 - TSI Circuit Schematic Delivered and Approved</p>	<p>Tianyu: TSI.6.1 - Mechanical Drawing of TSi Enclosure Delivered and Approved</p> <p>TSI.1.3 - TSI PCB Layout Delivered and Approved</p> <p>TSI.1.4 TSI PCB BoM Purchase Order Approved and Purchased</p> <p>Antonio: TSI.5.8 - TSI ICD Delivered</p> <p>TSI.5.9 - TSI Wiring Diagram Delivered</p> <p>Hongbo: TSI.2.4 - UART for firmware completed</p> <p>TSI.2.5 - TSI Firmware state</p>	none	<p>Tianyu: TSI.6.1 - Mechanical Drawing of TSi Enclosure Delivered and Approved</p> <p>Katie: TSI.1.3 - TSI PCB Layout Delivered and Approved</p>

		<p>machine completed</p> <p>Yuqiu: TSI.2.5 - Firmware Logic / State Machine Delivered and Approved</p> <p>TSI.2.9 - VSCADA GPIO Communication Complete</p> <p>Xiaonan: TSI.1.3 - TSI Circuit Layout Delivered and Approved</p> <p>Katie: TSI.1.3 - TSI PCB Layout Delivered and Approved</p>		
TSV		<p>Hayden: TSV.1.2 - Pack Mechanical Drawing Submitted and Accepted</p> <p>TSV.3.1 - PackMan Block Diagram Delivered and Approved</p> <p>Yishak: TSV.1.1 - Pack High Level Electrical Block Diagram Delivered and Accepted</p> <p>TSV.1.3 - Pack BoM Purchase Order Approved and Purchased</p> <p>TSV.2.1 - CellMan Block Diagram Delivered and Approved</p>	none	<p>Alex: TSV.4.1 - PackMan Block Diagram Delivered</p> <p>Hayden: TSV.4.1 - PackMan Block Diagram Delivered and Approved</p> <p>TSV.4.2 - PackMan Circuit Schematic Submitted and Accepted</p>

		<p>TSV.2.4 - CellMen BoM Purchase Order Approved and Purchased</p> <p>TSV.4.1 - SegMan Block Diagram Delivered and Approved</p> <p>Weston: TSV.1.3 - Pack BoM Purchase Order Approved and Purchased</p> <p>TSV.5.1 - Pseudo Code for State of Charge Algorithm Delivered</p> <p>Alex: TSV.3.1 - PackMan Block Diagram Delivered</p>		
Cooling	<p>Hongbo: COOL.2.1 - Cooling Loop filled with water and tested for leaks</p> <p>COOL.2.2 - Leaks in loop identified and repaired</p>	none	none	none
Interconnect	<p>Drew: WIRE.1.1 - Dyno Room Wiring Diagram Complete</p> <p>Alex: WIRE.1.1 Dyno Room Wiring Diagram Delivered</p>	<p>Drew: WIRE.2.3 - TSI-MCS Wires Complete</p> <p>WIRE.2.4 - TSI-Cooling Wires Complete</p>	none	none
Mech	<p>Adam: GLV.1.6 - GLV BoB Mount Fabricated</p> <p>PART.4.4 - MCS Mount Fabricated</p>	<p>Adam: Research and Develop Steering</p> <p>Brian: Design outer frame for battery packs,</p>	none	none

	<p>Nick: PART.5.1 - Motor Purchase Order Submitted and Approved</p> <p>PART.4.3 - MCS Mount Mechanical Drawing Submitted to Machine Shop</p> <p>PART.4.4 - MCS Mount Fabricated</p> <p>Hayden: PART.4.1 - Motor Controller Purchase Order Submitted and Approved</p>	<p>battery cell housing, design dead cell removal tool</p> <p>Justin: Design car suspension system</p> <p>David: Finalize frame design</p> <p>Jordan: Design a mount for the DYNO that allows the differential to be attached</p> <p>Nick: PART.1.1 - Motor Mount Mechanical Drawing Submitted to Machine Shop</p> <p>TSI.1.11 - TSI Mounting Plate Mechanical Drawing Submitted</p> <p>TSI.6.1 Mechanical Drawing of TSI Enclosure Delivered and Approved</p> <p>Preliminary drivetrain design</p> <p>Will: Preliminary drivetrain design</p>		
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Purchasing Summary from Previous Week:

