

## Project Status Letter Week 13

Covering Period from 4/21/2019 to 4/28/2019

Prepared by Alex Kmetz and Katie Lee

### Weekly Team Goals

<b>Week</b>		<b>Complete</b>
<b>13</b>	<b>4/21/2019 - 4/28/2019</b>	
1	2D "Enclosures" Completed and Installed in Dyno Room	
2	PCBs Completed and QA Tested for Functionality	
3	All Safety Loop Functional in Dyno Room	
4	Subsystem ICDs Complete and Dyno Room Wiring Complete	
5	AMS Communicating Cell Voltages and Temperature of Single Cell	
6	TSI Throttle Controlling the Motor	
7	All Documentation Uploaded to Website	
8	ATR Complete and Submitted	
9	All Firmware Completed and QA Tested for Functionality	
10	Motor Spinning While Connected to Dyno Load	

<b>Week</b>		<b>Complete</b>
<b>14</b>	<b>4/28/2019 - 5/3/2019</b>	
1	2D "Enclosures" Completed and Installed in Dyno Room	
2	PCBs Completed and QA Tested for Functionality	
3	Subsystem ICDs Complete and Dyno Room Wiring Complete	
4	AMS Communicating Cell Voltages and Temperature of Single Cell	
5	TSI Throttle Controlling the Motor	
6	All Documentation Uploaded to Website	
7	ATR Complete and Submitted	
8	All Firmware Completed and QA Tested for Functionality	
9	Motor Spinning While Connected to Dyno Load	
10	Final Documentation Delivered to Professors and Department Head	

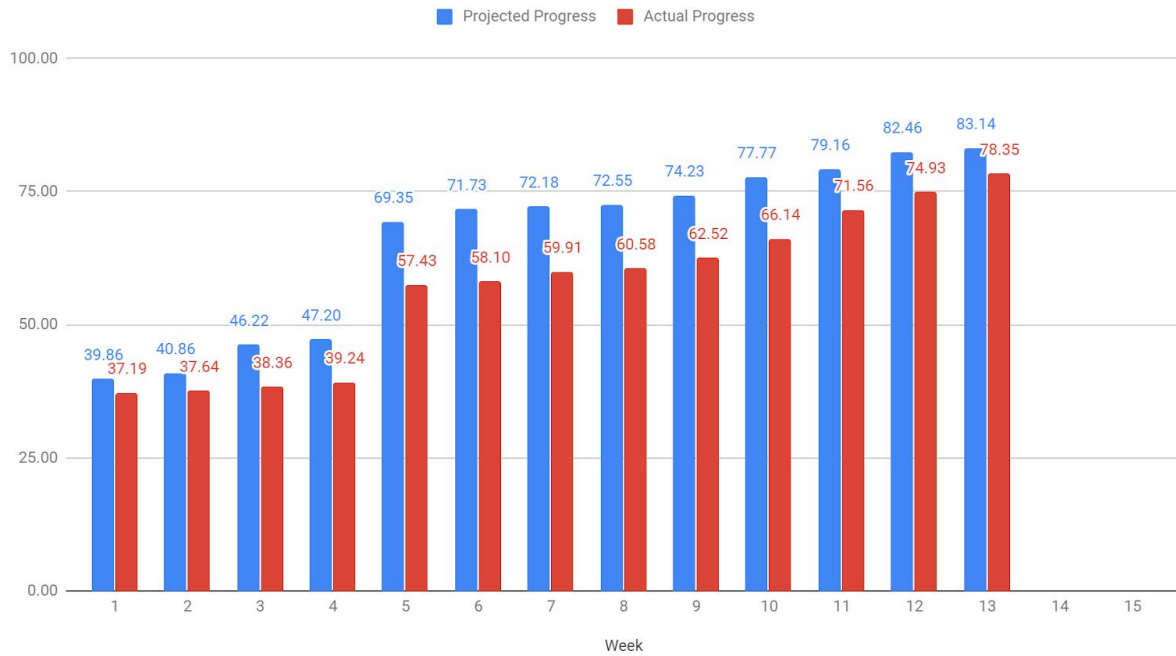
### DYNO and CAR Integration Action Tracking

Completion of Previous Semester Goals: 91%

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

Completing of Current Semester Goals: 78.35%

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	100.00%	100.00%	No	Motor Controller Purchased MCS / TSI / Cooling Fixture

