

Marshall Fritz
Trent Greene
Jackson Nichols
Liam O'Connor
Aidan Willson

FSAE Powertrain Management Spring 2026

Reflection

Overall, the semester went well for powertrain. Due to a late start and lack of upfront finances, we are behind on physical building. Also, because each sub team is reliant on the others to progress, hiccups in each subteam have slowed overall progress. However, our proposed schedule is reasonable to achieve our ultimate goal of competing at the FSAE event.

Successes:

- Design work
- Teamwork was great

Room for Improvement:

- More initiative from everyone: Already on the right foot for this semester.
- More cohesion between teams
- Even

Action items:

- More normal shop hours
- Communication needs to be face-to-face, in the shop. No more trying to figure stuff out over the phone.
- Keep track of progress better
- Rebuild motors
- Hold everyone accountable for effort- Realistically everyone will need a min. of 20 hrs/week to finish the project on time.

Remaining design efforts:

- Diff mount partial redesign: Mounts to the engine with bolt-on tabs need to be finalized (This week.) Previous diff design would be difficult to machine, modular mount was recommended to straighten members and save money.)
- Chain guard
- Finalize intake and exhaust routing
- Tuning

Gantt Chart

2026 FSAE POWERTRAIN GANTT																					
SAE Deliverables																					
Item	Due date	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Spring Bre	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	
SES	1/12/2026	Done	Done																		
Fuel Order	3/2/2026																				
Cost 2026 - Online Cost Report * [R]	3/30/2026																				
Design 2026 - Design 3-View Drawings * [R]	3/30/2026																				
Design 2026 - Design Briefing * [R]	3/30/2026																				
Design 2026 - Design Spec Sheet * [R]	3/30/2026																				
Cost 2026 - Request for Quote (RFQ) [R]	4/29/2026																				
Competition	5/13/2026																				
486C Deliverables																					
Item	Due date	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Spring Bre	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	
33% Hardware	2/2/2026	Done	Done																		
67% Hardware	2/23/2026																				
100% Hardware	3/23/2026																				
Initial testing results																					
Product demo/final testing	13-Apr																				
Practice Presentations	20-Apr																				
Powertrain Specific - 33% Hardware																					
Item	Goal	Week 0	Week 1	Week 2	Week 3	Week 4	Legend														
Engine	Rebuilt and Running, pending shipping on items						Color	Status													
Differential	on motor, mounted (at least brackets done)						Done														
Intake	straight runners and plenum printed and ready to test						In progress														
Motor mounts	In place						On radar														
							Not started														

Top Level Finances

Current Funds

Account	Amount
Foundation Account	\$1,079.00
SAE BofA Account	\$6,200.00
GoFundMe	\$1,400.00

Income

Sponsor	Amount
Gore	\$5,000.00
Flag Chevy	\$5,000.00
Seabury Fritz	\$2,500.00
JGGM	\$1,000.00
Laura Goss	\$1,000.00
Midtown Vet	\$500.00
GoFundMe	\$5,770.00
Total:	\$20,770.00

Expenses

Part	Amount
Differential	\$2,450.00

Engine/Transmission	\$2,500.00
Gasket Kit	\$281.24
3D Printer	\$80.00
Drill Press	\$100.00
Vevor Bender	\$200.00
Misc.	
Tooling/Hardware/Proto	\$1,035.22
Suspension	\$1,988.36
Frame/Aero	\$2,689.39
Total:	\$11,324.21

