

Project Status Letter PSL Number: PSL_10

Covering period: 04/08-04/14

Prepared by: J. Mahati Hari and Rachel Szteinberg

Task Summary from Previous Week / Proposed Changes:

Please note that the second column describes what was planned to be completed / demonstrated / able to be fully crossed off the WBS by the time of IPR submission. What has been boldfaced in this column is what has been completed, and what is in red signifies overdue items. This, in conjunction with progress slides will determine if subsystems are behind, ahead, or right on schedule. If there is a change that needs to be made, please notify the project manager. This is referenced with WBS v0.3.

TEAM	PREVIOUS WEEK'S SCHEDULED TASKS	TASKS COMPLETED	FURTHER INVESTIGATION	PROPOSED CHANGES
VSCADA	VSC.2.1 [Demonstrated maintenance view] VSC.5.1 [Demonstrated I2C protocol for GLV communication] VSC.5.4 [Demonstrated soft throttle with DYNO]	None	[overdue] VSC.3.3 [Config UI delivered] - status of this task?	None
Cell App	No tasks planned	CELL.1.5 [Demonstrated general circular view] CELL.1.6 [Demonstrated resizing view] CELL.3.1 [Implemented design of data structure for temp. data] CELL.3.2 [Demonstrated real time updating views]	CELL.1.4 [Demonstrated log display view] - minor fixes on image before displayed on website	None

		CELL.4.1 [Implemented custom chart/graph generation] CELL.5.1 [Demonstrated application in both tablet and mobile form] CELL.6.4 [Demonstrated dynamically adding layouts] CELL.6.5 [Demonstrating dynamically adding tabs]		
DYNO	DYNO.3.4 [Integrated with cooling system] DYNO.3.5[integrated with GLV - full safety loop] DYNO.3.7 [Integrated with TSI]	DYNO.3.5[integrated with GLV - full safety loop]	None	None
TSV	TSV.3.3 [testing of integrated AMS with load]	None	None	None
TSI	TSI.1.4 [PCB debugged] TSI.1.5 [PCB testing / integration approved (drive critical components)] TSI.3.2 [API documented] TSI.3.3 [Drive button logic integrated] TSI.4.2 [Precharge Relay / HV cabling mounted] TSI.4.3 [Circuit boards mounted] TSI.4.4 [Properly Wired] TSI.4.5 [Mounted Current Sensor TSV Bars] TSI.5.2 [Integrated Physical	None	None	None

	<p>Box]</p> <p>TSI.5.3 [Integrated Brake Interface]</p> <p>TSI.5.4[Integrated Throttle Interface]</p> <p>TSI.5.5[Integrated VSCADA Interface]</p> <p>TSI.5.6[Integrated with Cockpit]</p>			
Cooling	No tasks planned	None	<p>COOL.3.1 [Pump automatic mode completed]</p> <p>COOL.4.1 [Safety loop code completed] COOL.5.1 [Can bus interface with VSCADA]</p> <p>COOL.6.1 [Box design of pump integrated]</p> <p>COOL.6.5 [Box design of radiator integrated]</p> <p>COOL.6.3 [Box design of sensor integrated]</p> <p>COOL.6.3 [Box design of fan integrated]</p> <p>COOL.8.1 [LCD display interface delivered]</p> <p>-----</p> <p>None of these tasks reference WBS items.</p> <p>-----</p> <p>COOL.6.6 [Box design of LCD] - Box design?</p>	None
Systems Engineering	M.5.5 [Subsystem integration tests executed]	None	None	None

GLV	<p>GLV.3.7 [HDMI Screen Delivered]</p> <p>GLV.3.8 [VSCADA Buttons Delivered]</p>	<p>GLV.3.5 [Functional Interior Panel LEDs Delivered]</p> <p>GLV.5.4 [Connector Panels Delivered]</p>	<p>[overdue] GLV.3.4. [Functional safety loop panel interior buttons and switches delivered]</p> <p>[overdue] GLV.3.6. [Functional safety loop panel exterior buttons and switches delivered]</p>	None
Interconnect	<p>IC.3.5 [Assembled all W7 cables]</p> <p>IC.3.6 [Assembled all W11 cables]</p> <p>IC.3.7 [Assembled all W12 cables]</p> <p>IC.3.8 [Assembled all W13 cables]</p> <p>IC.3.9 [Assembled all W15 cables]</p> <p>IC.3.10 [Assembled all W18 cables]</p> <p>IC.3.15 [Assembled all W24 cables]</p>	<p>IC.3.5 [Assembled all W7 cables]</p> <p>IC.3.6 [Assembled all W11 cables]</p> <p>IC.3.7 [Assembled all W12 cables]</p> <p>IC.3.8 [Assembled all W13 cables]</p> <p>IC.3.10 [Assembled all W18 cables]</p> <p>IC.3.11 [Assembled all W20 cables]</p> <p>IC.3.16 [Assembled all W25 cables]</p> <p>IC.3.19 [Assembled all W31 cables]</p> <p>IC.3.20 [Assembled all W32 cables]</p> <p>IC.3.23 [Assembled all W35 cables]</p>	<p>IC.3.12 [Assembled all W21 cables] - Corrections to be Made?</p> <p>IC.3.17 [Assembled all W26 cables] - Corrections to be made?</p> <p>IC.3.14 [Assembled all W23 cables] - already marked as complete from previous IPR?</p>	None
Car Physics Investigation	<p>PHYS.4.4. [Simulated dynamic algorithm]</p> <p>PHYS.4.5 [Simulated static algorithm]</p>	None	<p>PHYS.3.1.[Derivation for current model delivered]</p> <p>PHYS.3.2.[Derivation for motor speed model delivered]</p>	None

