Status Letter

Week 4 - 2/16/15
LFEV

Team Milestones:

VSCADA:

Last week:

User manual did not complete due to reschedule. Hard purchase is impeded due to the unapproved budget. Resubmit team schedule.

This week:

We plan to redefine VSCADA system design and states based on feedback from PDR. Place the order for a dashboard and microcontrollers. Finish GUI coding.

DYNO:

User manual complete and all motor and dyno sensors designed and picked out. Dyno sensor computer integration complete.

TSV:

Last week, we completed the User's manual and the first draft of the ATP, as well as a revised and rescued budget.

We plan to produce a final draft of the ATP, as well as design proposals for the new aspects of the pack.

GLV:

Last week we completed the first draft of user manual for the GLV system. During this week, the GLV team plans on designing all panels to be added to the user manual. Drafting of all PCB will also be complete.

Ongoing Tasks:

Finalize the budget.

Outstanding Action items:

Website: Ken has started the process for getting us hosted long term. --Steve

Budget:

ECE Spring 2015 Budget Request by group			
Item/Group	Quantity	Price	Total
SCADA			
Embedden Computer System	1	400	400
Dashboard LCD display and controller	1	100	100
Wireless Radio	1	50	50
GPS radio	1	50	50
DC-DC converter	1	35	35
Safety Loop Solid State Relay	2	10	20
Slave Sensor Micro Controller Hardware	4	15	60
		total	715
GLV			0
24V battery	1	185	185
Smart Charger	1	25	25
overvoltage protector - LTC4365	1	2	2
PolySwitch - LVR055	1	2	2
Container	1	150	150
Board	1	40	40
Red LED - McMaster-Carr 2779K7	2	9.62	19.24
Green LED - McMaster-Carr 2779K2	2	14.52	29.04

Wiring and fuses	1	150	150
Acrylic Frame	1	16.68	16.68
Veam Powerlocks	4	55	220
Tractive System Active Light Lamp	1	44.6	44.6
Physical Container	1	150	150
Circuit Board	1	40.79	40.79
Speaker - BUZZ PIEZO CIRC 42.85MM PANEL	1	37.55	37.55
Audio Amplifier	1	8	8
Temperature Sensor	4	6	24
Current Sensor	2	15	30
Voltage Sensor	2	19	38
Rate of Discharge Sesnor	1	15	15
Rate of Charge Sensor	1	15	15
State of Charge Sensor	1	6	6
VCI Container	1	150	150
		total	1397.9
DYNO			0
0 AWG (gage) wire - 50ft	1	$75.00	$75.00
Wire connector package	1	$50.00	$50.00
Temp sensor - LM20CIM7/NOPBCT-ND	3	$1.00	$3.00
Curtis 1314 software	1	$450	$450.00
4 to 8 pin adapter Motor controller	1	$20	$20.00
		total	$598.00
TSV			
Advanced Circuits PCD AMS and BOB boards	32	33	$1,056.00

parts from Mouser	1	459	$459.00
parts from digikey	1	141.7	$141.70
Microcontroller	3	308	$924.00
Micro SD card 4GB Class 10 industrial	3	10.54	$31.62
Fuse - 200A, Class T, A3A, 300Vac/160VDC	4	28.34	$113.36
Fuse Holder - 200A AC, 300V, a Pole, molder	4	71.81	$287.24
Fans - 119x25 24DC 100CFM 5W 2900RPM 43 dbA	4	40.95	$163.80
AIR - 350A contractor	7	94.35	$660.45
50A miniTactor	8	40	$320.00
Panel Drain, Line 3, Grey	4	51.26	$205.04
Panel Source, Neutral, Blue	4	54.33	$217.32
LCD Character Display Module STN Y/G	4	27	$108.00
Galvanically Isolated Ethernet	4	130	$520.00
Other Parts	1	1600	$1,600.00
			$0.00
			$0.00
		total	$6,807.53

Total Money	5000
Total Requested	9518.43
Remaining Money	-4518.43

Tasks due within the last 7 days

Printed from Asana

Adam Cornwell

- [x] **Adam Cornwell:** ~~Revise System States~~ due Feb 13

Alex Hytha

- [x] **Alex Hytha:** ~~Safety Plan Draft~~ due Feb 14
  On the Drive under Dyno
- [x] **Alex Hytha:** ~~Acceptance Test Plan Draft~~ due Feb 14
  Can be found at http://sites.lafayette.edu/ece492-sp15/files/2015/02/D004-AcceptanceTestPlan.pdf

