Project Status Letter PSL

Number: PSL_03

Covering period: 02/18-02/24

Prepared by: J. Mahati Hari and Rachel Szteinberg

**Task summary from previous week/Proposed Changes:**

[+] – addition to be made to WBS | [W] – weekly task | [?] – referencing a task not on WBS | [-] – to be removed from WBS
* note: any task marked with a [?] will be further reviewed with each team, and decisions will be made to include the WBS.

Individuals continued to make progress within their respective teams. It should be noted that 'N/A' isn't necessarily indicative of a lack of effort, more so that the task was not fully completed/approved/in a state where it could be crossed off of the WBS.

| TEAM | TASKS FULLY COMPLETED | PROPOSED CHANGES |
|---|---|---|
| VSCADA | [VSC.4.2]-Software Maintainability Plan written | N/A |
| Cell App | [CELL.7.2]-Software Maintainability Plan written | [+]- implemented adding views /dynamic response<br>[?]- design proposal with data structures and maintainability plan |
| DYNO | [DYNO.3.1]- Integrate accumulators<br>[DYNO.3.2]- Test motor spinning with accumulators | [+]- Prepared suite/ ran tests for Physics team |
| TSV | [TSV.6.3]-Tested packs in series with dynamometer without AMS system<br>[TSV.6.1]- Integrated Accumulator with DYNO | [+]- create test program for PacMAN Boards<br>[+]- Execute test plan<br>[+]- Install AMS system |
| TSI | [TSI.6.6]- ESF forms submitted<br>[?]-FSR forms submitted | N/A |
| Cooling | [COOL.2.1]- Controller algorithm built<br>[COOL.2.2]- Controller algorithm tested with fan<br>[COOL.1.3]- Electrical schematic approved | N/A |
| Systems Engineering | [W]- Block diagram updates | N/A |
| GLV | [?]-BoM completed<br>[GLV.2.2]- Tested basic safety loop circuit | [GLV.4.2]- VCI BOB schematic<br>[GLV.1.2]- Battery Tested |
| Interconnect | [?]-BoM completed | [+] priority fabrication list |

| | | |
|---|---|---|
| Communications | [W]-Website Updates<br>[?]- maintained communication with proper parties | [+] provide a proper list of tasks with specific outcomes, role in WBS is still unclear |
| Car Physics Investigation | N/A | N/A |
| MGMT | Weekly purchase orders submitted<br>Inventory system updated<br>Website maintenance<br>PSL_2<br>[M.7.1.] – Organized/updated financial section<br>[M.11]- purchasing report #2 submitted<br>[M.14]-weekly cost report updated<br>[M.1.3]- Maintainability plan delivered | Continually meet with teams and make any required updates |

The point of the WBS/PSL/IPR is to help individuals analyze and record what needs to be completed and delivered for a successful and functional subsystem. Management kindly requests that if individuals are to see any discrepancies/contingencies/pitfalls, he/she/they should speak with a member of the team to take the proper action, at their earliest convenience.

**Plan for next week:**

| TEAM | TASKS TO BE COMPLETED |
|---|---|
| VSCADA | [VSC.3.5]- CANBus interface/demonstrating receiving and transmitting<br>[VSC.1.1]- Demo server configuration<br>[VSC.1.2]- Demo Database handler<br>[VSC.4.2]- Software Maintainability plan |
| Cell App | [?]-Demo for GSON connection<br>[?]-Demo for display generation<br>[?]-Data structures testing |
| DYNO | [?]- fixing connection from power supply<br>[?]- Run any requested tests<br>[?]- improvements to code |
| TSV | [?]- Create a test program for PacMAN boards<br>[?]- Prepare the packs for PacMAN boards (fix connectors)<br>[?]- CDR preparations |
| TSI | [TSI.1.1]- Schematic design submitted<br>[TSI.3.1]- IMD integrated with microcontroller<br>[TSI.3.2]-Firmware tested<br>[?]- TSAL board test<br>[?]- design TSMP schematic |
| Cooling | [COOL.4.1]-Demonstrated CANBus Link<br>[COOL.3.1]- Pump algorithm built |
| Systems Engineering | [M.10]- Software Maintainability plan<br>[M.5]- Acceptance test plan template delivered |
| GLV | [GLV.2.4]- Build full safety loop<br>[GLV.4.1]- CANBus Routed |
| Interconnect | [?] build all required safety loop cables<br>[AI] Champlain cable research |
| Communications | [?]-Maintain proper communication with all relevant parties<br>[?]-Continue footage collection |
| Car Physics Investigation | [PHYS.3]- Mathematical Derivations<br>[PHYS.4]- Theoretical Deliverables with written computer algorithm |
| MGMT | [W]-PSL_3<br>[W]-BoM completion<br>[W]-Purchase orders<br>[W]-WBS updates<br>[W]-Website Updates |

