

Project Status Letter Week 12
 Covering Period from 4/14/2019 to 4/21/2019
 Prepared by Alex Kmetz and Katie Lee

Weekly Team Goals

Week		Complete
12	4/15/2019 - 4/21/2019	
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	TSI and GLV Communicating with SCADA	
8	All Documentation Uploaded to Website	

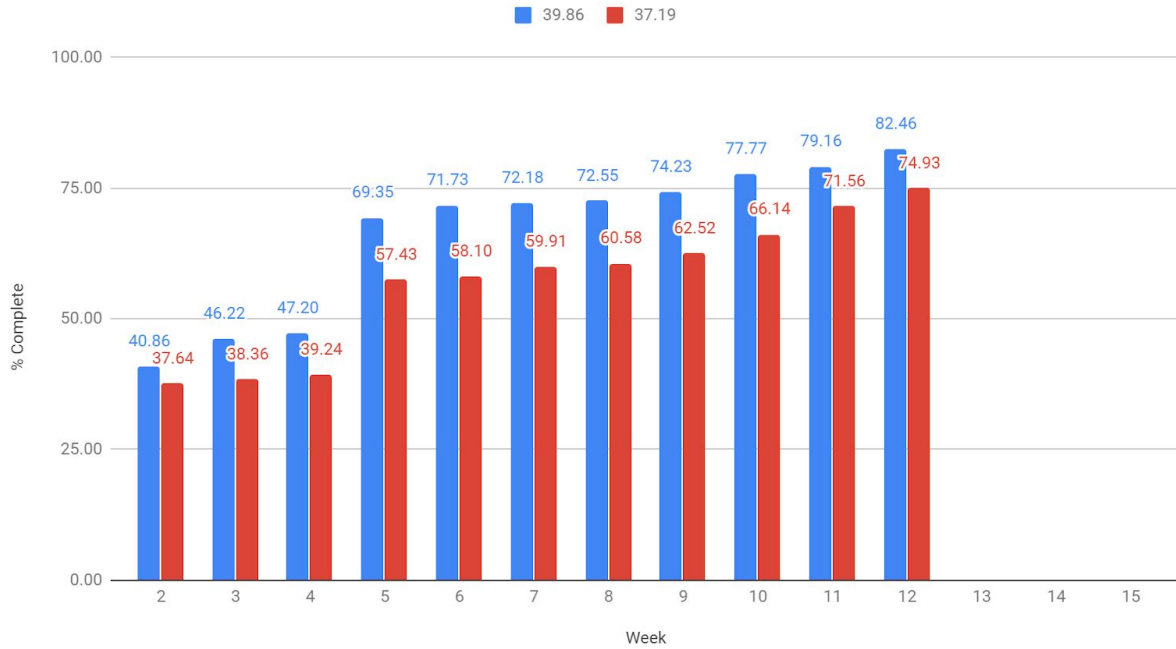
Week		Complete
13	4/21/2019 - 4/28/2019	
1	2D "Enclosures" Completed and Installed in Dyno Room	
2	PCBs Completed and QA Tested for Functionality	
3	All Safety Loop Functional in Dyno Room	
4	Subsystem ICDs Complete and Dyno Room Wiring Complete	
5	AMS Communicating Cell Voltages and Temperature of Single 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	

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: 74.93%

Projected Progress and Actual Progress



Task / Item	In Progress Projected (%)	In Progress Actual (%)	Complete	Dependencies
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	100.00%	87.50%	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%	66.67%	Yes	GLV Board Manufactured
GLV Enclosure Manufactured	100.00%	100.00%	No	
TSI Board Manufactured	92.86%	85.71%	No	
TSI Mounting Plate Manufactured	87.50%	87.50%	Yes	
TSI Throttle / Brake Control Panel Manufactured	88.89%	77.78%	Yes	TSI Board Manufactured TSI Mounting Plate Manufactured
TSI Enclosure Manufactured	100.00%	87.50%	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%	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%	50.00%	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	
Motor Purchased	100.00%	100.00%	Yes	
Motor Controller Purchased	100.00%	100.00%	Yes	

Project Item Completion Chart:

Team	Tasks Completed	Tasks Planned for Next Week	Proposed Changes	Overdue WBS Items
VSCADA	<p>Sam: SCADA.2.1 - VSCADA and TSI Connected via CAN</p> <p>SCADA.4.1 - VSCADA and TSV Connected via CAN</p>	<p>Sam: Automatic conditioning of states and statuses</p> <p>SCADA.2.2 - VSCADA receiving data from TSI Sensors</p> <p>SCADA.2.3 - VSCADA sends warning for error sensor data</p>	none	<p>Sam: 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>
TEST	none	<p>Katie: ATP Draft 10</p> <p>Dyno Room Testing Layout Designed and Approved</p>	none	none
GLV	none	<p>Max: GLV.3.1 - Subsystem Testing Plan Submitted and Approved by System Engineers</p> <p>GLV.1.12 - PCB Testing Verified</p>	none	<p>Max: GLV.3.1 - Subsystem Testing Plan Submitted and Approved by System Engineers</p> <p>GLV.1.12 - PCB Testing Verified</p>
TSI	<p>Tianyu: TSI.2.3 - 2D Enclosure Assembled</p> <p>TSI.2.7 - High Voltage Mounting Plate Installed</p> <p>Yuqiu: TSI.7.3 - TSI and GLV Connected</p>	<p>Xiaonan: TSI.1.8 - TSI PCB Populated and Tested</p> <p>Tianyu: TSI.1.8 - TSI PCB Populated and Tested</p> <p>Yuqiu: TSI.7.1 -</p>	none	<p>Tianyu: TSI.1.8 - TSI PCB Populated and Tested</p> <p>Xiaonan: TSI.1.8 - TSI PCB Populated and Tested</p> <p>Yuqiu: TSI.7.1 -</p>

