

Project Status Letter Week 9  
 Covering Period from 3/24/2019 to 3/31/2019  
 Prepared by Alex Kmetz and Katie Lee

**Weekly Team Goals**

<b>Week</b>		<b>Complete</b>
<b>9</b>	<b>3/24/2019 - 3/31/2019</b>	
1	2D "Enclosures" Completed and Installed in Dyno Room	
2	PCBs Completed and QA Tested for Functionality	
3	Revised ATP submitted to Professors for Review	

<b>Week</b>		<b>Complete</b>
<b>10</b>	<b>3/31/2019 - 4/7/2019</b>	
1	2D "Enclosures" Completed and Installed in Dyno Room	
2	PCBs Completed and QA Tested for Functionality	
3	Revised ATP submitted to Professors for Review	

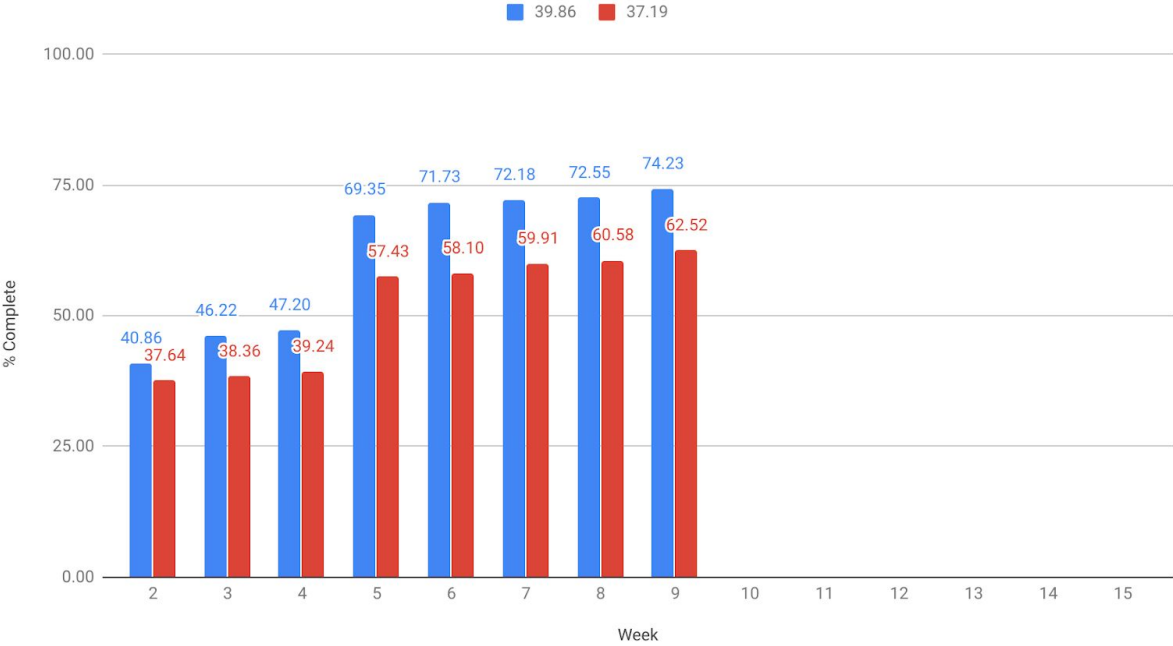
**DYNO and CAR Integration Action Tracking**

Completion of Previous Semester Goals: 91%

- Missing Completions: SCADA Connectivity, Full Motor Testing Setup, TSI Board

Completing of Current Semester Goals: 62.52%

Projected Progress and Actual Progress



Task / Item	In Progress Projected (%)	In Progress Actual (%)	Complete	Dependencies
Motor Spinning in Dyno Room	100.00%	100.00%	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	100.00%	100.00%	Yes	
Motor Controller Purchased	100.00%	100.00%	Yes	
Motor Controller Connected to TSI, Cooling, and Motor in Dyno Room	100.00%	100.00%	No	Motor Controller Purchased MCS / TSI / Cooling Fixture Fabricated TSI Board Complete TSI Mounting Plate Complete
Motor Mount Fabricated	100.00%	100.00%	Yes	
Motor Installed in Motor Mount in Dyno Room	100.00%	100.00%	Yes	Motor Purchased Motor Mount Fabricated
Pulley / Shaft Fabricated	100.00%	100.00%	Yes	