**Cost Summary:**

| Subsystem | Spent this period | Spent to date | Budget Allocated | Budget Remaining |
|---|---|---|---|---|
| TSI | $29.73 | $144.61 | $1,000 | $855.39 |
| GLV | $79.55 | $79.55 | $1,000 | $920.45 |
| VSCADA | $0 | $0 | $50 | $50.00 |
| Cell App | $0 | $0 | $125 | $125.00 |
| Controller Cooling System | $0 | $410.47 | $600 | $189.53 |
| Interconnect / Cabling / ICD | $0 | $0 | $1,000 | $1,000.00 |
| Dyno | $0 | $0 | $50 | $50.00 |
| TSV | $0 | $384.31 | $500 | $115.69 |
| Physics & Cruise Control | $0 | $0 | $0 | $0.00 |
| Shipping / Tax | $0* | $104.70 | $1,175 | $1,070.30 |
| ***Total*** | **$109.28** | **$1,123.64** | **$5,500** | **$4,376.36** |

**Note*: Shipping/Tax for this period is not yet known but will be included in next week's cost summary.

**Receiving Report:**

Request #2 – Cooling – SparkFun – Arduino Uno R3 and CAN BUS Shield (Appendix I)
Request #3 – Cooling – Koolance – Cooling system parts (Appendix II)
Request #4 – Cooling – SparkFun – LCD Display (Appendix III)
Request #5 – Cooling – Amazon – PWM Fans (Appendix IV)
Request #6 – TSI – EVWest – Precharge Relay (Appendix V)

The following items were received this period and can be found in the appendices listed above:

| Req # | Team | Vendor | Vendor PN | Qty | Item Description | Ordered Date | Received Date |
|---|---|---|---|---|---|---|---|
| 2 | Cooling | SparkFun | DEV-13262 | 1 | CAN-BUS Shield | 15-Feb-17 | 21-Feb-17 |
| 2 | Cooling | SparkFun | DEV-11021 | 1 | Arduino Uno - R3 | 15-Feb-17 | 21-Feb-17 |
| 3 | Cooling | Koolance | NZL-LXG1 | 2 | Fitting Elbow 1/4 BSPP | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | QD4-FS13X19 | 2 | QD4 Female Compression 13 x 19 | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | QD4-MSN38 | 2 | QD4 Male to 3/8 NPT Male | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | ADT-XMM-BK | 3 | Male-Male G 1/4 BSPP | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | FIT-V13X19-BK | 4 | Compression 13X19 to 1/4 BSPP | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | INS-FM17N | 1 | Flow Meter | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | SEN-TPL010K | 2 | Temperature Sensor | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | TAP-CP002P | 1 | Temperature Sensor Tape | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | SEN-AP007P | 1 | Temperature Sensor, Flat, 10K Ohm | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | PMP-450S | 1 | PMP-450S Pump, ID 13mm | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | HX-720 | 1 | Radiator, 2x120mm 30-FPI Copper | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | GRL-AP002P | 2 | Fan Grill, 120mm | 16-Feb-17 | 23-Feb-17 |
| 3 | Cooling | Koolance | CBL-CTR103P | 1 | 3-4pin Molex Power Adapter | 16-Feb-17 | 23-Feb-17 |
| 4 | Cooling | SparkFun | LCD-09568 | 1 | 20x4 LCD - Black on Green 5V | 16-Feb-17 | 22-Feb-17 |
| 5 | Cooling | Amazon | | 1 | Asiahorse PWM Solar Eclipse-Ultra Quiet Bearing 120mm DC Led Fan (2-pack) | 16-Feb-17 | 22-Feb-17 |
| 6 | TSI | EV West | GV200-QA | 1 | Gigavac GV200-QA EV Contactor - 4000 Amps Max - 48 Volt External Economizer PWM (Relay for motor controller) | 17-Feb-17 | 24-Feb-17 |