JGB	JGB.2.1[Remote to Respond Protocol] JGB.2.2[Demonstrate CAN to PWM] JGB.2.3[Analog to CAN Data Retrieval]	JGB.1.1 [Bidirectional communication over UART between Realterm and JGB Board] JGB.1.2 [Demonstrated Keyboard to CAN functionality] JGB.1.3 [Demonstrated CAN Dump functionality]	None	None
MGMT	No tasks planned	None	[overdue] M.5.4 [Photographic Evidence Annotated] [overdue] M.5.5 [Subsystem Integration Tests Executed]	None

Plan for next week:

TEAM	NEXT WEEK'S TASKS [AS PER SCHEDULE]	TASKS TO BE COMPLETED [PROPOSED ON IPR]
VSCADA	VSC.2.2 [Demonstrated Drive View] VSC.2.3 [Demonstrated Charging View] VSC.2.4 [Demonstrated Shutdown/Sleep View] VSC.2.5 [Tested Sleep/Shutdown View for Leakage]	VSC.2.1 [Demonstrated Maintenance View] (Ready to be presented for approval) VSC.2.2 [Demonstrated Drive View] VSC.2.3 [Demonstrated Charging View] VSC.2.4 [Demonstrated Shutdown/Sleep View] VSC.3.3 [Config UI Delivered] (Ready to be presented for approval) VSC.5.1 [Demonstrated I2C Protocol for GLV Communication] VSC.5.4 [Demonstrated Soft Throttle with Dyno]
Cell App	CELL.3.1 [Implemented Design of Data Structure for Temp. Data] CELL.3.2 [Demonstrated Real Time Updating Views] CELL.3.3 [Populated UI According to Data Ref]	CELL.7.4.[User Manual Delivered] CELL.7.5.[Maintenance manual delivered]
DYNO	No tasks planned	DYNO.5.3 [User Manual Delivered] DYNO.5.4 [Maintenance Manual Delivered]
TSV	No tasks planned	TSV.2.8 [Debugged 4th Pack] TSV.3.3 [Testing of Integrated AMS with Load] TSV.6.3 [User Manual Delivered] TSV.6.4 [Maintenance Manual Delivered] TSV.6.8 [ICD Document Delivered]
TSI	No tasks planned	TSI.1.4 [PCB Debugged] TSI.2.3 [Panel Integrated] TSI.3.3 [Drive Button Logic Integrated] TSI.4.2 [Precharge Relay / HV Cabling Mounted] TSI.4.3 [Circuit Boards Mounted] TSI.5.2 [Integrated Physical Box]

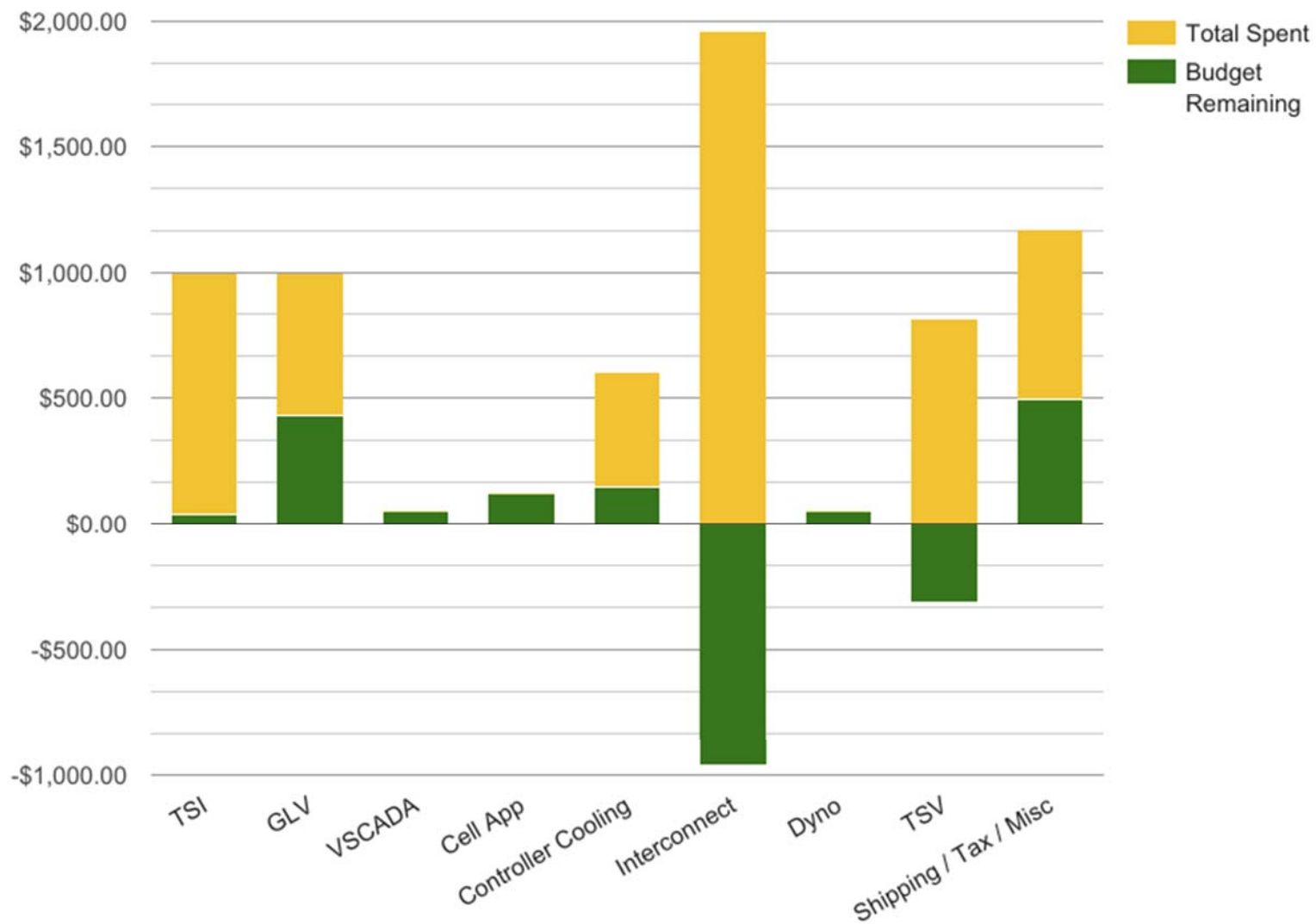
		TSI.5.3 [Integrated Brake Interface] TSI.5.4 [Integrated Throttle Interface]
Cooling	COOL.1.1 [Drawing of Mounting Delivered] COOL.4.1 [Firmware Code Interfaced with Safety Loop]	COOL.1.1 [Drawing of Mounting Delivered]
Systems Engineering	No tasks planned	M.5.5 [Subsystem Integration Tests Executed]
GLV	No tasks planned	GLV.3.4 [Functional Interior Panel Safety Loop Buttons and Switches Delivered] GLV.3.5 [Functional Interior Panel LEDs Delivered] GLV. 3.6 [Functional Exterior Panels Safety Loop Buttons and Switches Delivered] GLV.3.7 [GLV.3.7 HDMI Screen Delivered] GLV.3.8 [GLV.3.8 VSCADA Buttons Delivered]
Interconnect	No tasks planned	“General assembly of cables”- the rest of IC.3.
Car Physics Investigation	CC.1.1 [Build/Test Algorithm in Simulink] CC.1.2 [Demonstrated Findings]	PHYS.4.4 [Simulated Statics Algorithm] PHYS.4.5[Simulated Dynamics Algorithm] CC.1.1 [Build/Test Algorithm in Simulink]
JGB	No tasks planned	JGB.2.1 [Demonstrate Remote to Respond Protocol] JGB.2.2 [Demonstrate CAN to PWM Functionality] JGB.2.3 [Analog to CAN Data Retrieval Demonstrated]
MGMT	No tasks planned	M.5.4 [Photographic Evidence Annotated] Weekly tasks of ordering, receiving, website, and WBS