Pulley / Shaft Connected to Motor and Mounted in Dyno Room	100.00%	100.00%	No	Motor Purchased Pulley / Shaft Fabricated
MCS / TSI / Cooling Fixture Fabricated	100.00%	100.00%	Yes	
MCS Installed in TSI Enclosure	62.50%	25.00%	No	TSI Enclosure Fabricated
GLV Board Manufactured	78.57%	71.43%	Yes	
GLV Mounting Plate Manufactured	100.00%	33.33%	Yes	
Safety Loop Testing Panel Mounted in Dyno Room Rack	100.00%	90.00%	Yes	
Safety Loop Functional In Dyno Room	100.00%	66.67%	Yes	GLV Board Manufactured
GLV Enclosure Manufactured	33.33%	0.00%	No	
TSI Board Manufactured	87.51%	78.57%	No	
TSI Mounting Plate Manufactured	62.50%	25.00%	Yes	
TSI Throttle / Brake Control Panel Manufactured	66.67%	66.67%	Yes	TSI Board Manufactured TSI Mounting Plate Manufactured
TSI Enclosure Manufactured	62.50%	25.00%	No	
TSI Firmware Written	100.00%	100.00%		
Cooling Loop Filled with Water and Tested For Leaks	100.00%	100.00%	Yes	
Cooling System Mounted on Fixture in Dyno Room	100.00%	100.00%	Yes	MCS / TSI / Cooling Fixture Fabricated
Cooling System Connected to MCS and Motor in Dyno Room	100.00%	100.00%	Yes	MCS / TSI / Cooling Fixture Fabricated
Cooling System Connected to TSI in Dyno Room	100.00%	80.00%	No	
Cooling Enclosure Manufactured	20.00%	0.00%	No	
TSV Packs Manufactured	50.00%	33.33%	No	
TSV Packs Connected to Motor Controller in Dyno Room	0.00%	0.00%	No	
TSV CellMan Boards Fabricated	46.15%	38.46%	No	
TSV SegMan Boards Fabricated	33.33%	33.33%	No	
TSV PackMan Boards Fabricated	50.00%	50.00%	No	
TSV Powering Motor via Motor Controller in Dyno	0.00%	0.00%	No	TSV Packs Manufactured PackMan Boards Fabricated CellMan Boards Fabricated SegMan Boards Fabricated
TSV Firmware Written	37.50%	0.00%		

SCADA Recording Data and Writing to a File	100.00%	71.43%	No	
SCADA Displaying Data to Rack Monitor in Dyno Room	75.00%	75.00%	No	
SCADA Communicating with GLV in Dyno Room	100.00%	100.00%	Yes	GLV Board and Mounting Plate Integrated
SCADA Communicating with TSI in Dyno Room	75.00%	75.00%	No	TSI Board and Mounting Plate Integrated
SCADA Communicating with Motor Controller in Dyno Room	100.00%	75.00%	No	
SCADA Communicating with TSV in Dyno Room	0.00%	0.00%	No	
SCADA Displaying Data to GLV Screen	0.00%	0.00%	No	
All Connecting Wires Produced with Correct Connector Types	100.00%	100.00%	Yes	
Dyno Room Testing Plan Complete	100.00%	100.00%	Yes	
Dyno Room Wiring Diagram Complete	100.00%	100.00%	Yes	
All Subsystems fully wired in Dyno Room	100.00%	100.00%	Yes	
All Tests According to Test Plan Run in Dyno Room	100.00%	0.00%	No	
Car Testing Plan Complete	0.00%	0.00%	No	

**Project Item Completion Chart:**

Team	Tasks Completed	Tasks Planned for Next Week	Proposed Changes	Overdue WBS Items
VSCADA	none	<p><b>Sam:</b> SCADA Configuration changes</p> <p>Implement a software watchdog</p>	none	<p><b>Sam:</b> SCADA.5.1 - VSCADA and MCS connected via CAN</p> <p>SCADA.5.2 - VSCADA receiving data from MCS Sensors</p> <p>SCADA.5.3 - VSCADA sends warning for error sensor data</p> <p><b>Zian:</b> SCADA.2.1 - VSCADA and TSI Connected via CAN</p> <p>SCADA.2.2 - Receiving Data from TSI Sensors</p>
TEST	none	<p><b>Katie:</b> M.2.3 - ATP Submitted for Review</p> <p>ATP Draft 6</p> <p>Dyno Room Testing Layout Designed and Approved</p>	none	<p><b>Katie:</b> M.2.3 - ATP Submitted for Review</p> <p>ATP Draft 6</p>
GLV	none	<p><b>Max:</b> GLV.2.1 - Enclosure Designed, Approved, and Submitted to machine shop</p> <p>GLV.3.1 - Subsystem Testing Plan Submitted and Approved by System Engineers</p>	none	<p><b>Max:</b> GLV.1.11 - PCB Respun and Populated</p> <p>GLV.2.1 - Enclosure Designed, Approved, and Submitted to machine shop</p> <p>GLV.2.2 - Enclosure Parts Acquired</p>