**Purchase Requests:**

Request #7 – GLV – Digikey – Panel LEDs (Appendix VI)
Request #8 – TSI – Digikey – Microchip (Appendix VII)
***Note*: Requests 7 and 8 were both sent in the same order but were approved separately

The following items were ordered this period and can be found in the appendices listed above:

| Req # | Team | Vendor | Vendor PN | Qty | Item Description | Ordered Date |
|---|---|---|---|---|---|---|
| 7 | GLV | Digikey | 350-4050-ND | 5 | Red LED Panel Indicator 24V | 21-Feb-17 |
| 7 | GLV | Digikey | 350-4053-ND | 5 | Green LED Panel Indicator 24V | 21-Feb-17 |
| 8 | TSI | Digikey | AT90CAN128-15AZCT-ND | 1 | IC MCU 8BIT 128KB FLASH 64TQFP | 21-Feb-17 |
| 8 | TSI | Digikey | PA0096-ND | 1 | Breakout board to convert TQFP to DIP | 21-Feb-17 |
| 8 | TSI | Digikey | MCP2551-I/P-ND | 1 | IC TRANSCEIVER CAN HI-SPD 8-DIP | 21-Feb-17 |

**Outstanding Orders:**
The following items have been ordered but have not yet been received:

| Req # | Team | Vendor | Vendor PN | Qty | Item Description | Ordered Date |
|---|---|---|---|---|---|---|
| 7 | GLV | Digikey | 350-4050-ND | 5 | Red LED Panel Indicator 24V | 21-Feb-17 |
| 7 | GLV | Digikey | 350-4053-ND | 5 | Green LED Panel Indicator 24V | 21-Feb-17 |
| 8 | TSI | Digikey | AT90CAN128-15AZCT-ND | 1 | IC MCU 8BIT 128KB FLASH 64TQFP | 21-Feb-17 |
| 8 | TSI | Digikey | PA0096-ND | 1 | Breakout board to convert TQFP to DIP | 21-Feb-17 |
| 8 | TSI | Digikey | MCP2551-I/P-ND | 1 | IC TRANSCEIVER CAN HI-SPD 8-DIP | 21-Feb-17 |

# APPENDIX I

## ECE Department Material Request

**Course:** ECE 492
**Professor:** Nadovich/Schmult

**Req Number:** 2

**Requested By:** Cooling (Yi Han)
**Requested Date:** 15-Feb-17
**Ship By:** Ground

**Vendor:** SparkFun
**Web Site:** https://www.sparkfun.com/
**Phone:** 303-284-0979

| # | Quantity | SparkFun SKU | Description | Unit Price | Total Price | Rcvd |
|---|---|---|---|---|---|---|
| 1 | 1 | DEV-13262 | CAN-BUS Shield | $24.95 | $24.95 | 21-Feb-17 |
| 2 | 1 | DEV-11021 | Arduino Uno - R3 | $24.95 | $24.95 | 21-Feb-17 |

| | |
|---|---|
| **Subtotal:** | $49.90 |
| **Shipping** | $9.10 |
| **Grand Total:** | $59.00 |