Cost Summary:

Subsystem	Spent this period	Spent to date	Budget Allocated	Budget Remaining	Percentage Spent
TSI	\$69.81	\$963.84	\$1,000	\$36.16	96.38%
GLV	\$109.95	\$571.29	\$1,000	\$428.71	57.13%
VSCADA	\$0.00	\$0.00	\$50	\$50.00	0.00%
Cell App	\$0.00	\$0.00	\$125	\$125.00	0.00%
Controller Cooling System	\$0.00	\$452.92	\$600	\$147.08	75.49%
Interconnect / Cabling / ICD	\$48.24	\$1,962.09	\$1,000	-\$962.09	196.21%
Dyno	\$0.00	\$0.00	\$50	\$50.00	0.00%
TSV	\$8.73	\$813.03	\$500	-\$313.03	162.61%
Physics & Cruise Control	\$0.00	\$0	\$0	-	-
JGB	\$0.00	\$0	\$0	-	-
Shipping / Tax / Miscellaneous	\$73.51	\$680.33	\$1,175	\$494.67	57.90%
Total	\$310.24	\$5,443.50	\$5,500	\$56.50	98.97%

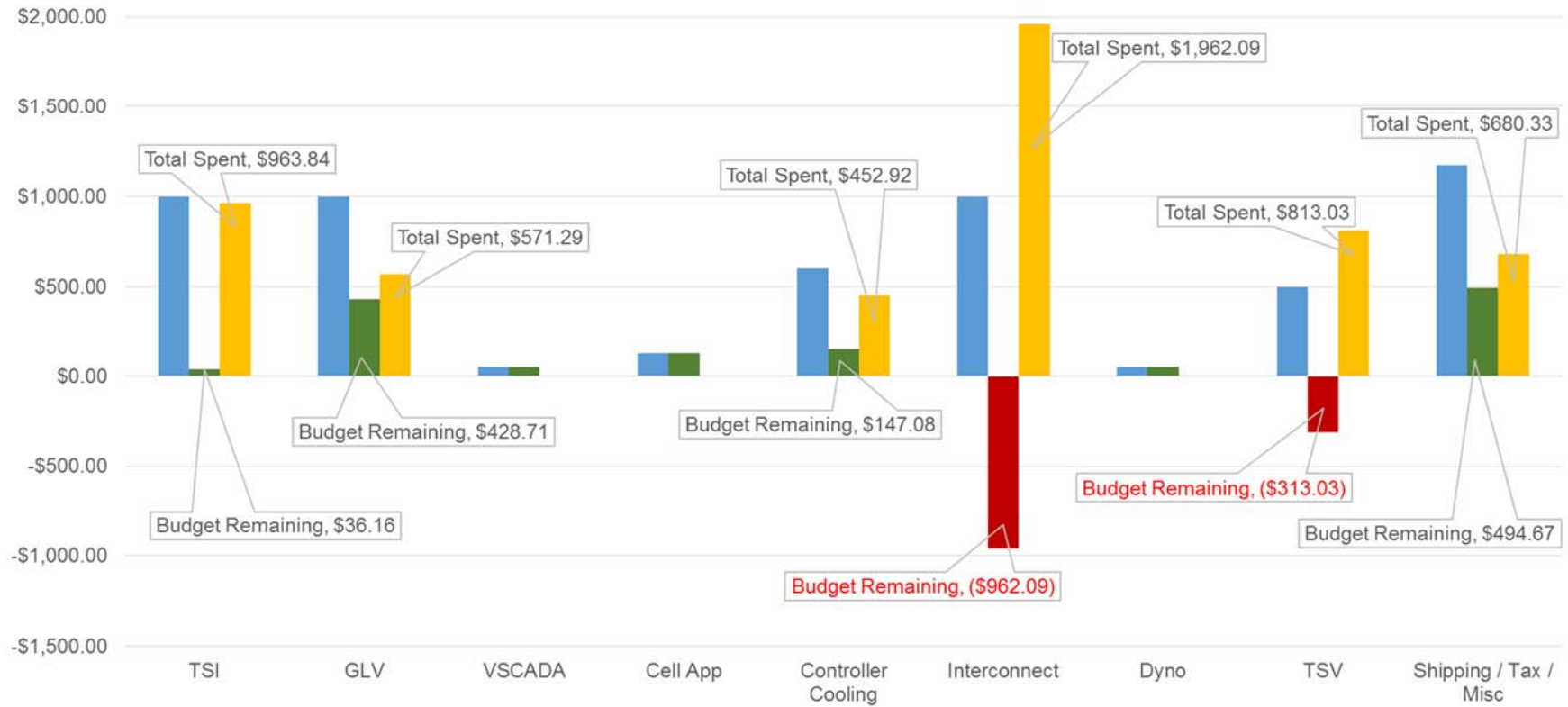
Although some teams are overbudget, they are monetarily balanced by teams that are underbudget or were given emergency funds in the initial budget allocations. Due to unforeseen expenses that totalled above the “safety” miscellaneous allocation, we will be going overbudget for this semester. Steps will be put into place to ensure that any overspending is needed and correct. Of the items purchased this semester, several will remain for next semester, thus no items purchased will be wasted or unnecessarily bought.