		GLV.1.11 - PCB Respun and Populated		GLV.2.3 - Enclosure Assembled  GLV.3.1 - Subsystem Testing Plan Submitted and Approved by System Engineers
TSI	<p><b>Xiaonan:</b> TSI PCB soldered</p> <p><b>Tianyu:</b> TSI.2.1 - 2D Enclosure Designed, Approved, and Submitted to Machine Shop</p> <p>TSI.2.2 - 2D Enclosure Parts and Materials Acquired</p> <p>TSI.5.3 - IMD Purchased and Acquired</p> <p><b>Robson:</b> TSI.5.3 - IMD Purchased and Acquired</p>	<p><b>Xiaonan:</b> TSI.1.8 - TSI PCB Populated and Tested</p> <p><b>Tianyu:</b> TSI.2.4 - High Voltage Mounting Plate Drawing Approved and Submitted to Machine Shop</p> <p>TSI.2.4 - High Voltage Mounting Plate Acquired</p> <p>TSI.1.8 - TSI PCB Populated and Tested</p> <p><b>Yuqiu:</b> TSI.7.1 - TSI and MCS Connected</p> <p>TSI.7.2 - TSI and Test Panel Connected</p> <p>TSI.7.3 - TSI and GLV Connected</p> <p>TSI.7.5 - TSI and SCADA Connected</p>	none	<p><b>Tianyu:</b> TSI.2.4 - High Voltage Mounting Plate Approved and Submitted to Machine Shop</p> <p><b>Yuqiu:</b> TSI.7.1 - TSI and MCS Connected</p> <p>TSI.7.2 - TSI and Test Panel Connected</p> <p>TSI.7.3 - TSI and GLV Connected</p> <p>TSI.7.5 - TSI and SCADA Connected</p>
TSV	<b>Robson:</b> Literature review of State of Charge Algorithms	<b>Alex:</b> High Voltage Indicator Circuit Layout Complete and	none	<b>Alex:</b> High Voltage Indicator Circuit Layout Complete and

	<p>Studied Kalman filter and its association with in State of Charge Algorithms</p> <p><b>Yishak:</b> TSV.2.4 - SegMan PCB Parts List Purchase Order Approved and Submitted</p> <p>TSV.2.5 - First SegMan PCB Acquired</p> <p>TSV.4.6 - Cell Connecting Bar Designs</p> <p>TSV.4.7 - Cell Connect Bars Acquired</p> <p><b>Weston:</b> TSV.5.8 - High Voltage / Testing in Progress Signs Designed and Manufactured</p> <p>TSV.5.9 - High Voltage / Testing in Progress Signs Acquired and Installed</p> <p><b>Antonio:</b> TSV.5.8 - High Voltage / Testing in Progress Signs Designed and Manufactured</p> <p>TSV.5.9 - High Voltage / Testing in Progress Signs Acquired and Installed</p>	<p>Approved</p> <p><b>Robson:</b> TSV.8.9 - Implement State of Charge Algorithm</p> <p>TSV.8.10 - Incorporate Cell Characterization with SOC Algorithm</p> <p><b>Yishak:</b> TSV.1.8 - CellMan Populated</p> <p>TSV.6.2 - A high-level block diagram of the battery packs (with wiring)</p> <p><b>Zian:</b> TSV.9.2 - Firmware Logic / State Machine Delivered and Approved</p> <p>TSV.9.3 - Firmware I/O Functionality Delivered</p> <p>TSV.9.4 - TSV and VSCADA connected via CAN</p> <p><b>Weston:</b> Mounting for testing box</p>		<p>Approved</p>
Cooling	none	<b>Weston:</b> COOL.1.1 - Cooling Enclosure	none	<b>Weston:</b> COOL.1.1 - Cooling Enclosure
Interconnect	<b>Hayden:</b> PART.6.9 - Motor Controller Configured	<b>Drew:</b> INT.1.20 - Cockpit Panel Components Integrated and	none	<b>Drew:</b> INT.2.2 - Full wiring purchase order submitted