Aloysius Posillico

- [x] **Aloysius Posillico:** ~~GLV TSI User Manual~~ due Feb 12

Ben

- [x] **Ben:** ~~Concept design battery cell restraint~~ due Feb 12

Bikram Shrestha

- [x] **Bikram Shrestha:** ~~Redefine preliminary UI design~~ due Feb 13
- [x] **Bikram Shrestha:** ~~Research Database systems~~ due Feb 11

Brendan Malone

- [x] **Brendan Malone:** ~~Power Supply Research~~ due Feb 14
  On the Drive under Dyno
- [x] **Brendan Malone:** ~~Connector Research~~ due Feb 14
  On the Drive under Dyno

Daniel Zakzewski

- [x] **Daniel Zakzewski:** ~~Compile User Manual~~ due Feb 12

Freddie Hess

- [x] **Freddie Hess:** ~~Cost: welding battery case~~ due Feb 12
  Is welding a feasible option for the battery case cost and strength wise?

Hansen Liang

- [x] **Hansen Liang:** ~~Acceptance test plan draft~~ due Feb 15
  ATP draft was finished and can be found here: http://sites.lafayette.edu/ece492-sp15/files/2015/02/AcceptanceTestPlanDraft-TSV.pdf

Jaejoon Yang

- [x] **Jaejoon Yang:** ~~Create BoM for needed materials~~ due Feb 15
  Budget was reduced from ~$9600 to $6,593. Full spreadsheet can be seen here:
- [x] **Jaejoon Yang:** ~~Contact Formula competition about window in pack~~ due Feb 15

John Bloore

- [x] **John Bloore:** ~~MSC Development~~ due Feb 14
  Proposal on the drive
- [x] **John Bloore:** ~~Prepare AEC 401~~ due Feb 14
  Floor plan on the drive

John Gehrig

- [x] **John Gehrig:** ~~Redefine system hierarchy~~ due Feb 13

Jordan Blake

- [x] **Jordan Blake:** ~~Redesign charging structure~~ due Feb 15

Jordan Frank

- [x] **Jordan Frank:** ~~GLV Safety Loop User Manual~~ due Feb 12

Kai Ottaway

- [x] **Kai Ottaway:** ~~Concept design for BMS restraint~~ due Feb 12

Katie Nellis

- [x] **Katie Nellis:** ~~User's manual~~ due Feb 15

Nate Hand

- [x] **Nate Hand:** ~~Motor Controller Research~~ due Feb 14
  Documentation can be found on the drive under Dyno

Nick DiNino

- [x] **Nick DiNino:** ~~GLV Power User Manual~~ due Feb 12

Rameel Sethi

- [x] **Rameel Sethi:** ~~expand ATP from outline~~ due Feb 12

Sam

- [x] **Sam :** ~~Block Diagram~~ due Feb 13
- [x] **Sam :** ~~Application design and GUI prototype~~ due Feb 13

- [x] **Sam :** ~~Research sensors/protocols already on the system and possible additions~~ due Feb 11
  Work with other team, and focus on protocols

Stephen Mazich

- [x] **Stephen Mazich:** ~~ICD Draft~~ due Feb 14
  Submitted to the website
- [x] **Stephen Mazich:** ~~Calibration and Accuracy Draft~~ due Feb 14
  The document can be found on the website
- [x] **Stephen Mazich:** ~~D000 - PDR Presentation~~ due Feb 10
  All materials presented or referenced at PDR shall be on the project web site and delivered to the reviewers 24 hours prior to the commencement of PDR.

  PDR Materials include a slideshow presentation that summarizes the PDR Report, along with the PDR Report itself.

  The PDR Report is a professionally written technical report that must include the following items:

  - [x] ~~A preliminary system acceptance test strategy applicable to this phase. This should be a high level plan of how the team will prove that the final fabricated system meets all requirements.~~
  - [ ] ~~A system-design baseline, including detailed and complete hierarchical subsystem breakdown. This breakdown shall be reflected in all other documentation consistently. Traceability matrices, risk assessments, schedules, etc... shall all be consistent with this breakdown.~~
  - [ ] ~~A requirements analysis (traceability matrix) showing that the design addresses all requirements and constraints. The traceability matrix shall allocate every top-level requirement to a functional requirement or interface in at least one subsystem, and every subsystem shall have each of its functions and interfaces related to at least one top-level requirement.~~
  - [ ] ~~A system state analysis that enumerates the system states and the events thatcause transitions between states. This analysis must describe exactly where system state information is maintained in hardware and/or software, what the state information consists of, and how the information required for state transitions is communicated among different locations.~~
  - [ ] ~~A risk assessment identifying critical areas of risk and strategies for managing or ameliorating potential adverse consequences of that risk.~~
  - [ ] ~~A cost analysis and detailed program budget that demonstrates compliance with financial constraints.~~
  - [ ] ~~A task breakdown (Work Breakdown Structure, or WBS) and detailed programschedule focusing on the tasks that must be accomplished to complete the overall project. The schedule should identify specific, measurable tasks that each team member will accomplish individually, and specific, measureable milestones the team will accomplish together. There must be at least one overall team milestone and at least one individual task scheduled for every team member and due for completion each and every week of the project, including spring break week.~~

