

Project Status Letter Week 10
 Covering Period from 3/31/2019 to 4/7/2019
 Prepared by Alex Kmetz and Katie Lee

Weekly Team Goals

Week 10	3/31/2019 - 4/7/2019	Complete
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	

Week 11	4/7/2019 - 4/14/2019	Complete
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	

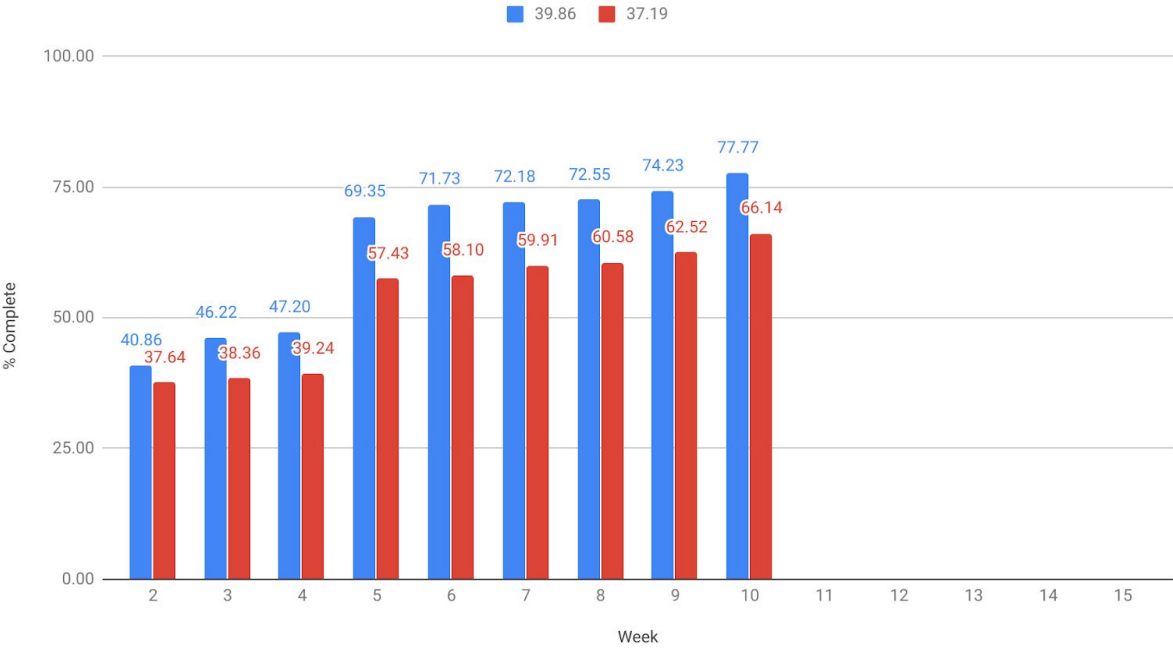
DYNO and CAR Integration Action Tracking

Completion of Previous Semester Goals: 91%

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

Completing of Current Semester Goals: 66.14%

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	87.50%	62.50%	No	TSI Enclosure Fabricated
GLV Board Manufactured	100.00%	78.57%	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	100.00%	66.67%	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	87.50%	62.50%	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%	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	<p>Sam: Run tests to ensure SCADA changes are crash-proof</p>	<p>Sam: Post-processing Automatic conditioning</p>	none	<p>Sam: SCADA.5.1 - VSCADA and MCS connected via CAN SCADA.5.2 - VSCADA receiving data from MCS Sensors SCADA.5.3 - VSCADA sends warning for error sensor data Zian: SCADA.2.1 - VSCADA and TSI Connected via CAN SCADA.2.2 - Receiving Data from TSI Sensors</p>
TEST	<p>Katie: ATP Draft 6 M.2.3 - ATP Submitted for Review Alex: M.2.3 - ATP Submitted for Review</p>	<p>Katie: ATP Draft 7 Dyno Room Testing Layout Designed and Approved</p>	none	none
GLV	<p>Max: GLV.1.11 - PCB Respun and Populated GLV.2.1 - Enclosure Designed, Approved, and Submitted to machine shop GLV.2.2 - Enclosure Parts Acquired</p>	<p>Max: GLV.3.1 - Subsystem Testing Plan Submitted and Approved by System Engineers GLV.1.12 - PCB Testing Verified GLV.1.13 - PCB Installed on Mount in Rack in Dyno Room</p>	none	<p>Max: GLV.2.3 - Enclosure Assembled GLV.3.1 - Subsystem Testing Plan Submitted and Approved by System Engineers GLV.1.12 - PCB Testing Verified GLV.1.13 -</p>