Subsystem Budget Spending



Budget Spending

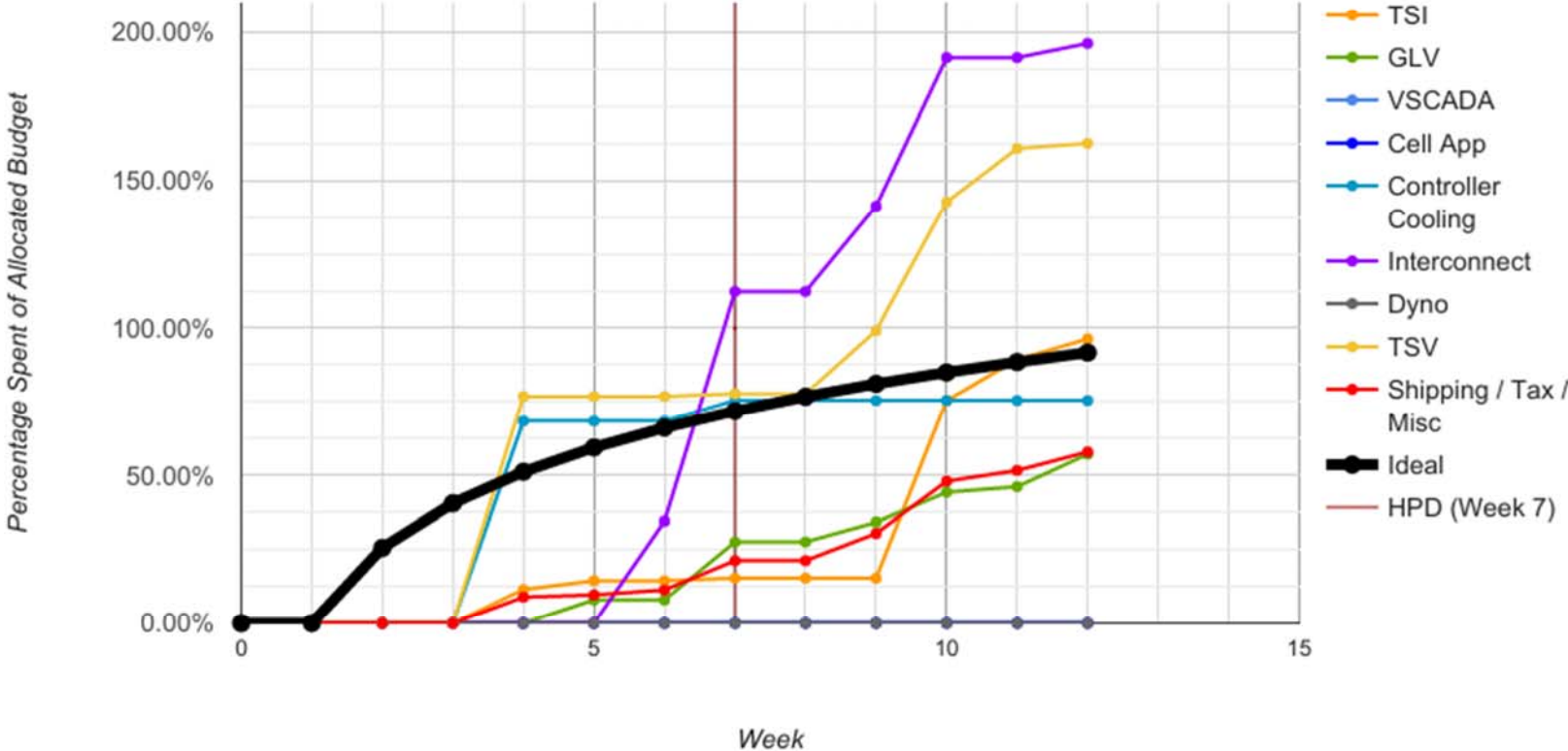
■ Allocated Budget
 ■ Budget Remaining
 ■ Total Spent