Sub-system	Allocated Budget	Total Spent	Budget Remaining	Percentage Spent
Brakes	3,500.00	0.00	3,500.00	0.00%
Chassis/Body	5,000.00	0.00	5,000.00	0.00%
Cooling	620.00	0.00	620.00	0.00%
GLV	780.00	793.99	-13.99	101.79%
Interconnect	1,500.00	432.53	1,067.47	28.84%
Motor	4,000.00	3,678.65	321.35	91.97%
Pedal/Controls	2,000.00	0.00	2,000.00	0.00%
Steering	2,500.00	0.00	2,500.00	0.00%
Suspension	2,200.00	0.00	2,200.00	0.00%
TSI/MCS	1,500.00	3,055.04	-1,555.04	203.67%
TSV	4,187.00	693.88	3,493.12	16.57%
VSCADA / DYNO	525.00	0.00	525.00	0.00%
Shipping/Tax	4,246.80	315.25	3,931.55	7.42%
Registration	2,300.00	2,300.00	0.00	100.00%
Overall	34,858.80	11,269.34	23,589.46	32.33%



Purchase Orders:

DATE: 10/23/2018		ECE Department Material Request		Req Number	8	
Course:	ECE 491					
Professor:	Nadevich					
Requested By:		Vendor:	Dig-Key			
Name:	Robison Adam	Web Site:	digkey.com			
Email:	ademr@lafayette.edu	Phone:	1 (800) 858-3616			
Phone:	4845919265	Ship By:	Ground			
All items added to shopping cart :		https://www.digkey.com/short/jdyjqb				
#	Quantity	Vendor Part	Description	Unit Price	Total Price	Revd
BOB						
1	2	102-2927-ND	DC/DC CONVERTER 5V 20W	\$35.52	\$71.04	
2	2	AD5593BRRUZ-ND	IC ADC 10 PORT (ADC/DAC & Temp 12C)	\$7.90	\$15.80	
3	10	296-34970-1-ND	IC LOAD SW HIGH SIDE 6SOT (IC Switch)	\$0.78	\$7.78	
4	3	296-29034-1-ND	IC MONITOR PWR/CURR BIDI 10MSOP (Current Monitor)	\$2.88	\$8.64	
5	3	CLA136-ND	OPTISO 3.75KV 2CH DARLNG 8DIP (Opto-Isolator)	\$2.07	\$6.21	
6	10	MCP604-1P-ND	IC OPAMP GP 1MHZ RRO 14DIP (Quad Op-Amp)	\$0.45	\$4.50	
7	10	BSS84CT-ND	MOSFET P-CH 50V 130MA SOT-23	\$0.41	\$4.08	
8	10	Z2254-ND	RELAY GEN PURPOSE SPST 10A 24V	\$1.22	\$12.20	
9	10	478-1395-1-ND	CAP CER 0.1µF ±10% 50V X7R 0805	\$0.16	\$1.61	
10	10	SK310A-LTPMSCT-ND	DIODE SCHOTTKY 100V 3A DO214AC	\$0.44	\$4.35	
11	10	CSNL1206FT1100CT-ND	RES SMD 0.001 OHM 1% 1W 1206	\$0.57	\$5.66	
12	10	RNCF0805TKY250RCT-ND	RES SMD 250 OHM 0.01% 1.8W 0805	\$1.91	\$19.06	
13	10	YAG1852CT-ND	2.1 kOhms ±0.1% 0.125W, 1/8W Chip Resistor 0805 (2012 Metric) Thin Film	\$0.31	\$3.13	
14	10	RNCF0805DTH10K0CT-ND	10 kOhms ±0.5% 0.125W, 1/8W Chip Resistor 0805 (2012 Metric) Automotive AEC-Q200 Thin Film	\$0.14	\$1.40	
15	6	WM16841-ND	Connector Header Through Hole 12 position 0.224" (5.70mm)	\$4.83	\$28.98	
16	10	WM10390-ND	12 Position Rectangular Housing Connector Receptacle Black 0.224" (5.70mm)	\$1.19	\$11.94	
17	10	WM11981CT-ND	Socket Contact Tin 14-16 AWG Crimp	\$0.24	\$2.38	
18	10	182-909ME-ND	CONN D-SUB PLUG 9POS R/A SOLDER	\$1.62	\$16.17	
P2C						
19	10	732-5363-ND	Male Header Pins Right Angle	\$1.78	\$17.78	
20	10	952-3213-ND	CONN RCPT 2.54" SMD DUAL 16POS	\$2.11	\$21.10	
21	10	732-5468-5-ND	Male SMD Header pins	\$2.96	\$29.63	
External Devices						
22	7	350-4053-ND	Panel Mount Indicator (Green)	\$8.85	\$61.95	
23	3	350-4050-ND	Panel Mount Indicator (Red)	\$6.90	\$20.70	
24	3	26105-ND	Pushbutton Switch SPST-NC Standard Panel Mount, Front	10.71	\$32.13	
GLV Battery						
25	2	W28-XQ1A-10	Circuit Breaker	\$3.77	\$7.54	
Interconnect						
26	50	1734-1125-ND	solid contact size 14 socket	0.575	\$28.75	
27	50	1734-1133-ND	solid contact size 14 pin	0.504	\$25.20	
28	50	1734-1517-ND	20 awg solid contact pin	0.4104	\$20.52	
29	50	889-1471-ND	20awg solid contact socket	0.5912	\$29.56	
TSI						
30	100	A27817CT-ND	CONN QC RCPT 18-22AWG 0.250	0.1768	\$17.68	
31	100	A27906CT-ND	CONN QC TAB 18-22AWG 0.250 CRIMP	0.3066	\$30.66	
32	5	NC09830DBR2GOSDKR-ND	8 channels ADC 12C Expander	4.1	\$20.50	
33	2	PS32MZ2048FH064-1PT-ND	MIPS3200 M-Class PIC® 32MZ Microcontroller IC 32-Bit 200MHz 2MB (2M x 8) FLASH 64-TQFP (1	11.11	\$22.22	
34	5	MCP23016T-1/SOCT-ND	16 channels GPIO 12C Expander	1.63	\$8.15	
				Shipping Fees	\$17.98	
				Grand Total:	\$636.98	
		Instructor Approval:				
		Department Approval:				
		(Over \$500)				