William Stathis

- [x] **William Stathis :** ~~Redesign Work Breakdown Schedule~~ due Feb 15
  The current work breakdown was determined to be unfeasible given the state of the previous year's project, so a revised breakdown was created to reflect more realistic goals and scope.
- [x] **William Stathis :** ~~Hash out communication interface with SCADA~~ due Feb 15
  We have determined we will use galvanically isolated Ethernet to communicate between the PacMan systems and the main VSCADA computer. An Ethernet switch will be used to allow communication with all four packs. Initially, the VSACDA computer will simply ssh into the PacMan to receive data until a call and response protocol can be established.

Yiming Chen

- [x] **Yiming Chen:** ~~Revisit team schedule~~ due Feb 13

- [x] **Yiming Chen:** ~~Unit Testing Research/Good Coding Practices~~ due Feb 10
  - [ ] ~~Submit a documentation upon this research~~

Zach Helwig

- [x] **Zach Helwig:** ~~GLV VCI User Manual~~ due Feb 12
  Incomplete. Needed significant revising.

Unassigned

- [x] ~~Update Powerpoint~~ due Feb 10
  I gave an outline of what you should update AT A MINIMUM. Please take a look at it today. Get it done before dinner tomorrow. We will go though a practivce run tomorrow night
  - [x] **Nick DiNino:**
  - [x] **Aloysius Posillico:**
  - [x] **Zach Helwig:**
    Make sure all your images have a source
  - [x] **Jordan Frank:**

- [ ] D002 - Users Manual due Feb 16
  A users manual, per GPR001, shall be provided. This should be a high level document that contains an annotated drawing of the physical system, annotated screen shots of all user interface screens, annotated drawings of any physical control panels, indicator buttons, power switches, and other controls. The users manual must include a simplified block diagram, explains all operational procedures and techniques needed to operate the system is a safe and effective manner, including “getting started”, “FAQ”, detailed explanations of all functions and controls, and user level troubleshooting, calibration and maintenance.

- [ ] D015 Draft - Project Interface Control Document due Feb 13
  A project-level Interface Control Document (ICD) is required. This document shall be produced by the collaborative effort of all the design teams, but a specific individual or task-team shall be entirely responsible for the accuracy of the ICD. This document shall accurately and completely define all (electrical, mechanical, and semantic) aspects of top-level interfaces, including cables and connectors, functional states and processes, wireless interfaces, communications protocols, software APIs, mechanical mounting interfaces, limits, keep-outs, boundaries, and any other relevant fact about the system that needs to be coordinated between different designers.

- [ ] D011 Draft - Calibration and Accuracy due Feb 13
  Any data acquisition system design or test plan must be accompanied by a Calibration and Error Analysis document that estimates the uncertainties associated with all system measurands. This document must include both analytical estimates of measurement uncertainty, as well as a justified design of acceptance tests to determine the uncertainty achieved in practice. The testing design from this document shall be incorporated into the system ATP.

- [ ] D004 Draft - Acceptance Test Plan due Feb 13
  The Acceptance Test Plan (ATP) is a document that describes how the system as a whole will be tested and demonstrated so as to prove compliance with all requirements and specifications. The ATP should include forms that can be filled out by testers during execution. These filled out forms will be used to create the ATR.
  - [ ] GLV
  - [ ] TSV
  - [ ] SCADA
  - [ ] DYNO

Incomplete Tasks due within the next 7 days

Printed from Asana

Adam Cornwell

- ☐ **Adam Cornwell:** Maintainability of language and operating system ‹ Maintenance Plan — due Feb 20
- ☐ **Adam Cornwell:** Finalize system states and define inputs/outputs — due Feb 18
- ☐ **Adam Cornwell:** Research languages/IDEs to use — due Feb 19
- ☐ **Adam Cornwell:** Getting Started ‹ Operation Procedures — due Feb 20