		<p>GLV.1.14 - PCB Installed in Enclosure</p> <p>GLV.2.3 - Enclosure Assembled</p>		<p>PCB Installed on Mount in Rack in Dyno Room</p> <p>GLV.1.14 - PCB Installed in Enclosure</p>
TSI	<p>Tianyu: TSI.2.3 - 2D Enclosure Assembled</p> <p>TSI.2.4 - High Voltage Mounting Plate Approved and Submitted to Machine Shop</p> <p>TSI.2.5 - High Voltage Mounting Plate Acquired</p> <p>TSI.5.6 - Precharge Relay Installed in Enclosure</p> <p>TSI.5.11 - TSV Aluminum Bars Submitted to Shop</p> <p>TSV.5.12 - TSV Aluminum Bars Fabricated and Acquired</p> <p>Yuqiu: TSI.7.2 - TSI and Test Panel 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>TSI.2.6 - High Voltage Mounting Plate Populated and Wired</p> <p>TSI.2.7 - High Voltage Mounting Plate Installed</p> <p>Yuqiu: TSI.7.1 - TSI and MCS Connected</p> <p>TSI.7.3 - TSI and GLV Connected</p> <p>TSI.7.5 - TSI and SCADA Connected</p>	none	<p>Tianyu: Xiaonan: TSI.1.8 - TSI PCB Populated and Tested</p> <p>Yuqiu: 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> <p>Xiaonan: TSI.1.8 - TSI PCB Populated and Tested</p>
TSV	<p>Yishak: TSV.1.8 - First CellMan Populated</p> <p>TSV.2.8 - First SegMan Populated</p> <p>Weston: Mounting for testing box</p> <p>Antonio:</p>	<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>	none	<p>Alex: High Voltage Indicator Circuit Layout Complete and Approved</p>

	Mounting for testing box	<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> <p>TSV.9.3 - Firmware I/O Functionality Delivered</p> <p>TSV.9.4 - TSV and VSCADA connected via CAN</p>		
Cooling	none	<p>Weston: COOL.1.1 - Cooling Enclosure</p>	none	<p>Weston: COOL.1.1 - Cooling Enclosure</p>
Interconnect	none	<p>Drew: INT.1.20 - Cockpit Panel Components Integrated and 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> <p>TSV Strain Relief and Grounding</p>	none	<p>Drew: INT.2.2 - Full wiring purchase order submitted</p>
Mech	none	none	none	none

Management	Katie: Took Class of 2020 team for test drive Charged Batteries	Alex: M.1.6 - Sustainability Report	none	Alex: M.1.6 - Sustainability Report
------------	---	--	------	--

Purchasing Summary from Previous Week:

★ In the past PSLs, Chassis/Body subsystem included what we have spent plus what we have committed to spending. From this PSL on, Chassis/Body includes only the materials that were bought. In addition, we have added a miscellaneous section to account for the mechanical parts purchased with no clear information as to which subsystem they belong.

Sub-system	Previously Allocated Budget	Total Spent	Budget Remaining	Percentage Spent
Brakes	\$3,500.00	\$0.00	\$3,500.00	0.00%
Chassis/Body	\$5,000.00	\$9,320.00	-\$4,320.00	186.40%
Cooling	\$620.00	\$37.64	\$582.36	6.07%
Drivetrain	\$0.00	\$2,175.00	-\$2,175.00	
GLV	\$780.00	\$1,224.58	-\$444.58	157.00%
Interconnect	\$1,500.00	\$1,367.78	\$132.22	91.19%
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	\$1,021.34	\$1,478.66	40.85%
Suspension	\$2,200.00	\$819.00	\$1,381.00	37.23%
TSI	\$1,500.00	\$2,877.63	-\$1,377.63	191.84%
TSV	\$4,187.00	\$2,636.07	\$1,550.93	62.96%
VSCADA / DYNO	\$525.00	\$312.75	\$212.25	59.57%
Shipping/Tax	\$4,246.80	\$1,394.43	\$2,852.37	32.83%
Miscellaneous		\$3,400.07	-\$3,400.07	
Registration	\$2,300.00	\$2,300.00	\$0.00	100.00%
Overall	\$34,858.80	\$35,667.31	-\$808.51	102.32%

Purchases from Previous Weeks:

4/2/2019						
ECE Department Material Request						
Course: ECE 491 Professor: Nadovich				Req Number: 55		
Requested By Name: Robson Adem Email: ademr@lafayette.edu Phone: 4845919265				Vendor: McMaster-Carr Web Site: https://www.mcmaster.com/ Phone: (609) 689-3000 Ship By:		
Index	Quantity	Part Number	Description	Unit Price	Extended Price USD	RCVD
1	1	91772A192	Passivated 18-8 Stainless Steel Pan Head Phillips Screw 8-32 Thread, 3/8" Long (Pack of 100)	\$6.88	6.88	
2	1	93505A436	Male-Female Threaded Hex Standoff Aluminum, 1/4" Hex Size, 1" Long, 4-40 Thread Size	\$0.61	0.61	
3	1	92510A688	Aluminum Unthreaded Spacer 3/16" OD, 1/8" Long, for Number 4 Screw Size	\$0.33	0.33	
4		91772A106	Passivated 18-8 Stainless Steel Pan Head Phillips Screw 4-40 Thread, 1/4" Long	\$3.39		
5	1	93505A103	Male-Female Threaded Hex Standoff Aluminum, 3/16" Hex Size, 1/2" Long, 4-40 Thread Size	\$0.04	0.044	
6	1	91772A192	Passivated 18-8 Stainless Steel Pan Head Phillips Screw 8-32 Thread, 3/8" Long (Pack of 100)	\$6.88	6.88	
7	1	95185A155	8-32 Thread Size, for 0.03" Minimum Panel Thickness (Pack of 50)	\$10.59	10.59	
8	1	90272A108	Steel Pan Head Phillips Screws 4-40 Thread, 3/8" Long (Pack of 100)	\$1.65	1.65	
9	1	95185A110	4-40 Thread Size, for 0.03" Minimum Panel Thickness (Pack of 50)	\$10.29	10.29	
10	1	92985A110	Splined Press-Fit Threaded Standoffs with Open End (Pack of 25)	12.78	12.78	
11	1	9910T66	Garolite 6" x 6" x 3/8" Sheet	29.4	29.4	
12	1	92395A513	Brass Screw-to-Expand Inserts for plastic 10-24 Thread Size	8.6	8.6	
				Shipping Fees	\$6.41	
				Grand Total:	\$94.46	
Instructor Approval: _____						
Department Approval: _____						

4/2/2019

ECE Department Material Request

Course: ECE 491	Req Number: 56
Professor: Nadovich	

Requested By	Vendor: DIGKEY
Name: Robson Adem	Web Site: digkey.com
Email: ademr@lafayette.edu	Phone: 218-681-6674
Phone: 4845919265	Ship By:

Cart Link: <https://www.digikey.com/short/pjb4nj>

Index	Quantity	Part Number	Description	Unit Price	Extended Price	U\$	RCVD
1	4	296-44371-1-ND	IC VREF SHUNT ADJ SOT23-3	0.61	2.44		
2	2	Z714-ND	RELAY GEN PURPOSE SPST 8A 24V	7.95	15.9		
3	3	WM16846-ND	CONN HEADER VERT 10POS 5.7MM	6.09	18.27		
4	3	WM10389-ND	MEGA-FIT RECEP 10 CKT V-0	1.4	4.2		
5	2	Q503-ND	CIR BRKR THRM 10A 250VAC 32VDC	2.23	4.46		
6	2	Q504-ND	CIR BRKR THRM 15A 250VAC 32VDC	2.04	4.08		
7	2	SAM11925-ND	CONN RCPT 40POS 0.1 GOLD PCB	6.85	13.7		
8	2	F1497-ND	FUSE BLOCK CART 600V 30A CHASSIS	1.19	2.38		
9	2	F1778-ND	FUSE CERM 25A 250VAC 125VDC 3AB	1.72	3.44		
10	10	2110-200500000070-ND	TERM TURRET SINGLE L=5.84MM	0.765	7.65		
11	3	H2784-ND	CONN SOCKET 2POS 7.92MM WHITE	0.28	0.84		
12	4	1212-1382-1-ND	CONN HEADER SMD R/A 2POS 2.54MM	1.28	5.12		
13	1	S2031E-12-ND	CONN HEADER VERT 24POS 2.54MM	2.52	2.52		
14	7	WM3701-ND	CONN RECEP 4POS DUAL	0.31	2.17		
15	50	WM2501CT-ND	CONN SOCKET 18-24AWG CRIMP TIN	0.0574	2.87		
16	25	H2788CT-ND	CONN SOCKET 14-16AWG CRIMP TIN	0.2112	5.28		