		<p>Installed in Dyno Room</p> <p>INT.1.21 - Cockpit Panels Tested in Dyno Room</p> <p>New GLV Enclosure panel integration</p> <p>New GLV PCB integration</p>		
Mech	<p><b>Hayden:</b> PART.6.9 - Motor Controller Configured</p>	<p><b>Hayden:</b> Valve Fixed</p>	none	none
Management	<p><b>Katie:</b> Organized test drive trip for Class of 2020 team</p> <p><b>Alex:</b> M.1.5 - Design Report</p>	<p><b>Alex:</b> M.1.6 - Sustainability Report</p> <p>M.2.3 - ATP Submitted for Review</p> <p><b>Katie:</b> M.2.3 - ATP Submitted for Review</p> <p>Charge Batteries</p> <p><b>Hayden:</b> Resolve Motor Controller Issue</p> <p>M.1.4 - Electrical Systems Form</p>	none	<p><b>Alex:</b> M.2.3 - ATP Submitted for Review</p> <p><b>Katie:</b> M.1.4 - Electrical Systems Form</p> <p>M.2.3 - ATP Submitted for Review</p>



**Purchasing Summary from Previous Week:**

★ Chassis/Body includes what we have spent plus what we have committed to spending.

<b>Sub-system</b>	<b>Previously Allocated Budget</b>	<b>Total Spent</b>	<b>Budget Remaining</b>	<b>Percentage Spent</b>
Brakes	\$3,500.00	\$0.00	\$3,500.00	0.00%
Chassis/Body	\$5,000.00	\$11,000.00	<b>-\$6,000.00</b>	<b>220.00%</b>
Cooling	\$620.00	\$37.64	\$582.36	6.07%
Drivetrain	\$0.00	\$2,175.00	<b>-\$2,175.00</b>	
GLV	\$780.00	\$1,143.52	<b>-\$363.52</b>	<b>146.61%</b>
Interconnect	\$1,500.00	\$1,367.78	\$132.22	91.19%
Motor/MCS	\$4,000.00	\$6,781.02	<b>-\$2,781.02</b>	<b>169.53%</b>
Pedal/Controls	\$2,000.00	\$0.00	\$2,000.00	0.00%
Steering	\$2,500.00	\$1,840.34	\$659.66	73.61%
Suspension	\$2,200.00	\$0.00	\$2,200.00	0.00%
TSI	\$1,500.00	\$2,954.42	<b>-\$1,454.42</b>	<b>196.96%</b>
TSV	\$4,187.00	\$3,952.19	\$234.81	94.39%
VSCADA / DYNO	\$525.00	\$299.05	\$225.95	56.96%
Shipping/Tax	\$4,246.80	\$1,383.04	\$2,863.76	32.57%
Registration	\$2,300.00	\$2,300.00	\$0.00	100.00%
<b>Overall</b>	<b>\$34,858.80</b>	<b>\$35,234.00</b>	<b>-\$375.20</b>	<b>101.08%</b>

