

Project Status Letter Week 11  
 Covering Period from 4/7/2019 to 4/14/2019  
 Prepared by Alex Kmetz and Katie Lee

**Weekly Team Goals**

<b>Week</b>		<b>Complete</b>
<b>11</b>	<b>4/7/2019 - 4/14/2019</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	

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

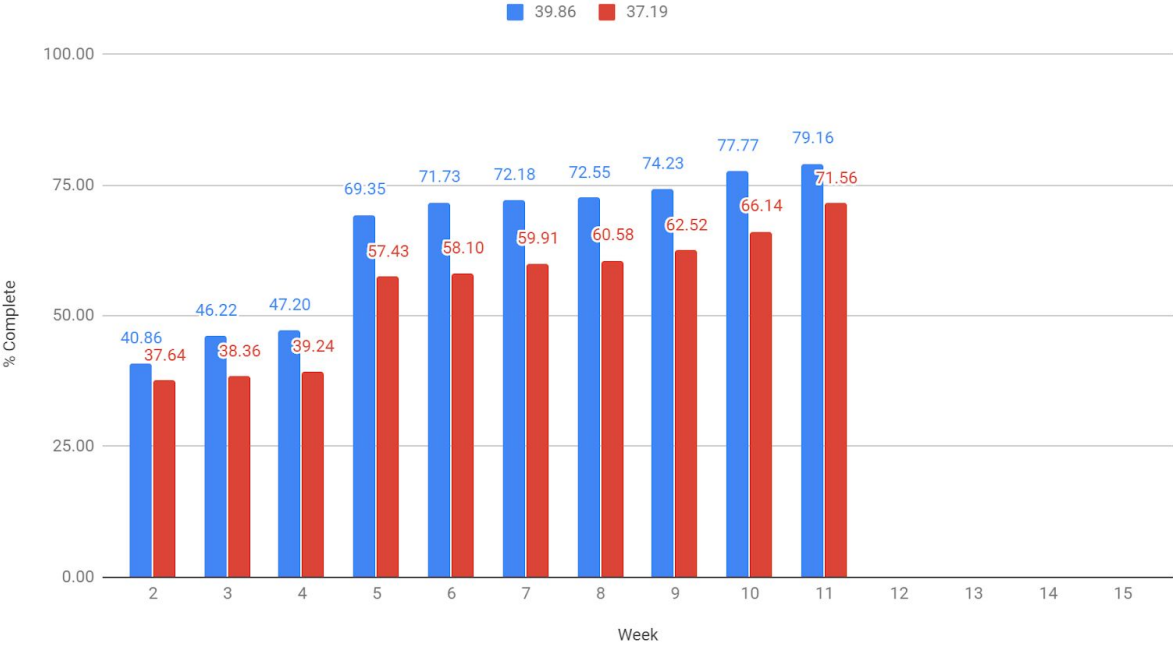
**DYNO and CAR Integration Action Tracking**

Completion of Previous Semester Goals: 91%

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

Completing of Current Semester Goals: 71.56%

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	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	87.51%	78.57%	No	
TSI Mounting Plate Manufactured	100.00%	87.50%	Yes	
TSI Throttle / Brake Control Panel Manufactured	66.67%	66.67%	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%	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><b>Sam:</b> Post-Processing and automatic conditions applied to sensor thresholds</p>	<p><b>Sam:</b> Automatic conditioning of states and statuses</p> <p>SCADA.2.1 - VSCADA and TSI Connected via CAN</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><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> ATP Draft 7</p> <p>Dyno Room Testing Layout Designed and Approved</p>	none	none
GLV	<p><b>Max:</b> GLV.1.13 - PCB Installed on Mount in Rack in Dyno Room</p> <p>GLV.1.14 - PCB Installed in Enclosure</p> <p>GLV.2.3 - Enclosure Assembled</p>	<p><b>Max:</b> GLV.3.1 - Subsystem Testing Plan Submitted and Approved by System Engineers</p> <p>GLV.1.12 - PCB Testing Verified</p>	none	<p><b>Max:</b> GLV.3.1 - Subsystem Testing Plan Submitted and Approved by System Engineers</p> <p>GLV.1.12 - PCB Testing Verified</p>
TSI	<p><b>Tianyu:</b> TSI.2.6 - High Voltage Mounting Plate Populated and Verified</p>	<p><b>Xiaonan:</b> TSI.1.8 - TSI PCB Populated and Tested</p>	none	<p><b>Tianyu:</b> TSI.1.8 - TSI PCB Populated and Tested</p>