Alex Hytha

- ☐ **Alex Hytha:** Sensor System Designed — due Feb 21

Aloysius Posillico

- ☐ **Aloysius Posillico:** TSI PCB Draft — due Feb 20
- ☐ **Aloysius Posillico:** TSI Panels — due Feb 20

Bikram Shrestha

- ☐ **Bikram Shrestha:** Design GUI for 3 modes — due Feb 20
- ☐ **Bikram Shrestha:** maintenance plan Elaboration ‹ Operation Procedures — due Feb 20

Brendan Malone

- ☐ **Brendan Malone:** User manual — due Feb 19

Daniel Zakzewski

- ☐ **Daniel Zakzewski:** VCI PCB Draft — due Feb 20
- ☐ **Daniel Zakzewski:** VCI Panels — due Feb 20

Hansen Liang

- ☐ **Hansen Liang:** Final Acceptance test plan — due Feb 22

Jaejoon Yang

- ☐ **Jaejoon Yang:** Proposal for 20V indicator design — due Feb 22

John Bloore

- ☐ **John Bloore:** Dyno Integration — due Feb 21

John Gehrig

- ☐ **John Gehrig:** Place the order for dashboard and microcontrollers due Feb 19
- ☐ **John Gehrig:** Place the purchase for embedded system due Feb 18
- ☐ **John Gehrig:** User Troubleshooting ‹ Operation Procedures due Feb 19

Jordan Blake

- ☐ **Jordan Blake:** AIR failure sensor for main fuse due Feb 22

Jordan Frank

- ☐ **Jordan Frank:** Safety Circuit PCB Draft due Feb 20

Kai Ottaway

- ☐ **Kai Ottaway:** Rearrange top of box due Feb 19

Katie Nellis

- ☐ **Katie Nellis:** Proposal for full system reset designs due Feb 22

Nate Hand

- ☐ **Nate Hand:** Motor Controller Cooling due Feb 21

Nick DiNino

- ☐ **Nick DiNino:** Select a GLV Battery and Protective Hardware due Feb 20
- ☐ **Nick DiNino:** GLV Power Circuit Board Draft due Feb 20
- ☐ **Nick DiNino:** GLV Power Panels due Feb 20

Rameel Sethi

- ☐ **Rameel Sethi:** Simple startup software on Virtualbox due Feb 20
- ☐ **Rameel Sethi:** Research wireless communication systems due Feb 20
  - ☐
- ☐ **Rameel Sethi:** Calibration ‹ Operation Procedures due Feb 20

Sam

- ☐ **Sam :** Software level CAN outline and library design due Feb 20
- ☐ **Sam :** FAQ ‹ Operation Procedures due Feb 19

Stephen Mazich

- ☐ **Stephen Mazich:** User Manual due Feb 19

William Stathis

- [ ] **William Stathis :** Learn LCD display code, make rudimentary changes due Feb 22

Yiming Chen

- [ ] **Yiming Chen:** Complete User Manual due Feb 20
- [ ] **Yiming Chen:** Functions and Controls ‹ Operation Procedures due Feb 19

Zach Helwig

- [ ] **Zach Helwig:** Side Control Panel Layout due Feb 20
- [ ] **Zach Helwig:** Cockpit Control Panel Layout due Feb 20

Unassigned

- [ ] D011 - Calibration and Accuracy due Feb 23
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- [ ] D004 - Acceptance Test Plan due Feb 23
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  Compliance must be conclusively proved in any of the following three ways:

  • Analysis – detailed logical analysis can demonstrate compliance by reasoning from known facts (a priori or empirically) similar to the form of a mathematical proof. Analysis can be used cited research results in conjunction with the documented results of subsystem QA testing, along with generally accepted technical principles to prove system level requirements are met. Analysis memos and relevant data are attached to the ATR.

  • Test – an explicit test, experiment, or demonstration can be used to prove compliance with a certain requirement by acquiring new empirical facts and combining these with analysis as described above. The comprehensive results of any measurements conducted as part of an ATP test is included in the ATR, along with date and time of the test, the pass/fail criteria, uncertainty, statistical confidence, pass/fail result, witness name, and witness signature..

  • Inspection –compliance is made evident by directly examining the system. Photographs with detailed annotations or other evidence gathered in an inspection is included in the ATR.

  The ATP should be arranged to minimize the work involved in testing. If possible, multiple requirements should be demonstrated by each test. The ATP should include a compliance matrix making it obvious that all requirements have been addressed by the plan.

  Numerical specifications shall be considered “passed” if the measured value is demonstrated by empirical statistical trials to meet the specification at a 90% confidence interval.

- [ ] D002 - Users Manual due Feb 16
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