Room				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	100.00%	100.00%	No	TSI Enclosure Fabricated
GLV Board Manufactured	100.00%	100.00%	Yes	
GLV Mounting Plate Manufactured	100.00%	100.00%	Yes	
Safety Loop Testing Panel Mounted in Dyno Room Rack	100.00%	100.00%	Yes	
Safety Loop Functional In Dyno Room	100.00%	100.00%	Yes	GLV Board Manufactured
GLV Enclosure Manufactured	100.00%	100.00%	No	
TSI Board Manufactured	100.00%	92.86%	No	
TSI Mounting Plate Manufactured	100.00%	100.00%	Yes	
TSI Throttle / Brake Control Panel Manufactured	100.00%	100.00%	Yes	TSI Board Manufactured TSI Mounting Plate Manufactured
TSI Enclosure Manufactured	100.00%	100.00%	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	53.85%	46.15%	No	
TSV SegMan Boards Fabricated	46.67%	40.00%	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%	25.00%		
SCADA Recording Data and Writing to a File	100.00%	100.00%	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	33.33%	33.33%	No	
SCADA Displaying Data to GLV Screen	100.00%	100.00%	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	<p><b>Sam:</b>            SCADA.2.2 - VSCADA Receiving Data from TSI Sensors</p> <p>SCADA.2.3 - VSCADA Sends Warning for Error Sensor Data (GLV)</p> <p>SCADA.3.1 - VSCADA and Cooling Connected via CAN</p> <p>SCADA.1.3 - VSCADA sends warning for Error Sensor Data (software)</p> <p>SCADA.3.3 - VSCADA Sends Warning for Error Sensor Data (TSI)</p> <p>SCADA.4.3 - VSCADA Sends Warning For Error Sensor Data (Cooling)</p>	<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 (TSV)</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 (TSV)</p>
TEST	<p><b>Alex:</b>            ATP Drafts 11 and 12</p> <p><b>Katie:</b>            Draft 12 of ATP</p>	none	none	none
GLV	<p><b>Max:</b>            GLV1.12 - PCB Testing Complete</p> <p>GLV.2.4 - Enclosure Installed and Wired in Dyno Room</p> <p>GLV.3.1 - Subsystem Testing Plan submitted and approved by system engineers</p>	<p><b>Max:</b>            GLV.4.6 - GLV and TSV Packs connected</p> <p>GLV.4.7 - GLV and Cooling Connected</p>	none	none

	<p>GLV.3.2 - Subsystem testing plan performed and debugged</p> <p>GLV.4.4 - GLV and VSCADA connected via CAN</p> <p>GLV.4.5 - GLV and TSI Connected</p> <p>GLV.4.8 - GLV and Safety Loop connected</p> <p>GLV.6.3 - Final Documentation delivered to Project Managers</p> <p>GLV.6.4 - Electrical Systems Form information delivered</p>			
TSI	<p><b>Tianyu:</b> TSI.2.8 - All components mounted in 2D enclosure</p> <p>TSI.5.8 - TSAL Installed in Dyno Room</p> <p>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 VSCADA connected via CAN</p> <p>TSI.7.7 - TSI and Pedal Throttle Fixture Connected</p> <p><b>Yuqiu:</b> TSI.7.3 -</p>	<p><b>Xiaonan:</b> TSI.1.8 - TSI PCB Tested</p> <p><b>Tianyu:</b> TSI.1.8 - TSI PCB Populated and Tested</p> <p>TSI.7.6 - TSI and Cooling Connected</p> <p>TSI.7.4 - TSI and TSV connected</p> <p><b>Yuqiu:</b> TSI.7.1 - TSI and MCS Connected</p> <p>TSI.7.4 - TSI and TSV Connected</p>	none	<p><b>Tianyu:</b> TSI.1.8 - TSI PCB Populated and Tested</p> <p><b>Xiaonan:</b> TSI.1.8 - TSI PCB Populated and Tested</p> <p><b>Yuqiu:</b> TSI.7.1 - TSI and MCS Connected</p> <p><b>Xiaonan:</b> TSI.1.8 - TSI PCB Populated and Tested</p>

	<p>TSI and GLV Connected</p> <p>TSI.7.5 - TSI and SCADA Connected</p>			
TSV	<p><b>Katie:</b> AIRs mounting plate manufactured and mounted in Dyno Room</p> <p>AIRs connected to TSV power supply</p>	<p><b>Alex:</b> High Voltage Indicator Circuit Layout Complete and 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.6.2 - A high-level block diagram of the battery packs (with wiring)</p> <p>TSV.1.9 - First CellMan PCB Debugged and Complete</p> <p>TSV.2.9 - First SegMan PCB Debugged and Complete</p> <p><b>Zian:</b> TSV.9.2 - Firmware Logic / State Machine Delivered and Approved</p>	none	<p><b>Alex:</b> High Voltage Indicator Circuit Layout Complete and Approved</p> <p><b>Yishak:</b> TSV.6.2 - A high-level block diagram of the battery packs (with wiring)</p> <p>TSV.1.9 - First CellMan PCB Debugged and Complete</p> <p>TSV.2.9 - First SegMan PCB Debugged and Complete</p>
Cooling	none	<p><b>Weston:</b> COOL.3.4 - Cooling and TSI Connected</p>	none	none