DATE:10/24/2018

ECE Department Material Request

Course: ECE 491	Req Number: 15
Professor: Nadovich	

Requested By	Vendor:
Name: Hayden	Web Site: https://www.emsiso.com/
Email: dodgeh@lafayette.edu	Phone:
Phone: 303-588-2848	Ship By:

#	Quantity	Vendor Part	Description	Unit Price	Total Price	Rcvd
1	1	emDrive 500_800/125	emDrive 500_800/125 motor controller	€1,850.00	€1,850.00	
2	1	emDrive 500_800/125	emDrive modifications - isolated CAN	€20.00	€20.00	
3	1	emDrive 500_800/125	Accessroy- USB to CAN interface	€200.00	€200.00	
4	1	emDrive 500_800/125	Accessory - emDrive configurator license	€300.00	€300.00	

Shipping Fees	TBD
Customs Fees	TBD
Grand Total:	€2,370.00

Prof. Nadovich

\$2,701.80

ECE Department Approval:
(Over \$500)

ME Department Approval:
(Over \$500)

DATE:10/24/2018						
ECE Department Material Request						
Course: ECE 491 Professor: Nadovich				Req Number: 16		
Requested By				Vendor: Ebay		
Name: Nick Steele				Web Site: https://www.ebay.com/		
Email: steelen@lafayette.edu				Phone:		
Phone: 408 630 0668				Ship By:		
#	Quantity	Vendor Part	Description	Unit Price	Total Price	Rcvd
1	1	https://bit.ly/2O6IwiF	Emrax 208 (80kW, 108HP) Low Volt Aircooled Motor	€3,226.89	€3,226.89	
				Shipping Fees	€80.00	
				Customs Fees	TBD	
				Grand Total:	€3,306.89	\$3,769.85
Prof. Nadovich						
ECE Department Approval:						
(Over \$500)						
ME Department Approval:						
(Over \$500)						

DATE:10/26/2018						
ECE Department Material Request						
Course: ECE 491 Professor: Nadovich				Req Number: 17		
Requested By				Vendor: ADVANCED CIRCUITS		
Name: Maxwell Mcfarlane				Web Site: www.my4pcb.com		
Email: mcfarlm@lafayette.edu				Phone: (866) 433-5722		
Phone: 8487026146				Ship By: Ground		
#	Quantity	Vendor Part	Description	Unit Price	Total Price	Rcvd
1	2	BOB	BOB PCB	\$33.00	\$66.00	
2	2	P2C	Pi2CAN PCB	\$33.00	\$66.00	
				Shipping Fees	\$112.32	
				Grand Total:	\$178.32	
Instructor Approval:				APPROVED BY PROF. NADOVICH		
Department Approval:						
(Over \$500)						