	<p>TSI.7.5 - TSI and SCADA Connected</p> <p>Xiaonan: TSI.7.3 - TSI and GLV Connected</p> <p>TSI.7.5 - TSI and SCADA Connected</p> <p>TSI.1.13 - PCB Installed on Mount in Rack in Dyno Room</p>	<p>TSI and MCS Connected</p> <p>TSI.7.4 - TSI and TSV Connected</p>		<p>TSI and MCS Connected</p> <p>Xiaonan: TSI.1.8 - TSI PCB Populated and Tested</p>
TSV	<p>Zian: TSV.9.3 - Firmware I/O Functionality Delivered</p> <p>TSV.9.4 - TSV and VSCADA connected via CAN</p>	<p>Alex: High Voltage Indicator Circuit Layout Complete and Approved</p> <p>Robson: TSV.8.9 - Implement State of Charge Algorithm</p> <p>TSV.8.10 - Incorporate Cell Characterization with SoC Algorithm</p> <p>Yishak: 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>Zian: TSV.9.2 - Firmware Logic / State Machine Delivered and Approved</p>	none	<p>Alex: High Voltage Indicator Circuit Layout Complete and Approved</p> <p>Yishak: 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	<p>Antonio: Cooling ICD</p> <p>Cooling Wiring Diagram</p> <p>Weston: COOL.3.1 - Cooling Interconnect Diagram (ICD) Delivered</p> <p>COOL.3.2 - Cooling Internal Wiring Diagram Delivered and Accepted</p> <p>COOL.3.3 - Cooling External Wiring Diagram Delivered and Accepted</p> <p>COOL.4.3 - BOM Delivered to Robson</p> <p>COOL.4.4 - Final Documentation Delivered to Project Managers</p>	<p>Weston: COOL.3.4 - Cooling and TSI Connected</p> <p>COOL.3.5 - Cooling and GLV Connected</p> <p>COOL.3.6 - Cooling and MCS Connected</p>	none	none
Interconnect	<p>Drew: TSV Strain Relief and Grounding</p> <p>Remake / Produce longer Dyno Room cables</p>	<p>Drew: Strain Relief and Grounding for Motor Cables</p>	none	none
Mech	none	none	none	none
Management	none	<p>Alex: M.1.6 - Sustainability Report</p>	none	<p>Alex: M.1.6 - Sustainability Report</p>

Purchasing Summary from Previous Week:

Sub-system	Previously Allocated Budget	Total Spent	Budget Remaining	Percentage Spent
Brakes	\$3,500.00	\$122.03	\$3,377.97	3.49%
Chassis/Body	\$5,000.00	\$10,500.85	-\$5,500.85	210.02%
Cooling	\$620.00	\$112.59	\$507.41	18.16%
Drivetrain	\$0.00	\$3,278.32	-\$3,278.32	
GLV	\$780.00	\$1,224.58	-\$444.58	157.00%
Interconnect	\$1,500.00	\$1,606.35	-\$106.35	107.09%
Motor/MCS	\$4,000.00	\$6,781.02	-\$2,781.02	169.53%
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	\$2,895.61	-\$1,395.61	193.04%
TSV	\$4,187.00	\$3,589.25	\$597.75	85.72%
VSCADA / DYNO	\$525.00	\$443.76	\$81.24	84.53%
Shipping/Tax	\$4,246.80	\$1,521.09	\$2,725.71	35.82%
Registration	\$2,300.00	\$2,300.00	\$0.00	100.00%
Overall	\$34,858.80	\$36,504.91	-\$1,646.11	104.72%

Purchases from Previous Weeks:

4/9/2019						
ECE Department Material Request						
Course: ECE 491 Professor: Nadovich				Req Number: 57		
Requested By				Vendor: DIGKEY		
Name: Robson Adem				Web Site: digkey.com		
Email: ademr@lafayette.edu				Phone: 218-681-6674		
Phone: 4845919265				Ship By: 2-DAY Shipping		
Cart Link: https://www.digikey.com/short/pj15zj						
Index	Quantity	Part Number	Description	Unit Price	Extended Pr	RCVD
1	10	277-12277-ND	CABLE GLAND 11-16MM M25 BRASS	10.568	105.68	
2	1	KAL25FB25R0-ND	RES CHAS MNT 25 OHM 1% 25W	3.08	3.08	
3	100	WM2501CT-ND	CONN SOCKET 18-24AWG CRIMP TIN	0.0555	5.55	
4	100	H2788CT-ND	CONN SOCKET 14-16AWG CRIMP TIN	0.1725	17.25	
5	10	1772-1205-ND	HEX STANDOFF #8-32 ALUMINUM 5/8"	0.53	5.3	
6	10	732-10575-ND	HEX SPACER M6 STEEL 15MM	0.96	9.6	
7	4	516-4082-ND	Current Sensor 30A Channel Hall Effect Bidirectional 8-SOIC (0.154", 3.90mm Width)	3.78	15.12	
					Shipping Fees	\$18.99
					Grand Total:	\$180.57
Instructor Approval:						
Department Approval:						