	<p>TSI.5.4 - IMD Installed in Enclosure</p> <p><b>Yuqiu:</b> TSI.7.2 - TSI and Test Panel Connected</p>	<p><b>Tianyu:</b> TSI.1.8 - TSI PCB Populated and Tested</p> <p>TSI.2.7 - High Voltage Mounting Plate Installed</p> <p><b>Yuqiu:</b> 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>		<p>TSI.2.7 - High Voltage Mounting Plate Installed in Dyno Room</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>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><b>Xiaonan:</b> TSI.1.8 - TSI PCB Populated and Tested</p>
TSV	none	<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</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</p>

		<p>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> <p>TSV.9.3 - Firmware I/O Functionality Delivered</p> <p>TSV.9.4 - TSV and VSCADA connected via CAN</p>		Complete
Cooling	none	<b>Weston:</b> Re-Mounting cooling system in Dyno Room	none	none
Interconnect	<p><b>Drew:</b> 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><b>Drew:</b> TSV Strain Relief and Grounding</p> <p>Remake / Produce longer Dyno Room cables</p>	none	<p><b>Drew:</b> INT.2.2 - Full wiring purchase order submitted</p> <p>TSV Strain Relief and Grounding</p>
Mech	none	none	none	none
Management	none	<b>Alex:</b> M.1.6 - Sustainability Report	none	<b>Alex:</b> M.1.6 - Sustainability Report

**Purchasing Summary from Previous Week:**

★ Miscellaneous section accounts for the mechanical parts purchased with no clear information as to which subsystem they belong.

<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	\$9,320.00	-\$4,320.00	186.40%
Cooling	\$620.00	\$112.59	\$507.41	18.16%
Drivetrain	\$0.00	\$2,175.00	-\$2,175.00	
GLV	\$780.00	\$1,224.58	-\$444.58	157.00%
Interconnect	\$1,500.00	\$1,500.67	-\$0.67	100.04%
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	\$3,001.29	-\$1,501.29	200.09%
TSV	\$4,187.00	\$2,831.42	\$1,355.58	67.62%
VSCADA / DYNO	\$525.00	\$312.75	\$212.25	59.57%
Shipping/Tax	\$4,246.80	\$1,411.42	\$2,835.38	33.23%
Miscellaneous		\$3,528.74	-\$3,528.74	
Registration	\$2,300.00	\$2,300.00	\$0.00	100.00%
<b>Overall</b>	<b>\$34,858.80</b>	<b>\$36,339.82</b>	<b>-\$1,481.02</b>	<b>104.25%</b>



## Purchases from Previous Weeks:

Vendor	Amount	Issued	Description	Subsystem	
Summit Racing - Inv. #: 8239665-2	-\$23.41	09/05/18	Part #: HLA-706729011 - Battery cutoff switch keys (3)		\$3,528.74
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,		
McMaster - Inv. #: 81566088	-\$40.07	12/12/18	60 Helix, right hand cut, right hand flute, centercutting, extended reach.		
General Plastics - Receipt ID: 1D690847923526037	-\$35.00	12/17/18	Ball bearing, shielded, Trade No. 6211-2Z, for 55mm shaft diam.		
			Sample Kit		
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)		
CNC Specialty 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, 2L; 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"thread 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.		
McMaster - Inv. #: 91742547	-\$30.73	04/10/19	3 line items: 316 SS hex drive flat head screw, 82 degree countersink angle, 1/4"-20 thread size, 1/2" L, pks/10, etc.		
McMaster - Inv. #: 91875220	-\$61.76	04/11/19	3 line items: HDPE Bar, 3" W x 1/2" thick x 4' L; steel piano hinge w/o holes, 2" W; 1" L x 0.338" diam., knuckle 1L; HDPE Bar 3" W x 1/2" thick x 4' L.		
McMaster - Inv. #: 917873361	-\$36.18	04/11/19	HDPE Bar, 3" W x 1/2" thick x 4' L.		

