

Total Project Completion	Subsystems	Percentage	Team	Team member
49.02%	TSV (20%)	51.25%	TSV	Waseh, Sarah, Shu
	GLV (10%)	70.00%	TSI	Peter, Austin, Thomas
	Cooling (10%)	82.50%	VSCADA	Geoff, Connor, Chen
	IC (10%)	45.00%	GLV	Kevin, Russell
	MGMT (5%)	21.00%	Cooling	Russell
	Dyno (10%)	70.00%	Dyno	Chen
	VSCADA (15%)	44.00%	Interconnect	Matt, Amrit
	TSI (20%)	21.85%	Management	Waseh, Kevin, Nakul, Amrit
				Waseh - System management
				Kevin - General Management
				Nakul - Rules/General Management
				Amrit - Purchasing
* Note: This version of WBS means the completion of the car by 3/2				

TSV Delivered	TSV 1	AMS Delivered (30%)	TSV 1.1	Testing new AMS boards (20%)	TSV 1.1.1	Record AMS boards status (25%)		
					TSV 1.1.2	28 Functional AMS boards (25%)		
					TSV 1.1.3	verify/calibrate using the AMSVU (25%)		
					TSV 1.1.4	Document boards and their current status (25%)		
			TSV 1.2	AMS boards watchdog frequency recognized (10%)	TSV 1.2.1	Fixed AMS boards watchdog frequency (50%)		
					TSV 1.2.2	Record list of parameters (watchdog frequency) of AMS boards which are not recognized (50%)		
			TSV 1.3	Connect Monitoring Connector to one AMS board (10%)	2/19/19	Sarah		
	TSV 1.4	Diagram for the monitoring board connections (10%)	2/14/18	Sarah				
	TSV 1.5	Parts ordered for new AMS boards (10%)	2/14/18	Sarah				
	TSV 1.6	Fabrication of AMS boards (20%)						
	TSV 1.7	Install I2C cables (20%)	2/23/18	Sarah				
	TSV 2	PACKMAN Delivered (30%)	TSV 2.1	Replace Crystal on PacMAN with better part (25%)				
					TSV 2.2.1	4 PACMan with potential Workability (35%)		
			TSV 2.2	4 PACMan working with test unit (25%)	TSV 2.2.2	Ensure all components are on the board (35%)		
					TSV 2.2.3	Ensure CAN bus working on all PackMan (30%)		
			TSV 2.3	Functional USB UART (25%)	TSV 2.3.1	Establish UART communication with TSV		
			TSV 2.4	Limit lower boundary of cell voltage (25%)	TSV 2.4.1	Test circuit with fixed lower limit in code (35%)		
					TSV 2.4.2	Fix code for lower limit (35%)		
	TSV 2.4.3	Determine source of problem for limitation (30%)						
	TSV 3	Individual PACKS Delivered (35%)	TSV 3.1	Update Fuse in Packs (200A to 300A) (25%)				
					TSV 3.2.1	verify correct working of packs 3 and 4 (25%)		
			TSV 3.2	Clocks working properly in all Packs (35%)	TSV 3.2.2	Fixed Pack 3 clock (25%)		
					TSV 3.2.3	Fixed Pack 4 clock (25%)		
TSV 3.2.4					Record current status of packs 3 and 4 clock (25%)			
TSV 3.3			Packs Rewired (40%)	TSV 3.3.1	Correct Wiring of Buttons (25%)	2/16/18	Waseh	
				TSV 3.3.2	Added & Ordered USB cables(25%)	2/16/18	Waseh	
TSV 3.3.3	Grounding clamps ordered(25%)	TSV 3.3.3	Grounding clamps ordered(25%)	2/13/18	Waseh			
		TSV 3.3.4	Grounding of Pigtail connectors (25%)		Need IC1.3.3 Completed			
TSV 5	Management (5%)	TSV 4.1	Acceptance Test Plan (60%)					
		TSV 4.2	Parts List/Bill of Material (40%)					