4/9/2019						
ECE Department Material Request						
Course: ECE 491 Professor: Nadovich				Req Number: 58		
Requested By				Vendor: EV WEST		
Name: Robson Adem				Web Site: www.evwest.com		
Email: ademr@lafayette.edu				Phone: (888) 591-5830		
Phone: 4845919265				Ship By: 2-DAY Shipping		
Cart Link: https://bit.ly/2VtIJRn						
Index	Quantity	Part Number	Description	Unit Price	Extended Price USD	RCVD
1	10	EXRAD XLE	2/0 AWG Champlain EXRAD XLE 1000V Shielded Cable - Orange	12.49	124.9	
					Shipping Fees	\$24.20
					Grand Total:	\$149.10
Instructor Approval:						
Department Approval:						

4/9/2019

ECE Department Material Request

Course: ECE 491		Req Number: 60
Professor: Nadovich		
Requested By	Name: Robson Adem	Vendor: Amazon
	Email: ademr@lafayette.edu	Web Site: amazon.com
	Phone: 4845919265	Phone:
		Ship By: 2-DAY Shipping

#	Quantity	Vendor Part	Description	Unit Price	Total Price	Revd
1	1	https://amzn.to/2VwT7i0	Wood Grain Peel and Stick Film for Cabinets Shelves Drawers Self-Adhesive Panel for Kitchen Removable Faux Maple Wood Textured Decal Peel and Stick Wallpaper Vinyl Decorative Roll 17.8"x6.6'	\$7.99	\$7.99	
2	2	https://amzn.to/2KjQYOD	Koolance QD3-MS13-P QD3 Male Quick Disconnect No-Spill Coupling, Panel Barb for ID 13mm (1/2in)	\$14.99	\$29.98	
3	2	https://amzn.to/2i8MVTv	Koolance QD3-FS13-P QD3 Female Quick Disconnect No-Spill Coupling, Panel Barb for ID 13mm (1/2in)	\$16.99	\$33.98	
4	1	https://amzn.to/2Z1XUn9	1/2" ID x 10 Ft High Pressure Braided Clear Flexible PVC Vinyl Tubing Heavy Duty Reinforced Vinyl Hose Tubing, BPA Free and Non Toxic	\$10.99	\$10.99	

Shipping Fees	\$19.68
Grand Total:	\$102.62

Instructor Approval: _____

Department Approval: _____
(Over \$500)

4/16/2019

ECE Department Material Request

Course: ECE 491		Req Number: 5
Professor: Nadovich		
Requested By	Name: Robson Adem	Vendor: Crystalfontz
	Email: ademr@lafayette.edu	Web Site: www.crystalfontz.com
	Phone: 4845919265	Phone: 888.206.9720
		Ship By:

Cart Link: <https://bit.ly/2DeD6Q4>

Index	Quantity	Part Number	Description	Unit Price	Extended Price USD	RCVD
1	1	CFA533-TMI-KC	I2C LCD With Keypad - White On Blue	55.42	55.42	

Shipping Fees	\$44.80
Grand Total:	\$100.22

Instructor Approval: _____

Department Approval: _____

04/11/2019						
Course:	ECE 491					
Professor:	Nadovich					
Requested By:			Vendor: www.digikey.com			
Name	Yishak Desta		Web Site: www.digikey.com			
Email	destay@lafayette.edu		Phone: 218-681-6674			
Phone	703-479-9637		Ship By: Economy (2nd Day Air)			
#	Quantity	Vendor Part	Description	Unit Price	Total Price	RCVd
1	2	S7080-ND	CONN HDR 24POS 0.1 TIN PCB	\$1.46	2.92	
2	1	PB623-ND	RELAY GEN PURPOSE DPDT 20A 24V	\$19.91	19.91	
3	4	FDD9411L-F085OSCT-ND	NMOS DPAK 40V 7.1 MOHM	\$1.26	5.04	
4	4	LT3990HMSE-5#PBF-ND	IC REG BUCK 5V 0.35A 16MSOP	\$7.60	30.4	
5	4	LTC6804HG-2#PBF-ND	IC MONITOR BATT STACK 48SSOP	\$23.77	95.08	
6	2	Q504-ND	CIR BRKR THRM 15A 250VAC 32VDC	\$2.04	4.08	
				Shipping Fees:	\$18.99	
				Grand Total:	\$176.42	
Instructor Approval:						
Department Approval:						