4/9/2019

ECE Department Material Request

<b>Course:</b> ECE 491	<b>Req Number:</b> 57
<b>Professor:</b> Nadovich	

<b>Requested By</b>	<b>Vendor:</b> DIGKEY
<b>Name:</b> Robson Adem	<b>Web Site:</b> <a href="http://digkey.com">digkey.com</a>
<b>Email:</b> <a href="mailto:ademr@lafayette.edu">ademr@lafayette.edu</a>	<b>Phone:</b> 218-681-6674
<b>Phone:</b> 4845919265	<b>Ship By:</b> 2-DAY Shipping

Cart Link: <https://www.digikey.com/short/pj15zj>

Index	Quantity	Part Number	Description	Unit Price	Extended Price	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	
					<b>Shipping Fees</b>	
					<b>Grand Total:</b>	\$161.58

Instructor Approval: \_\_\_\_\_

Department Approval: \_\_\_\_\_

4/9/2019

ECE Department Material Request

<b>Course:</b> ECE 491	<b>Req Number:</b> 60
<b>Professor:</b> Nadovich	

<b>Requested By</b>	<b>Vendor:</b> Amazon
<b>Name:</b> Robson Adem	<b>Web Site:</b> <a href="http://amazon.com">amazon.com</a>
<b>Email:</b> <a href="mailto:ademr@lafayette.edu">ademr@lafayette.edu</a>	<b>Phone:</b>
<b>Phone:</b> 4845919265	<b>Ship By:</b> 2-DAY Shipping

#	Quantity	Vendor Part	Description	Unit Price	Total Price	Rcvd
1	1	<a href="https://amzn.to/2VwT7l0">https://amzn.to/2VwT7l0</a>	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	<a href="https://amzn.to/2KjQYOD">https://amzn.to/2KjQYOD</a>	Koolance QD3-MS13-P QD3 Male Quick Disconnect No-Spill Coupling, Panel Barb for ID 13mm (1/2in)	\$14.99	\$29.98	
3	2	<a href="https://amzn.to/2l8MVTv">https://amzn.to/2l8MVTv</a>	Koolance QD3-FS13-P QD3 Female Quick Disconnect No-Spill Coupling, Panel Barb for ID 13mm (1/2in)	\$16.99	\$33.98	
4	1	<a href="https://amzn.to/2Z1XUn9">https://amzn.to/2Z1XUn9</a>	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	

<b>Shipping Fees</b>	
<b>Grand Total:</b>	\$82.94

Instructor Approval: \_\_\_\_\_

Department Approval: \_\_\_\_\_

(Over \$500)

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: <a href="http://www.evwest.com">www.evwest.com</a>		
Email: <a href="mailto:ademr@lafayette.edu">ademr@lafayette.edu</a>				Phone: (888) 591-5830		
Phone: 4845919265				Ship By: 2-DAY Shipping		
Cart Link: <a href="https://bit.ly/2VtIJRn">https://bit.ly/2VtIJRn</a>						
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:	
					Grand Total:	\$124.90
Instructor Approval:						
Department Approval:						

04/11/2019						
Course:		ECE 491				
Professor:		Nadovich				
Requested By:					Vendor: <a href="http://www.digikey.com">www.digikey.com</a>	
Name:		Yishak Desta			Web Site: <a href="http://www.digikey.com">www.digikey.com</a>	
Email:		<a href="mailto:destay@lafayette.edu">destay@lafayette.edu</a>			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:	\$16.99
					Grand Total:	\$174.42
Instructor Approval:						
Department Approval:						