**Purchases from Previous Weeks:**

3/26/2019						
ECE Department Material Request						
Course: ECE 491				Req Number: 52		
Professor: Nadovich						
Requested By				Vendor: DIGKEY		
Name: Robson Adem				Web Site: <a href="http://digkey.com">digkey.com</a>		
Email: <a href="mailto:ademr@lafayette.edu">ademr@lafayette.edu</a>				Phone: 218-681-6674		
Phone: 4845919265				Ship By:		
Cart Link: <a href="https://www.digikey.com/short/pjtfzh">https://www.digikey.com/short/pjtfzh</a>						
Index	Quantity	Part Number	Description	Unit Price	Extended Price USD	RCVD
1	10	490-10731-1-ND	CAP CER 2.2UF 25V X5R 0603	0.122	1.22	
2	10	1276-1036-1-ND	CAP CER 1UF 6.3V X5R 0603	0.031	0.31	
3	10	490-8017-1-ND	CAP CER 0.22UF 25V X7R 0603	0.181	1.81	
4	10	490-10749-1-ND	CAP CER 22UF 25V X5R 0805	0.348	3.48	
5	2	S7080-ND	CONN HDR 24POS 0.1 TIN PCB	1.46	2.92	
6	5	H10714-ND	CONN HEADER VERT 2POS 7.92MM	0.8	4	
7	3	1212-1179-ND	CONN SOCKET 2POS 0.1 GOLD PCB	0.26	0.78	
8	1	PB623-ND	RELAY GEN PURPOSE DPDT 20A 24V	19.91	19.91	
9	3	495-1761-1-ND	FIXED IND 33UH 400MA 1.2 OHM SMD	0.91	2.73	
10	2	FDD9411L-F085OSCT-ND	NMOS DPAK 40V 7.1 MOHM	1.26	2.52	
11	10	P100DACT-ND	RES SMD 100 OHM 0.1% 1/8W 0805	0.302	3.02	
12	10	P4.02KDACT-ND	RES SMD 4.02K OHM 0.1% 1/8W 0805	0.302	3.02	
13	10	P374KDACT-ND	RES SMD 374K OHM 0.1% 1/8W 0805	0.302	3.02	
14	10	A129738CT-ND	CRGCQ 0805 120R 1%	0.051	0.51	
15	1	LT3990HMSE-5#PBF-ND	IC REG BUCK 5V 0.35A 16MSOP	7.6	7.6	
16	1	LTC6804HG-2#PBF-ND	IC MONITOR BATT STACK 48SSOP	23.77	23.77	
17	1	1470-4570-ND	DC DC CONVERTER 12V 3W	34	34	
18	3	501-1226-ND	CONN BANANA JACK THRD BLACK	2.9	8.7	
19	1	LT1763CS8-3.3#PBF-ND	IC REG LINEAR 3.3V 500MA 8SOIC	4.72	4.72	
20	2	WHE10KFETCT-ND	RES 10K OHM 5W 1% AXIAL	1.5	3	
				Shipping Fees	\$23.00	EST
				Grand Total:	\$154.04	
Instructor Approval:						
Department Approval:						

3/26/2019

ECE Department Material Request

<b>Course:</b> ECE 491	<b>Req Number:</b> 53
<b>Professor:</b> Nadovich	

<b>Requested By</b>	<b>Name</b> Robson Adem	<b>Vendor:</b> Mouser
	<b>Email</b> ademr@lafayette.edu	<b>Web Site:</b> <a href="https://www.mouser.com">https://www.mouser.com</a>
	<b>Phone</b> 4845919265	<b>Phone</b> (800) 346-6873
		<b>Ship By:</b>

Index	Quantity	Part Number	Description	Unit Price	Extended Price USD	RCVD
1	7	994-NA6252-ALD	Audio Transformers / Signal Transformers NA6252 12W 0.01Ohms For LT8585	\$3.77	\$26.39	
2	2	580-786013C	Pulse Transformers 200uH 1:1 Turns	\$1.57	\$3.14	

<b>Shipping Fees</b>	\$13.99
<b>Grand Total:</b>	\$43.52

Instructor Approval:

Department Approval:

**2018-19 PURCHASE REQUEST FORM**

<b>Class/Project Name:</b>	
<b>Account #:</b>	
<b>Approved by:</b>	

**Vendor Order Information**

<b>Date:</b> 3/26/19	<b>Web/email address:</b>	
<b>Vendor Name:</b> Various		
<b>Address:</b>		
<b>City:</b>	<b>State:</b>	<b>Zip Code:</b>
<b>Telephone:</b>	<b>Fax:</b>	

Line	Qty	Unit	Part #	Description	Web Link	Unit Price	Price
1	1	pkg (10 units)	93090a564	Press-Fit Threaded Standoffs 3/4" B-32	<a href="http://www.mcmaster.com">www.mcmaster.com</a>	\$13.14	\$13.14
2	1	pkg (10 units)	a18001900,000	M6-8 Captive Fasteners	<a href="http://www.branamfast.com">www.branamfast.com</a>	\$20.00	\$20.00
3	1	Sheet		ASTM A240 304-2B Stainless Steel Sheet	<a href="https://www.disco.com">https://www.disco.com</a>	\$133.13	\$133.13
4							\$0.00
5							\$0.00
6							\$0.00
7							\$0.00
8							\$0.00
9							\$0.00
10							\$0.00
11							\$0.00
12							\$0.00
13							\$0.00
14							\$0.00
15							\$0.00
16							\$0.00
17							\$0.00
18							\$0.00
19							\$0.00
20							\$0.00
						Shipping	
<b>Total</b>							\$166.27

Estimate

**Comments:**  
 Cost above is estimated. The 36"x50" stainless sheet is a custom product, does not have a part number and requires custom size input. Contact Nick Steels