Shipping Fees	\$8.99
Grand Total:	\$104.31

Instructor Approval: _____

Department Approval: _____

Vendor	Amount	Issued	Description
Summit Racing - Inv. #: 8239665-2	-\$23.41	09/05/18	Part #: HLA-706729011 - Battery cutoff switch keys (3)
MSC - Inv. #: 33128120	-\$46.20	11/09/18	5.74mm 4 flute single end solid carbide spiral flute corner radius end mill - 6mm LOC, 6mm Shank diam., 2" OAL, 60 Helix, right hand cut, right hand flute, centercutting, extended reach.
Drivetrain McMaster - Inv. #: 81566088	-\$40.07	12/12/18	Ball bearing, shielded, Trade No. 6211-2Z, for 55mm shaft diam.
General Plastics - Receipt ID: 1D690847923526037	-\$35.00	12/17/18	Sample Kit
Drivetrain Amazon - Ord. #: 3551430	-\$111.55	02/11/19	Standard external retaining ring, tapered section, axial assembly, SAE 1060-1090 carbon steel, phosphate and oil finish; radial bearing, single row.
Amazon - Ord. #: 5397851	-\$37.92	02/13/19	HK2820 Needle Bearing 28x35x20 TLA2820Z (qty. 2)
Drivetrain CNC Speciality Store - Ord. #: 6403	-\$50.33	02/11/19	6 x Mobil grease XHP 222 cartridge (13.7 oz)
McMaster - Inv. #: 86267864	-\$364.23	02/11/19	5 line items: 6061 aluminum, 1/4" Thick, 8"x8", etc.
McMaster - Inv. #: 87160221	-\$17.12	02/20/19	Low-carbon steel sheet, 12"x12"x0.0600"
Norelem Normelemente KG - Inv. #: 3010382358	-\$62.90	02/25/19	(2) Rotary shaft lip seal's - radial 28 x 40 B=7. Form: A nitrile rubber
McMaster - Inv. #: 87552443	-\$199.54	02/25/19	Garolite sheet, 24" x 24" x 1/8"; (1) HDPE sheet, 12" x 24" x 2"
BSCI Ord. #: ??	-\$106.00	02/26/19	Impaxx™ Foam - 700 series 4" x 24" x 20"
McMaster - Inv. #: 87811015	-\$132.09	02/27/10	(1) HDPE sheet, 12" x 24" x 2"
McMaster - Inv. #: 88596402	-\$122.03	03/07/19	4140 alloy steel tube, 5/8" wall thickness, 4" OD, 1' long
MSC - Inv. #: 70357210	-\$135.30	03/12/19	1/2 x 1/2 HSS CTD SE drill mill; 1/4 x 3/8 HSS TD SE drill mill.
Zoro.com - Rec. #: 6794782	-\$111.85	03/13/19	Brushes, auto body paint, primer, clear, gloss; automotive filler, primer, gray; Alkyd enamel paint.
McMaster - Inv. #: 89150552	-\$110.69	03/13/19	2 line items: Low-carbon steel bar, 1/4" thick, 10" W, 2'L; masking tape.
Nivert Metal - Inv. #: 1083047	-\$531.22	03/14/19	2 line items: .063" 3003-H14 48;
Summit Racing - Inv. #: 9908066	-\$268.97	03/13/19	Two (2) THE-14620 - Heat contrl mat 60x36; (1) GFR-7101BK - 6 point camlock black.
RS Hughes - Inv. #: A9997554-1	-\$172.50	03/21/19	(10) Loctite mix nozzles 6.3MM; (10) Loctite 9460 50ML Hysol epoxy.
McMaster - Inv. #: 89923535	-\$131.01	03/21/19	Side-mount hold-down toggle clamp, 200 lbs holding capacity, 3/16" max clamping clearance; low-carbon steel bar, 1/2" thick, 1/2" wide, 6' L.
McMaster - Inv. #: 90978174	-\$11.76	04/02/19	Zinc-plated steel grease fitting, straight, 3/8"-24 UNF male, pks/10.
McMaster - Inv. #: 90978176	-\$60.95	04/02/19	3 line items: side-mount external retaining rings for 63/64", 1" OD, black-phosphate 1060-1090 spring steel pks/25; Tube-end weld nut for 3/4" tube OD, 5/16"-24thread size; Tube-end weld nut, LH thread, for 3/4" tube D, 5/16"-24"thead size.
RCV Performance Products - Ord. #: 000001591	-\$487.46	04/02/19	(4) RCV FSAE Rear wheel hub housing boot; (4) RCV FSAE lightened tri-pod for tripod housings.
Summit Racing - Inv. #: 2292023	-\$29.97	04/03/19	Two (2) RNB-610-259 - Wheel studs 10pcs.