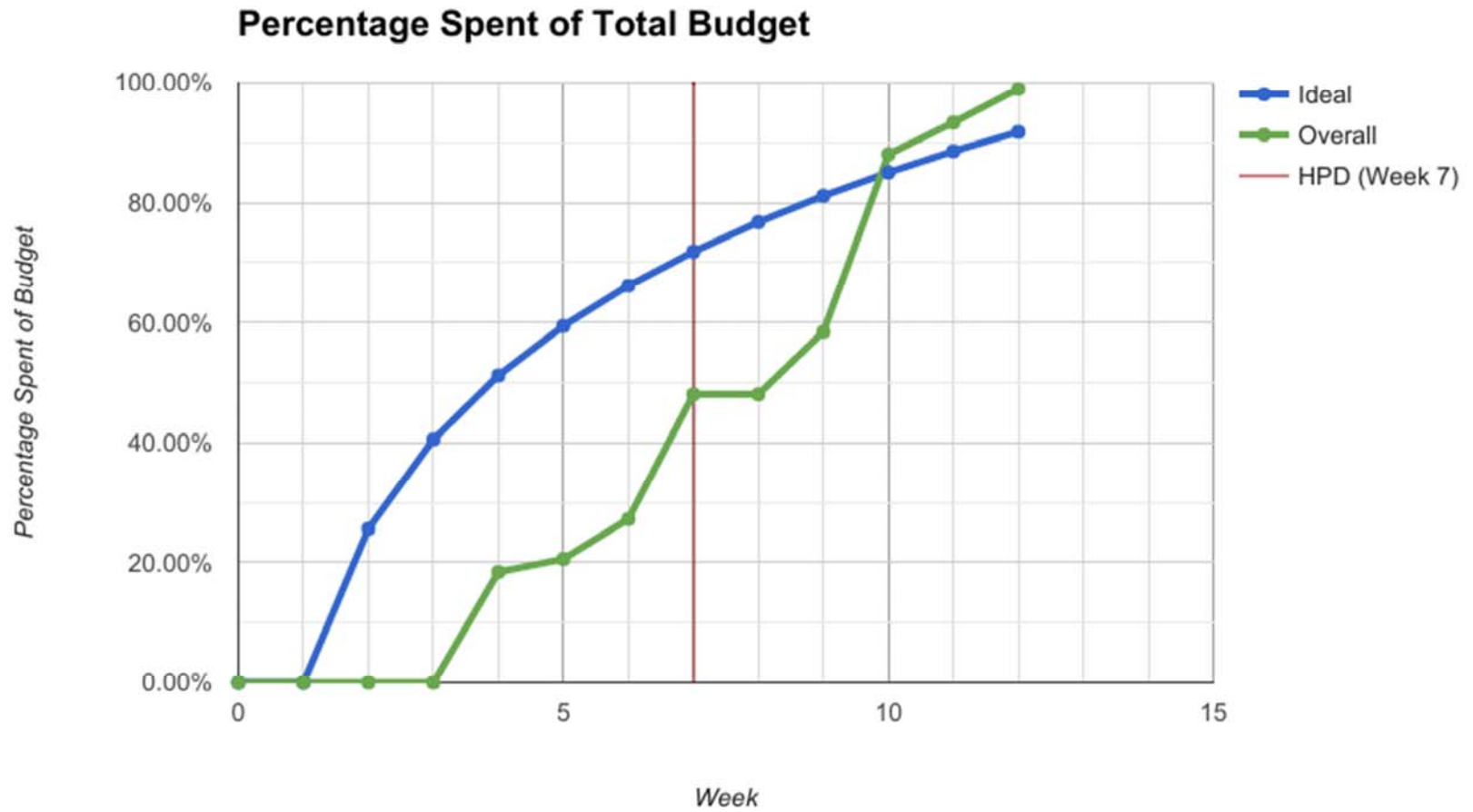
Total Spent



Percentage Spent of Subsystem Budget Allocations



Ideally Spent per Subsystem (by Week 12): 91.76%



Ideally Spent Overall (by Week 12): 91.76%

Receiving Report:

The following items were all received during this period:

Purchase Order #36** – IC* – Newark – TSV Pack Blue ITT Cannon Line Source/Drain (Appendix I)

Purchase Order #37 – TSV – Digikey – AMS Board Parts (Appendix II)

Purchase Order #38 – TSI – Mouser – Potentiometers, Knobs/Dials, Switches (Appendix III)

Purchase Order #39*** – TSI/GLV – McMaster – Screws, Panel Labels (Appendix IV)

Purchase Order #40 – TSV/TSI – GMW Associates – Bus Bar Current Sensors (Appendix V)

Purchase Order #41 – IC* – Allied Electronics – Heat Shrink and HDMI Cable (Appendix VI)

Purchase Order #43 – GLV – McMaster – Wire Wrap Markers (Appendix VIII)

*IC stands for Interconnect/Cabling/ICD

**Only 2 out of 3 items of Purchase Order #36 were received during this period

***Only 2 out of 10 items of Purchase Order #39 were been received during this period

Req #	Team	Vendor	Vendor PN	Qty	Item Description	Ordered Date	Received Date
36	IC	Newark	44W4336	2	ITT CANNON LINE DRAIN, NEUTRAL, BLUE, 400A	30-Mar-17	10-Apr-17
36	IC	Newark	44W4346	1	ITT CANNON LINE SOURCE, NEUTRAL, BLUE, 400A	30-Mar-17	10-Apr-17
37	TSV	Digikey	PWR220T-20-R750F-ND	5	RES 0.75 OHM 20W 1% TO220	5-Apr -17	10-Apr-17
37	TSV	Digikey	MBR0520LCT-ND	20	DIODE SCHOTTKY 20V 500MA SOD123	5-Apr -17	10-Apr-17
37	TSV	Digikey	P470ACT-ND	100	RES SMD 470 OHM 5% 1/8W 0805	5-Apr -17	10-Apr-17
37	TSV	Digikey	P100KCCT-ND	50	RES SMD 100K OHM 1% 1/8W 0805	5-Apr -17	10-Apr-17
37	TSV	Digikey	450-2055-1-ND	10	SWITCH TACTILE SPST-NO 0.05A 24V	5-Apr -17	10-Apr-17
37	TSV	Digikey	36-655-ND	10	BANANA PLUG .500" 6-32 EXT THD	5-Apr -17	10-Apr-17
38	TSI	Mouser	652-PTA4432015CPB202	10	Slide Potentiometers 2K LINEAR	5-Apr -17	10-Apr-17
38	TSI	Mouser	450-SL4514	2	Knobs & Dials SLIDE CNTRL GY/BK	5-Apr -17	10-Apr-17
38	TSI	Mouser	629-GPB507A05BR	1	Pushbutton Switches Off-(On) Red	5-Apr -17	10-Apr-17