# APPENDIX II

## ECE Department Material Request

**Course:** ECE 492
**Professor:** Nadovich/Schmult

**Req Number:** 3

**Requested By:** Cooling (Yi Han)
**Requested Date:** 16-Feb-17
**Ship By:** Ground

**Vendor:** Koolance
**Web Site** www.koolance.com
**Phone** 253-249-7669

| # | Koolance SKU | Description | Quantity | Unit Price | Total Price | Rcvd |
|---|---|---|---|---|---|---|
| 1 | NZL-LXG1 | Fitting Elbow 1/4 BSPP | 2 | $9.99 | $19.98 | 23-Feb-17 |
| 2 | QD4-FS13X19 | QD4 Female Compression 13 x 19 | 2 | $15.99 | $31.98 | 23-Feb-17 |
| 3 | QD4-MSN38 | QD4 Male to 3/8 NPT Male | 2 | $12.49 | $24.98 | 23-Feb-17 |
| 4 | ADT-XMM-BK | Male-Male G 1/4 BSPP | 3 | $2.49 | $7.47 | 23-Feb-17 |
| 5 | FIT-V13X19-BK | Compression 13X19 to 1/4 BSPP | 4 | $6.74 | $26.96 | 23-Feb-17 |
| 6 | INS-FM17N | Flow Meter | 1 | $19.99 | $19.99 | 23-Feb-17 |
| 7 | SEN-TPL010K | Temperature Sensor | 2 | $19.99 | $39.98 | 23-Feb-17 |
| 8 | TAP-CP002P | Temperature Sensor Tape | 1 | $0.35 | $0.35 | 23-Feb-17 |
| 9 | SEN-AP007P | Temperature Sensor, Flat, 10K Ohm | 1 | $4.49 | $4.49 | 23-Feb-17 |
| 10 | PMP-450S | PMP-450S Pump, ID 13mm | 1 | $76.99 | $76.99 | 23-Feb-17 |
| 11 | HX-720 | Radiator, 2x120mm 30-FPI Copper | 1 | $47.99 | $47.99 | 23-Feb-17 |
| 12 | GRL-AP002P | Fan Grill, 120mm | 2 | $2.49 | $4.98 | 23-Feb-17 |
| 13 | CBL-CTR103P | 3-4pin Molex Power Adapter | 1 | $3.49 | $3.49 | 23-Feb-17 |

| | |
|---|---|
| **Subtotal:** | $309.63 |
| **Shipping Fees:** | $12.39 |
| **Grand Total:** | $322.02 |

APPENDIX III

# ECE Department Material Request

**Course:** ECE 492
**Professor:** Nadovich/Schmult

**Req Number:** 4

**Requested By:** Cooling (Yi Han)
**Requested Date:** 16-Feb-17
**Ship By:** Ground

**Vendor:** SparkFun
**Web Site:** www.sparkfun.com
**Phone:** 303-284-0979

| # | SparkFun SKU | Description | Quantity | Unit Price | Total | Rcvd |
|---|---|---|---|---|---|---|
| 1 | LCD-09568 | Serial Enabled 20x4 LCD - Black on Green 5V | 1 | $29.95 | $29.95 | 22-Feb-2017 |

| | |
|---|---|
| **Subtotal:** | $29.95 |
| **Shipping Fees:** | $9.10 |
| **Grand Total:** | $39.05 |

# APPENDIX IV

## ECE Department Material Request

**Course:** ECE 492
**Professor:** Nadovich/Schmult

**Req Number:** 5

**Requested By:** Cooling (Yi Han)
**Requested Date:** 16-Feb-17
**Ship By:** Ground

**Vendor:** Amazon
**Web Site:** www.amazon.com
**Phone:** 1-888-280-4331

| # | Description | Quantity | Unit Price | Total Price | Rcvd |
|---|---|---|---|---|---|
| 1 | Asiahorse PWM Solar Eclipse-Ultra Quiet Bearing 120mm DC Led Fan for Computer Cases, Long Life CPU Coolers 2pack(red) | 1 | $20.99 | $20.99 | 22-Feb-17 |

| | |
|---|---|
| **Subtotal:** | $20.99 |
| **Shipping Fees:** | $8.51 |
| **Grand Total:** | $29.50 |