		COOL.3.5 - Cooling and GLV Connected		
		COOL.3.6 - Cooling and MCS Connected		
Interconnect	<p><b>Drew:</b> Strain Relief and Grounding of Motor Cables</p> <p>Motor Controller Cables</p> <p><b>Alex:</b> TSV Cables Completed and Installed</p> <p><b>Katie:</b> Connected Motor Cables to Motor</p>	<p><b>Drew:</b> Improve cable organization</p>	none	none
Mech	none	none	none	none
Management	none	<p><b>Alex:</b> M.1.6 - Sustainability Report</p> <p><b>Katie:</b> Project Video</p>	none	<p><b>Alex:</b> M.1.6 - Sustainability Report</p> <p><b>Katie:</b> Project Video</p>

Purchasing Summary from Previous Week:

<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	\$122.03	\$3,377.97	3.49%
Chassis/Body	\$5,000.00	\$10,500.85	<b>-\$5,500.85</b>	<b>210.02%</b>
Cooling	\$620.00	\$112.59	\$507.41	18.16%
Drivetrain	\$0.00	\$3,278.32	<b>-\$3,278.32</b>	
GLV	\$780.00	\$1,236.88	<b>-\$456.88</b>	<b>158.57%</b>
Interconnect	\$1,500.00	\$1,618.41	-\$118.41	<b>107.89%</b>
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	\$1,175.16	\$1,324.84	47.01%
Suspension	\$2,200.00	\$954.30	\$1,245.70	43.38%
TSI	\$1,500.00	\$2,897.07	<b>-\$1,397.07</b>	<b>193.14%</b>
TSV	\$4,187.00	\$3,620.03	\$566.97	86.46%
VSCADA / DYNO	\$525.00	\$457.66	\$67.34	87.17%
Shipping/Tax	\$4,246.80	\$1,529.08	\$2,717.72	36.01%
Registration	\$2,300.00	\$2,300.00	\$0.00	100.00%
<b>Overall</b>	<b>\$34,858.80</b>	<b>\$36,583.40</b>	<b>-\$1,724.60</b>	<b>104.95%</b>

**Purchases from Previous Weeks:**

4/23/2019						
ECE Department Material Request						
Course: ECE 491			Req Number: 61			
Professor: Nadovich						
Requested By			Vendor: DIGIKEY			
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: 2-DAY Shipping			
Cart Link: <a href="https://www.digkey.com/skore/pqjkm">https://www.digkey.com/skore/pqjkm</a>						
Index	Quantity	Part Number	Description	Unit Price	Extended Price USD	RCVD
1	10	WM1271-ND	CONN SOCKET 14-20AWG CRIMP 11N	0.082	0.82	
2	2	WM1244-ND	CONN PLUG 3POS .084	0.32	0.64	
3	2	1528-1871-ND	RASPBERRY PI PCF8523 RTC	5.95	11.9	
4	2	P033-ND	BATTERY LITHIUM 3V COIN 12.5MM	1	2	
5	25	RPC1902-ND	LOCK NUT 1.260" NYLON M25	0.4824	12.06	
6	10	MCP2551-ESN-ND	IC TRANSCEIVER CAN HI-SPD 8-SOIC	1.05	10.5	
7	2	Q904-ND	CIR BRKR THRM 15A 250VAC 32VDC	1.81	3.62	
8	4	Z2618-ND	RELAY GEN PURPOSE SPDT 16A 24V	2.17	8.68	
				Shipping Fees		
				Grand Total:	\$50.22	
Instructor Approval:						
Department Approval:						

4/26/2019						
ECE Department Material Request						
Course: ECE 491			Req Number: 62			
Professor: Nadovich						
Requested By			Vendor: Mouser			
Name: Robson Adem			Web Site: <a href="http://www.mouser.com">www.mouser.com</a>			
Email: <a href="mailto:ademr@lafayette.edu">ademr@lafayette.edu</a>			Phone: (800) 346-6873			
Phone: 4845919265			Ship By: 2-DAY Shipping			
Mouser #	Mfr. #	Description	Order Qty.	Price (USD)	Ext. (USD)	
1-584-6820HMS43ZZPB	LTC6820HMS43ZZPBF	Interface - Specialized isoSPI for Communications Int	3		\$6.70	\$20.10
				Shipping Fees	\$7.99	
				Grand Total:	\$28.09	
Instructor Approval:						
Department Approval:						