39	TSI	McMaster	8216T77	1	3" Made to Order Peel and Stick (set message to TSI, color Black)	5-Apr -17	12-Apr-17
39	GLV	McMaster	8216T77	1	3" Made to Order Peel and Stick (set message to GLV, color Black)	5-Apr -17	12-Apr-17
40	TSV TSI	GMW Associates	BBM-01	2	Bus Bar Module DC Current Sensor	5-Apr -17	14-Apr -17
41	IC	Allied Electronics	70133109	1	Tubing Kit 1/16, 1/8, 1/4, 1/2, 3/4, and 1 In. sizes; Shrink(3:1)	10-Apr-17	12-Apr-17
41	IC	Allied Electronics	70121553	1	HDMI (M-M) CABLE 1.4 W/ETHERNET CL3 28 AWG 1080P 10ft	10-Apr-17	12-Apr-17
43	GLV	McMaster	5945T83	1	Wrap-on Wire Marker Book, Tyvek, 1-45, Consecutively Numbered	12-Apr-17	13-Apr-17
43	GLV	McMaster	5945T84	1	Wrap-on Wire Marker Book, Tyvek, 46-90, Consecutively Numbered	12-Apr-17	13-Apr-17

Purchase Requests:

The following items were ordered during this period:

Purchase Order #41 – IC* – Allied Electronics – Heat Shrink and HDMI Cable (Appendix VI)

Purchase Order #42 – TSI – Super Bright LEDs – 4" and 6" Red LEDs (Appendix VII)

Purchase Order #43 – GLV – McMaster – Wire Wrap Markers (Appendix VIII)

Purchase Order #44 – TSI/TSV – Digikey – Resistors, Fuse Holders, Connectors, Crystal (Appendix IX)

Purchase Order #45 – GLV – Adafruit – 7" Raspberry Pi Display (Appendix X)

*IC stands for Interconnect/Cabling/ICD

Req #	Team	Vendor	Vendor PN	Qty	Item Description	Ordered Date
41	IC	Allied Electronics	70133109	1	Tubing Kit 1/16, 1/8, 1/4, 1/2, 3/4, and 1 In. sizes; Shrink(3:1)	10-Apr-17
41	IC	Allied Electronics	70121553	1	HDMI (M-M) CABLE 1.4 W/ETHERNET CL3 28 AWG 1080P 10ft	10-Apr-17
42	TSI	Super Bright LEDs	PT-STRB-R56	1	Oval LED Strobe Truck and Trailer Lights - 6" LED Lights w/ Built-In Controller - 3-Pin Connector - Red	12-Apr-17
42	TSI	Super Bright LEDs	M9-R4	2	Oval LED Truck and Trailer Lights - 4" LED Side Clearance Lights w/ 4 High Flux LEDs - Pigtail Connector - Red	12-Apr-17
43	GLV	McMaster	5945T83	1	Wrap-on Wire Marker Book, Tyvek, 1-45, Consecutively Numbered	12-Apr-17
43	GLV	McMaster	5945T84	1	Wrap-on Wire Marker Book, Tyvek, 46-90, Consecutively Numbered	12-Apr-17
44	TSI	Digikey	P4.70KCCT-ND	10	RES SMD 4.7K OHM 1% 1/8W 0805	12-Apr-17
44	TSI	Digikey	P4.87KCCT-ND	10	RES SMD 4.87K OHM 1% 1/8W 0805	12-Apr-17
44	TSI	Digikey	P4.99KCCT-ND	10	RES SMD 4.99K OHM 1% 1/8W 0805	12-Apr-17
44	TSI	Digikey	AKC14H-ND	2	CONN IDC SKT 14POS W/POL 15 GOLD	12-Apr-17
44	TSI	Digikey	WM2902-ND	2	CONN HOUSING 4POS .100 W/LATCH	12-Apr-17
44	TSI	Digikey	WM2906-ND	2	CONN HOUSING 8POS .100 W/LATCH	12-Apr-17

44	TSI	Digikey	556879-2-ND	2	CONN HSG PLUG 2POS 11.18MM BLACK	12-Apr-17
44	TSI	Digikey	F4564-ND	2	FUSE HLDR CART 500V 15A IN LINE	12-Apr-17
44	TSI	Digikey	F3212-ND	10	FUSE CERAMIC 500MA 250VAC 125VDC	12-Apr-17
44	TSV	Digikey	887-1741-1-ND	15	CRYSTAL 10.0000MHZ 12PF SMD	12-Apr-17
45	GLV	Adafruit	2718	1	7" Touchscreen Display for Raspberry Pi	12-Apr-17

Outstanding Orders:

The following items have been ordered but have not yet been received:

Purchase Order #42 – TSI – Super Bright LEDs – 4" and 6" Red LEDs (Appendix VII)

Purchase Order #44 – TSI/TSV – Digikey – Resistors, Fuse Holders, Connectors, Crystal (Appendix IX)

Purchase Order #45 – GLV – Adafruit – 7" Raspberry Pi Display (Appendix X)

*IC stands for Interconnect/Cabling/ICD

Req #	Team	Vendor	Vendor PN	Qty	Item Description	Ordered Date
42	TSI	Super Bright LEDs	PT-STRB-R56	1	Oval LED Strobe Truck and Trailer Lights - 6" LED Lights w/ Built-In Controller - 3-Pin Connector - Red	12-Apr-17
42	TSI	Super Bright LEDs	M9-R4	2	Oval LED Truck and Trailer Lights - 4" LED Side Clearance Lights w/ 4 High Flux LEDs - Pigtail Connector - Red	12-Apr-17
44	TSI	Digikey	P4.70KCCT-ND	10	RES SMD 4.7K OHM 1% 1/8W 0805	12-Apr-17
44	TSI	Digikey	P4.87KCCT-ND	10	RES SMD 4.87K OHM 1% 1/8W 0805	12-Apr-17
44	TSI	Digikey	P4.99KCCT-ND	10	RES SMD 4.99K OHM 1% 1/8W 0805	12-Apr-17
44	TSI	Digikey	AKC14H-ND	2	CONN IDC SKT 14POS W/POL 15 GOLD	12-Apr-17
44	TSI	Digikey	WM2902-ND	2	CONN HOUSING 4POS .100 W/LATCH	12-Apr-17
44	TSI	Digikey	WM2906-ND	2	CONN HOUSING 8POS .100 W/LATCH	12-Apr-17
44	TSI	Digikey	556879-2-ND	2	CONN HSG PLUG 2POS 11.18MM BLACK	12-Apr-17
44	TSI	Digikey	F4564-ND	2	FUSE HLDR CART 500V 15A IN LINE	12-Apr-17
44	TSI	Digikey	F3212-ND	10	FUSE CERAMIC 500MA 250VAC 125VDC	12-Apr-17
44	TSV	Digikey	887-1741-1-ND	15	CRYSTAL 10.0000MHZ 12PF SMD	12-Apr-17
45	GLV	Adafruit	2718	1	7" Touchscreen Display for Raspberry Pi	12-Apr-17