TSI Delivered	TSI 1	Board Delivered (30%)	TSI 1.1	Updated Circuit Schematic Delivered (35%)	TSI 1.1.1	Deliver TSAL Circuit (35%) - Peter				
					TSI 1.1.2	Deliver Plausability Adjustment Changes (35%) - Peter				
					TSI 1.1.3	Finished the layout (30%)	2/14/18	Peter		
				TSI 1.2	PCB Schematic Delivered/Ordered (40%)	2/14/18	Peter			
				TSI 1.3	Test of Old Board (25%) - Peter	TSI 1.3.1	Throttle Plausibility (50%) - Peter			
			TSI 1.3.2			Brake System (50%) - Peter				
		TSI 2	Firmware Delivered (40%)	TSI 2.1	Current Measuring Delivered (20%)	2/14/18	Thomas		Overdue	
				TSI 2.2	IMD Status Delivered (20%)	2/14/18	Thomas		Overdue	
				TSI 2.3	Temperature Sensor Delivered (20%)	2/16/18	Austin		Overdue	
				TSI 2.4	CAN Communication with SCADA (20%)	TSI 2.4.1	Ability to send current measurement (20%)	2/19/18	Thomas	
						TSI 2.4.2	Ability to send temperature measurement (20%)	2/19/18	Austin	
						TSI 2.4.3	Ability to send IMD status (20%)	2/19/18	Thomas	
						TSI 2.4.4	Ability to send brake overtravel status (10%)	2/19/18	Thomas	
						TSI 2.4.5	Ability to set throttle to 0 from VSCADA (10%)	2/19/18	Austin	
						TSI 2.4.6	Sending voltage measurement to SCADA over CAN (10%)	2/19/18	Thomas	
						TSI 2.4.7	Ability to receive data (10%)	2/19/18	Austin	
				TSI 2.5	Safety Loop and Drive States Delivered (10%)	2/23/18				
		TSI 2.6	Voltage Measurement (10%)	2/14/18	Thomas		Overdue			
		TSI 3	Other TSI parts Delivered (25%)	TSI 3.1	Wiring/Test the board into new enclosure (20%)					
				TSI 3.2	Wiring Diagram (20%)	2/23/18	Peter			
				TSI 3.3	Calibration of Current Sensor (20%)	2/14/18	Austin		Overdue	
				TSI 3.4	IMD Test with cables (20%)					
				TSI 3.5	TSAL Mounted and Wired(10%)					
				TSI 3.6	Grounding and Sealing of TS cables (10%)	2/13/18	Austin (rely on IC1.3.4)			
		TSI 4	Paperwork/Management (5%)	TSI 4.1	Acceptance Test Plan (60%)					
				TSI 4.2	Parts List/Bill of Materials (40%)					

Dyno	Dyno 1	Dyno Room Setup (35%)	Dyno 1.1	Motor installation & setup (20%)			
			Dyno 1.2	GLV installation & setup (20%)			
			Dyno 1.3	Cooling installation & setup (20%)			
			Dyno 1.4	TSI replacement installed (20%)			
			Dyno 1.5	Dyno software setup (20%)			
	Dyno 2	System integration in Dyno room (25%)					
	Dyno 3	Dyno Software update (10%)	Dyno 3.1	Document current bugs (40%)			
			Dyno 3.2	Fix the bugs (60%)			
	Dyno 4	Dyno Maintainance(25%)	Dyno4.1	Dyno Software Rework(70%)			
			Dyno 4.2	Improve Dyno Software Performance(10%)			
Dyno 4.3			Find Solution to the Stuck Motor (20%)				
Dyno 5	Management (5%)	Dyno 5.1	Acceptance Test Plan (60%)				
		Dyno 5.2	Parts List/ Bill of Material (40%)				
VSCADA	SCADA 1	Store CAN data (20%)	SCADA 1.1	Install PeeWee (10%)			
			SCADA 1.2	Determine the sampling rate of CAN data (10%)			
			SCADA 1.3	Create the data file using PeeWee (10%)			
			SCADA 1.4	Create Sqlite Scheme (20%)			
			SCADA 1.5	Create PeeWee models (20%)			
			SCADA 1.6	Create functions that store CAN data into database (20%)			
			SCADA 1.7	Export CSV (10%)			
	SCADA 2	Monitor Data (20%)	SCADA 2.1	Determine if any values from CAN data exceed the maximum allowed values and flag them in database (20%)			
			SCADA 2.2	Develop Mapping for CAN Data (20%)			
			SCADA 2.3	Processing Binary CAN data (20%)	2/14/18	Geoff	
			SCADA 2.4	Log data that exceeds thresholds (20%)	2/14/18	Connor	
			SCADA 2.5	Drop out drive mode (20%)	2/23/18	Connor	
	SCADA 3	Display CAN data(30%)	SCADA 3.1	Display important data values (20%)	2/23/18	Geoff & Connor	
			SCADA 3.2	Create a UML diagram for users (10%)	2/13/18	Geoff	
			SCADA 3.3	Order new display that will fit in the car (10%)			
			SCADA 3.4	Setup USB Dashboard display (10%)	2/19/18	Geoff	
			SCADA 3.5	Configure Buttons and LEDs on Dashboard Display (20%)	2/19/18	Geoff	
			SCADA 3.6	Setup 7" Touch Screen Display (Order longer DSI Ribbon Cable) (10%)	2/23/18	Connor	
			SCADA 3.7	Python Display for GLV (20%)	2/16/18	Connor	Overdue- Deadlien Pushed
	SCADA 4	Integrate Pi with the Car (20%)	SCADA 4.1	Confirm that Pi stays in high power mode (20%)			
			SCADA 4.2	Test receive data from TSV (20%)			
			SCADA 4.3	Test receive data from TSI (20%)			
			SCADA 4.4	Test that a user can SSH into Pi from laptop (20%)			
			SCADA 4.5	Screw Pi into GLV (order/find male/female screw spacer) (10%)			
			SCADA 4.6	Add screw terminals to PiCAN2 board for powering Pi (10%)			
	SCADA 5	Interact with Pi in car (5%)	SCADA 5.1	Setup Wifi module on Pi (100%)			
	SCADA 6	Management (5%)	SCADA 6.1	Acceptance Test Plan (60%)			
SCADA 6.2			Parts List/ Bill of Material (40%)				