APPENDIX V

# ECE Department Material Request

**Course:** ECE 492
**Professor:** Nadovich/Schmult

**Req Number:** 6

**Requested By:** TSI (Jack)
**Requested Date:** 17-Feb-17
**Ship By:** Ground

**Vendor:** EV West
**Web Site:** www.evwest.com
**Phone:** 1-888-591-5830

| # | Vendor PN | Description | Quantity | Unit Price | Total Price | Rcvd |
|---|---|---|---|---|---|---|
| 1 | GV200-QA | Gigavac GV200-QA EV Contactor - 4000 Amps Max - 48 Volt External Economizer PWM (Relay for motor controller) | 1 | $114.88 | $114.88 | 24-Feb-17 |

| | |
|---|---|
| **Subtotal:** | $114.88 |
| **Shipping Fees:** | $12.28 |
| **Grand Total:** | $127.16 |

APPENDIX VI

# ECE Department Material Request

**Course:** ECE 492
**Professor:** Nadovich/Schmult

**Req Number:** 7

**Requested By:** GLV (Kyle)
**Requested Date:** 21-Feb-17
**Ship By:** Ground

**Vendor:** Digikey
**Web Site:** www.digikey.com
**Phone:** 218-681-6674

| # | Vendor PN | Manufacturer PN | Description | Quantity | Unit Price | Total Price | Rcvd |
|---|---|---|---|---|---|---|---|
| 1 | 350-4050-ND | 6823135141F | LED PANEL INDCATOR RED 24V | 5 | $6.970 | $34.85 | |
| 2 | 350-4053-ND | 6823235142F | LED PANEL INDCATOR GREEN 24V | 5 | $8.940 | $44.70 | |

| | |
|---|---|
| **Subtotal:** | $79.55 |
| **Shipping Fees:** | |
| **Grand Total:** | |

Instructor Approval: _____

Digikey Cart URL: http://www.digikey.com/short/3f0t4p

# APPENDIX VII

## ECE Department Material Request

**Course:** ECE 492
**Professor:** Nadovich/Schmult

**Req Number:** 8

**Requested By:** TSI (Jack)
**Requested Date:** 21-Feb-17
**Ship By:** Ground

**Vendor:** Digikey
**Web Site:** www.digikey.com
**Phone:** 218-681-6674

| # | Vendor PN | Manufacturer PN | Description | Quantity | Unit Price | Total Price | Rcvd |
|---|---|---|---|---|---|---|---|
| 1 | AT90CAN128-15AZCT-ND | AT90CAN128-15AZ | IC MCU 8BIT 128KB FLASH 64TQFP | 1 | $12.89 | $12.89 | |
| 2 | PA0096-ND | PA0096 | Breakout board to convert TQFP to DIP | 1 | $15.79 | $15.79 | |
| 3 | MCP2551-I/P-ND | MCP2551-I/P | IC TRANSCEIVER CAN HI-SPD 8-DIP | 1 | $1.05 | $1.05 | |

| | |
|---|---|
| **Subtotal:** | $29.73 |
| **Shipping Fees:** | |
| **Grand Total:** | |

Instructor Approval: _____

Digikey Cart URL: http://www.digikey.com/short/3f01n0

| SUBSYSTEM | TOTAL NUMBER OF TASKS | PSL2 | PSL3 | PSL1* | COMPLETED TASKS |
|---|---|---|---|---|---|
| TSI | 30 | 0 | 1 | 1 | 2 |
| VSCADA | 21 | 0 | 1 | 2 | 3 |
| TSV | 28 | 4 | 2 | 1 | 7 |
| COOLING | 20 | 3 | 3 | 2 | 8 |
| GLV | 29 | 2 | 1 | 1 | 4 |
| CELL | 24 | 2 | 1 | 1 | 4 |
| DYNO | 21 | 0 | 2 | 1 | 3 |
| IC | 12 | 1 | 1 | 0 | 2 |
| PHYS | 14 | 0 | 0 | 0 | 0 |
| MGMT | 38 | 3 | 4 | 0 | 7 |