Note: The items of Purchase Order #23 – IC* – Cable Ties and More – Heat Shrink, Wire Loom was replaced with Purchase Order #41 – IC* – Allied Electronics – Heat Shrink and HDMI Cable (Appendix VI). Efforts to cancel Purchase Order #23 were ignored by the company, after weeks of trying to communicate about the status of the order, and thus the order was shipped after we asked for it to be canceled. The products were delivered this week, weeks late and after we had asked for it to be canceled, and will be immediately returned, thus the order is not recorded as received but is no longer outstanding.

APPENDIX I

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 36

Requested By: IC (Larisa)
Requested Date: 30-Mar-17
Ship By: Ground

Vendor: Newark - Element14
Web Site: www.newark.com
Phone: 9275

#	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	44W4336	NLDFT-N-BL-L-S120-M40A	ITT CANNON LINE DRAIN, NEUTRAL, BLUE, 400A	2	\$56.41	\$112.82	10-Apr-17
2	44W4346	NLS-N-BL-S120-M40A	ITT CANNON LINE SOURCE, NEUTRAL, BLUE, 400A	1	\$56.90	\$56.90	10-Apr-17
3	64W3407	A00602825	VEAM REDUCTION SLEEVE R70	3	\$10.590	\$31.77	5-Apr-17

Subtotal:	\$201.49
Shipping Fees:	\$0.00
Grand Total:	\$201.49

APPENDIX II

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 37

Requested By: TSV (Emilie)
Requested Date: 5-Apr-17
Ship By: Ground

Vendor: Digikey
Web Site: <http://www.digikey.com/>
Phone: 218-681-6674

#	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	PWR220T-20-R750F-ND	PWR220T-20-R750F	RES 0.75 OHM 20W 1% TO220	5	\$4.000	\$20.00	10-Apr-17
2	MBR0520LCT-ND	MBR0520L	DIODE SCHOTTKY 20V 500MA SOD123	20	\$0.295	\$5.90	10-Apr-17
3	P470ACT-ND	ERJ-6GEYJ471V	RES SMD 470 OHM 5% 1/8W 0805	100	\$0.01	\$1.00	10-Apr-17
4	P100KCCT-ND	ERJ-6ENF1003V	RES SMD 100K OHM 1% 1/8W 0805	50	\$0.020	\$1.00	10-Apr-17
5	450-2055-1-ND	1571563-4	SWITCH TACTILE SPST-NO 0.05A 24V	10	\$0.275	\$2.75	10-Apr-17
6	36-655-ND	655	BANANA PLUG .500" 6-32 EXT THD	10	\$2.045	\$20.45	10-Apr-17

Subtotal:	\$51.10
Shipping Fees:	\$8.99
Grand Total:	\$60.09

APPENDIX III

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 38

Requested By: TSI (Jack)
Requested Date: 5-Apr-17
Ship By: Ground

Vendor: Mouser
Web Site: www.mouser.com
Phone: (800) 346-6873

#	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	652-PTA4432015CPB202	PTA4543-2015CPB202	Slide Potentiometers 2K LINEAR	10	\$1.01	\$10.10	10-Apr-17
2	450-SL4514	450-SL4514	Knobs & Dials SLIDE CNTRL GY/BK	2	\$1.14	\$2.28	10-Apr-17
3	629-GPB507A05BR	GPB507A05BR	Pushbutton Switches Off-(On) Pushbutton Red	1	\$2.16	\$2.16	10-Apr-17

Subtotal:	\$14.54
Shipping Fees	\$7.99
Grand Total:	\$22.53

APPENDIX IV

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 39

Requested By: TSI /GLV
Requested Date: 5-Apr-17
Ship By: Ground

Vendor: McMaster-Carr
Web Site: <https://www.mcmaster.com/>
Phone: (330) 995-5500

#	Team	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	TSI	95117A433	95117A433	Press-Fit Nut for Soft Metal and Plastic (pack of 50)	1	\$12.69	\$12.69	6-Apr-17
2	TSI	90272A145	90272A145	Steel Phillips Rounded Head Screw (pack of 100)	1	\$1.99	\$1.99	6-Apr-17
3	TSI	94335A147	94335A147	Electrical-Insulating Femail Threaded Standoff (2")	3	\$5.76	\$17.28	6-Apr-17
4	TSI	94335A125	94335A125	Electrical-Insulating Femail Threaded Standoff (1/2")	10	\$3.56	\$35.60	6-Apr-17
5	TSI	8975K11	8975K11	6061 Aluminum (1')	1	\$4.42	\$4.42	6-Apr-17
6	TSI	92095A452	92095A452	18-8 Stainless Steel Hex Drive Rounded Head Screw M2 x 0.4 mm Thread 5 mm Long	1	\$6.50	\$6.50	6-Apr-17
7	TSI	8216T77	8216T77	3" Made to Order Peel and Stick (set message to TSI, color Black)	1	\$6.88	\$6.88	12-Apr-17
8	GLV	8216T77	8216T77	3" Made to Order Peel and Stick (set message as GLV, color Black)	1	\$6.88	\$6.88	12-Apr-17
9	GLV	93635A156	93635A156	M5 x .8mm screws 10mm long	1	\$8.32	\$8.32	6-Apr-17
10	GLV	90272A194	90272A194	8-32 Thread Size Phillips Head Rounded Screws	1	\$3.14	\$3.14	6-Apr-17