					Date		
GLV System Delivered	GLV 1	Functional SSOK lamp (45%)	GLV 1.1	SSOK Lamp Selected & Ordered (20%)			
			GLV 1.2	SSOK rework (80%)	2/13/18	Kevin	
	GLV 2	Functional GLV in the new case (50%)	GLV 2.1	Draw GLV wiring diagram (50%)	2/15/18	Kevin	
			GLV 2.2	Rewire GLV in the new case(50%)	2/19/18	Russell & Kevin	
	GLV 3	Management (5%)	GLV 3.1	Acceptance Test Plan (60%)			
			GLV 3.2	Parts List/ Bill of Material (40%)			
Cooling System Delivered	Cooling 1	Cooling System set up in Dyno room (45%)	Cooling 1.1	DC/DC converter selected & Ordered (40%)			
			Cooling 1.2	Test and integrate converter with cooling system(60%)			
	Cooling 2	Functional Cooling system in new box (50%)	Cooling 2.1	Design new cooling system box/setup(25%)	2/14	Russell	
			Cooling 2.2	Fabricate and acuire the new cooling system(25%)	2/16	Russell	
			Cooling 2.3	Integrate current cooling system in the box (25%)	2/20/18	Russell	
			Cooling 2.4	Create wires for the cooling system (25%)			
	Cooling 3	Management (5%)	Cooling 3.1	Acceptance Test Plan			
Cooling 3.2			Parts List/ Bill of Material				

				Dates						
Interconnect	IC 1	Exchange and fix current cabling issues (95%)	IC 1.1	Replace Crimp connectors with DTO6 connectors (25%)	IC 1.1.1	Record all cables with crimp connectors (50%)				
					IC 1.1.2	Remove crimp connectors and connect with DTO6 (50%)	2/19/18	Matt	Overdue: latest by 2/20	
			IC 1.2	Replace cables (25%)	IC 1.2.1	Make list of all cables with locations (20%)				
					IC 1.2.2	Identify low quality cables (20%)				
					IC 1.2.3	Order replacement cables (20%)	2/13/18	Matt		
					IC 1.2.4	Remove old cable and install new cable (10%)				
					IC 1.2.5	Order new DTO6 connectors (10%)				
					IC 1.2.6	Change TS cables (10%)				
			IC 1.3	Install new Amphenol connectors on the TSV battery packs to be used with orange shielded cable (25%)	IC 1.2.7	Necessary tools listed/ordered (10%)	2/14/18	Matt	Overdue: Due latest by 2/20	
					IC 1.3.1	Diagram for Amphenol connectors (30%)				
					IC 1.3.2	Amphenol Connectors Ordered (30%)				
					IC 1.3.3	Install Amphenol connectors and shielded cable (30%)	2/14/18	Matt	Need Hex crimp die first	
			IC 1.4	Give cables proper strain relief (25%)	IC 1.3.4	Order more orange cables (10%)	2/13/18	Matt	Overdue: Due latest by 2/20	
					IC 1.4.1	Research solution to give cables strain relief with shells(35%)				
	IC 1.4.2	Identify cables that need strain relief (35%)								
	IC 2	Management (5%)	IC 1.4.3	Order necessary components and add components to cables (30%)						
IC 2.1			Acceptance Test Plan (60%)							
			IC 2.2	Parts List/ Bill of Material (40%)						