Remaining Total Income: \$9,445.79

Purchasing Plan

Projected BOM: Powertrain rev. 2							
Materials:	Cost HIGH:	Cost LOW:	Make/Buy	Primary Vender	Manufacturer	Lead Time	Part Status
Differential	\$2,450.00	\$2,450.00	Buy	Taylor Race Engineering	Taylor Racing Mk2	3 week	On order
Engine/transmission	\$2,500.00	\$2,500.00	Buy	Facebook Marketplace	Kawasaki Versys	4 weeks	In house
Sprockets	\$200.00	\$100.00	Buy	Ebay	Taylor Racing A-12t B-48t	2 weeks	On order
Chain	\$150.00	\$50.00	Buy	RevZilla	520 Chain	1 week	1/19/2026
Exhaust	\$200.00	\$100.00	Make	Summit Racing	TC Bros Exhaust kit	2 weeks	3/1/2026
Intake	\$800.00	\$500.00	Make	-	Aluminum Custom	4 weeks	2/1/2026
New head	\$600.00	\$300.00	Buy	Ebay	Kawasaki	2 weeks	2/1/2026
Fuel Tank	\$300.00	\$100.00	Make	Speedway	Speedway Aluminum	1 week	1/19/2026
Fuel Lines	\$80.00	\$50.00	Buy/Make	Summit Racing	-	1 week	2/1/2026
CV axles	\$650.00	\$400.00	Buy	TRE	Taylor Racing Tripod and CV	2 weeks	1/27/2026
Forged Pistons	\$380.64	\$380.64	Buy	Elite Race Fab	J E Pistons	1 week	1/18/2026
Muffler	\$300.00	\$100.00	Buy	MagnaFlow	MagnaFlow	1 week	3/8/2026
Clutch Pack	\$60.92	\$20.00	Buy	PartsZilla	OEM	1 week	3/8/2026
Gasket Kit	\$281.24	\$281.24	Buy	Parts Giant	Athena	1 week	1/20/2026
Excess	\$1,500.00	\$500.00	-	-	-	-	-

Engine:

This engine is now torn down and needs to be rebuilt with stronger, forged pistons along with new rings and a cylinder honing. After reassembly, we can focus on placing the engine in the frame and placing other components around it.



Manufacturing Plan

Manufacturing Schedule					
Part	Material	Location	Days	Finish Date	Person(s)
Engine Rebuild	Aluminum	Formula Shop	1	2-Feb	Liam, Marshall, Trent, Jackson
Differential Mount Bracket	Steel	Formula Shop/EJ's	1	9-Feb	Trent, Aiden
Differential Mounts	Aluminum	RedRock	2	9-Feb	Aiden
Intake Plenum	Nylon Filament	Novakinetics	2	16-Feb	Liam, Trent
Intake Runners	Nylon Filament	Novakinetics	2	16-Feb	Liam, Trent
Exhasut Downpipe	Stainless	Formula Shop/EJ's	2	23-Feb	Marshall, Liam
Battery Cage	Steel	EJ's/RedRock	2	2-Mar	Jackson, Aiden
Engine Mounts	Chromoly	EJ's/Machine Shop	3	2-Feb	Jackson, Trent
Exhasut Manifold	Stainless	Formula Shop/EJ's	4	23-Feb	Marshall, Liam
Fuel Tank	Aluminum	EJ's/RedRock	4	2-Mar	Trent, Liam, Aiden, Jackson, Marshall

Engine Rebuild:

- Resurface engine cylinders to seat new piston rings completed at Flagstaff Engine and Machine
- Mating surfaces to be cleaned and new gaskets installed.
- Installation of wiring harness and ECU to run the engine.

Differential Mount Bracket:

- Mild steel flat bar bent at RedRock manufacturing.
- Mounting tabs to be welded in EJ's shop.

Differential Mounts

- Mounts will be CNC-ed at either the machine shop or RedRock

Intake:

- Plenum and runners to be 3D printed at Novakinetics in carbon fiber or nylon filament TBD.
- Final assembly completed in the Formula shop.

Exhaust:

- 304 Stainless steel: buy a kit with prefab bends. Marshall will TIG weld these.

Bonus Scheduling

For the FSAE IC competition, final design deadlines are all March 30, 2026. That being said, we believe the 100% Hardware update being on Mar 23, 2026 is already ideal for our project.