Subtotal:	\$103.70
Shipping Fees	\$5.79
Grand Total:	\$109.49

APPENDIX V

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 40

Requested By: TSV / TSI
Requested Date: 5-Apr-17
Ship By: Ground

Vendor: GMW Associates
Web Site: www.gmw.com
Phone: 650-802-8292

#	Vendor PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	BBM-01	Bus Bar Module DC Current Sensor	2	\$40.00	\$80.00	14-Apr-17

Subtotal:	\$80.00
Shipping Fees:	\$10.25
Grand Total:	\$90.25

APPENDIX VI

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 41

Requested By: IC (Jeremy)
Requested Date: 10-Apr-17
Ship By: 2-Day

Vendor: Allied Electronics
Web Site: <http://www.alliedelec.com/>
Phone: 855-338-8433

#	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	70133109	Q2-F3X-QK1-01-6IN-106	Tubing Kit 1/16, 1/8, 1/4, 1/2, 3/4, and 1 In. sizes; Shrink(3:1)	1	\$36.360	\$36.36	12-Apr-17
2	70121553	HDI-1410	HDMI (M-M) CABLE 1.4 W/ETHERNET CL3 28 AWG 1080P 10ft	1	\$11.880	\$11.88	12-Apr-17

Grand Total:	\$48.24
Shipping Fees	\$42.41
Grand Total:	\$90.65

APPENDIX VII

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 42

Requested By: TSI (Jack / Adam)
Requested Date: 12-Apr-17
Ship By: Ground

Vendor: Super Bright LEDs
Web Site: <http://www.superbrightleds.com/>
Phone: 866-590-3533

#	Vendor PN	UPC	Description	Quantity	Unit Price	Total Price	Rcvd
1	PT-STRB-R56	847781017625	Oval LED Strobe Truck and Trailer Lights - 6" LED Lights w/ Built-In Controller - 3-Pin Connector - Red	1	\$24.95	\$24.95	
2	M9-R4	847781017977	Oval LED Truck and Trailer Lights - 4" LED Side Clearance Lights w/ 4 High Flux LEDs - Pigtail Connector - Red	2	\$4.95	\$9.90	

Subtotal:	\$34.85
Shipping Fees	\$7.70
Grand Total:	\$42.55

Instructor Approval: _____

Cart URL: https://www.superbrightleds.com/checkout-b/cart?cart_shared=962579ad6d549596e9c2f53435d53a03

APPENDIX VIII

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 43

Requested By: GLV (Kyle)
Requested Date: 12-Apr-17
Ship By: Ground

Vendor: McMaster Carr
Web Site: <http://www.mcmaster.com>
Phone: 218-681-6674

#	Vendor PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	5945T83	Wrap-on Wire Marker Book, Tyvek, 1-45, Consecutively Numbered	1	\$15.00	\$15.00	13-Apr-17
2	5945T84	Wrap-on Wire Marker Book, Tyvek, 46-90, Consecutively Numbered	1	\$15.00	\$15.00	13-Apr-17

Subtotal:	\$30.00
Shipping Fees:	\$5.32
Grand Total:	\$35.32

APPENDIX IX

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 44

Requested By: TSI & TSV
Requested Date: 12-Apr-17
Ship By: Ground

Vendor: Digikey
Web Site: <http://www.digikey.com>
Phone: 218-681-6674

#	Team	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	TSI	P4.70KCCT-ND	ERJ-6ENF4701V	RES SMD 4.7K OHM 1% 1/8W 0805	10	\$0.037	\$0.37	
2	TSI	P4.87KCCT-ND	ERJ-6ENF4871V	RES SMD 4.87K OHM 1% 1/8W 0805	10	\$0.037	\$0.37	
3	TSI	P4.99KCCT-ND	ERJ-6ENF4991V	RES SMD 4.99K OHM 1% 1/8W 0805	10	\$0.037	\$0.37	
4	TSI	AKC14H-ND	1658621-2	CONN IDC SKT 14POS W/POL 15 GOLD	2	\$1.440	\$2.88	
5	TSI	WM2902-ND	50579404	CONN HOUSING 4POS .100 W/LATCH	2	\$0.270	\$0.54	
6	TSI	WM2906-ND	50579408	CONN HOUSING 8POS .100 W/LATCH	2	\$0.480	\$0.96	
7	TSI	556879-2-ND	556879-2	CONN HSG PLUG 2POS 11.18MM BLACK	2	\$3.890	\$7.78	
8	TSI	F4564-ND	01500322H	FUSE HLDR CART 500V 15A IN LINE	2	\$6.350	\$12.70	
9	TSI	F3212-ND	0314.500HXP	FUSE CERAMIC 500MA 250VAC 125VDC	10	\$0.899	\$8.99	
10	TSV	887-1741-1-ND	7A-10.000MAAE-T	CRYSTAL 10.0000MHZ 12PF SMD	15	\$0.582	\$8.73	

Subtotal:	\$43.69
Shipping Fees	\$8.99
Grand Total:	\$52.68

Instructor Approval: _____

Digikey Cart URL: <http://www.digikey.com/short/3w25t1>

APPENDIX X

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 45

Requested By: GLV (Joe)
Requested Date: 12-Apr-17
Ship By: Ground

Vendor: Adafruit
Web Site: <https://www.adafruit.com/>
Phone: (646) 248-7822

#	Vendor PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	2718	7" Touchscreen Display for Raspberry Pi	1	\$79.95	\$79.95	

Subtotal:	\$79.95
Shipping Fees	\$7.12
Grand Total:	\$87.07

Instructor Approval: _____

URL: <https://www.adafruit.com/product/2718>