Management	MGMT 1	Project Status Letter (10%)	MGMT 1.1	Project Status Letter - week 1 (7.14%)	
			MGMT 1.2	Project Status Letter- week 2 (7.14%)	
			MGMT 1.3	Project Status Letter - week 3 (7.14%)	
			MGMT 1.4	Project Status Letter - week 4 (7.14%)	
			MGMT 1.5	Project Status Letter- week 5 (7.14%)	
			MGMT 1.6	Project Status Letter - week 6 (7.14%)	
			MGMT 1.7	Project Status Letter - week 7 (7.14%)	
			MGMT 1.8	Project Status Letter - week 8 (7.14%)	
			MGMT 1.9	Project Status Letter - week 9 (7.14%)	
			MGMT 1.10	Project Status Letter - week 10 (7.14%)	
			MGMT 1.11	Project Status Letter - week 11 (7.14%)	
			MGMT 1.12	Project Status Letter - week 12 (7.14%)	
			MGMT 1.13	Project Status Letter - week 13 (7.14%)	0.714
			MGMT 1.14	Project Status Letter - week 14 (7.14%)	
	MGMT 2	ECE documentation Delivered (20%)	MGMT 2.1	PDR Delivered (20%)	4
			MGMT 2.2	CDR Delivered (20%)	
			MGMT 2.3	User Manual Delivered (20%)	
			MGMT 2.4	Maintenance Manual Delivered (20%)	
			MGMT 2.5	Final Poster Delivered (20%)	
	MGMT 3	Photo Management (5%)	MGMT 3.1	Document all the required photographs that need to be taken (50%)	2.5
			MGMT 3.2	Take all the pictures (50%)	
	MGMT 4	Sticker Management (5%)	MGMT 4.1	Document all the required stickers that need to place on the car (40%)	2
			MGMT 4.2	Select and order/make stickers (30%)	
			MGMT 4.3	Place all the stickers (30%)	
	MGMT 5	Fuse/Circuit Breaker Verification (10%)	MGMT 5.1	Document all the existing fuses on the car (25%)	5
			MGMT 5.2	Document /cross reference existing fuses with the rules (25%)	
			MGMT 5.3	Select and order fuses (25%)	
			MGMT 5.4	Replace fuses (25%)	
	MGMT 6	ATP Delivered (10%)	MGMT 6.1	Rules Check list	
	MGMT 7	Video (10%)			
	MGMT 8	Formula Electric Forms Delivered (20%)	MGMT 8.1	Program Submission (2%) 12/08/2017	
			MGMT 8.2	ESF-1 (10%) 11/10/2017	
			MGMT 8.3	Team Photo (1%) 12/08/2017	33
MGMT 8.4			Interim Project Management Report (5%) 02/02/2018		
MGMT 8.5			Impact Attenuator Data (15%) 02/09/2018		
MGMT 8.6			Site Pre-Registration (1%) 02/16/2018		
MGMT 8.7			Failure Mode Effects Analysis (10%) 02/23/2018		
MGMT 8.8			ESF-2 (10%) 02/23/2018		
MGMT 8.9			Design Reports (15%) 03/23/2018		
MGMT 8.10			Sustainability Report (15%) 03/23/2018		
MGMT 8.11			Design Specification Sheet (15%) 03/23/2017		
MGMT 8.12			Mentor Request (1%)		
* not all the MGMT 8 are required for ECE					