

# EBAJA

OCTAVIO DURAN – BUDGET LIASON

BRENDON JAMESON – CAD/MANUFACTURING ENGINEER

BENJAMIN PLIS – TEST ENGINEER

ABRIANA ROMERO – PROJECT MANAGER

JARED WALKER - LOGISTICS

# DESIGN EFFORTS

- BATTERY CASING
- GEARBOX (DRIVETRAIN)



Figure 1: Iteration 1 (Battery Casing)

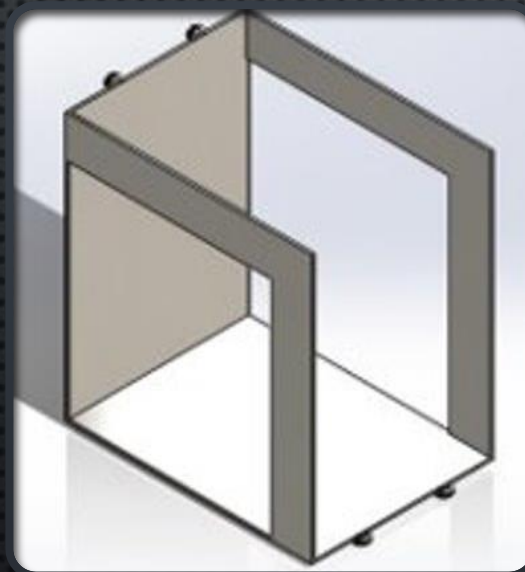


Figure 2: Iteration 2 (Battery Casing)

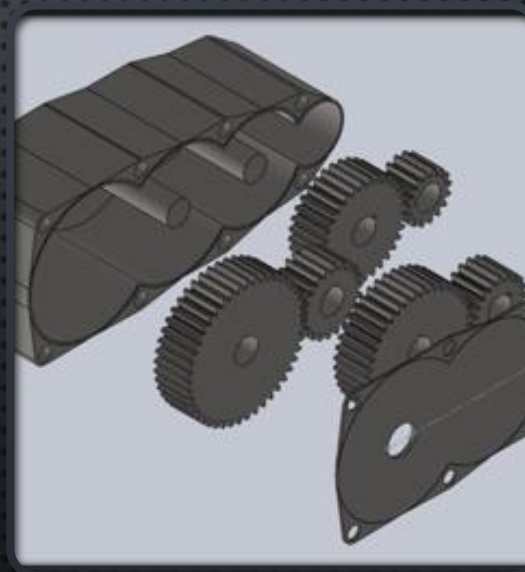


Figure 3: 7th Iteration of Gearbox Design



Figure 4: Torque Converter



## DESIGN EFFORTS

- FINAL BATTERY CASE DESIGN
- BATTERY FITS!



Figure 5: Battery Mount Test with failure safety devices



# PURCHASING PLAN

Items 100% Purchased

Total Spendings: \$3,268.01

Table 1: Final Purchasing Plan

CV Axles	East Lake Axle	161.48	Alresady have	Assembled
Hex Head Screws (Front)	McMaster	\$33.12	Already Have	Assembled
Socket Cap Screws (Front)	Fastenal	\$12.15	Already Have	Assembled
Lock Nuts (Front)	Fastenal	\$10.84	Already Have	Assembled
Hex Nuts (Front)	Fastenal	\$12.26	Already Have	Assembled
Swivel Joint Bearings (Front)	Amazon	\$85.12	Already have	Assembled
O-Rings (Front & Rear)	McMaster	\$16.78	Already Have	Assembled
Flat Washers (Front)	Fastenal	\$1.61	Already Have	Assembled
Front Hubs (Front)	Lonestar Racing	\$384.49	Already have	Assembled
Master Cylinder (Front)	Summit Racing	\$175.90	Already have	Assembled
Spindles (Front)	Lonestar Racing	\$208.68	Already have	Assembled
Steering Box (Front)	Hyper Racing	\$375.27	Already have	Assembled
Bearing Cup (Front)	Off Road Warehouse	\$33.44	Already have	Assembled
Safety Harness (Frame)	Amazon	\$44.75	Already have	Assembled
Liquid Rubber (Frame)	Home depot	\$29.98	Already have	Assembled
Firewall (Frame)	Home Depot	\$95.40	Already have	Assembled
Battery Casing material (Drivetrain)	Mayorgas Welding	\$174.80	Already have	Assembled
Rear Plate (Drivetrain)	Mayorgas Welding	\$38.37	Already have	Assembled
Bearings	VXB Ball Bearings	\$11.60	Already have	Assembled
Wheels (Front & Rear)	HSD Racing	\$261.90	Already have	Assembled
Disc Brakes (Rear)	Summit Racing	\$80.55	Already have	Assembled
CVT Converter	GO Power Sports	\$595.00	Already have	Assembled
Rear Wheel Hubs (Rear)	Ebay	\$34.94	Already have	Assembled
Front Spindle Castle Nuts	Ebay	\$19.14	Already have	Assembled
Splined Steering Shaft	Amazon	\$15.93	Already have	Assembled
4 Front Wheel Hub Stud Bolt	Amazon	\$10.99	Already have	Assembled
Brake Disk Screws	Amazon	\$20.98	Already have	Assembled
Brake Disk Rotor	Amazon	\$81.98	Already have	Assembled
Alloy Steel Round Bar 4130	Online Metals	\$147.92	Already have	Assembled
Fire Extinguishers	Home Depot	\$29.97	Already have	Assembled
Rubberized Chain	Home Depot	\$20.80	Already have	Assembled
Quick Link	Home Depot	\$8.44	Already have	Assembled
Bolts	Home Depot	\$8.44	Already have	Assembled
Roller Chain	Tractor Supply	\$24.99	Already have	Assembled

Table 2: Final Manufacturing Plan

Manufacturing Plan						
Part Name	Cost	Fabrication Status	Manufacturer	Location	Time to Manufacture	Material
Top Panel	\$50	Future Work	TBD	TBD	TBD	Carbon Fiber or kevlar
Side Panel	\$100	Future Work	TBD	TBD	TBD	Carbon Fiber or kevlar
Brake Mount	\$10	Future Work	eBaja Team	Machine Shop	1 day	1/8" steel plate
Control Arm	\$20	Completed	eBaja Team	Machine Shop	1 week	4340 Steel Pipe
Dashboard	\$10	Completed	eBaja Team	Machine Shop	2 days	Plywood/Aluminum, rubber
Front Knuckle Assembly	0	Completed	eBaja Team	Machine Shop	2 hours	Steel
Steering Wheel	\$20	Completed	eBaja Team	Machine Shop	4 days	Steel plate
Bushings	\$0	Completed	eBaja Team	Machine Shop	2 days	Steel
High Misalignment Spacers	\$0	Completed	eBaja Team	Machine Shop	3 days	Steel
Frame	\$150	Completed	eBaja Team	Machine Shop	2 weeks	4340 Steel Pipe
Jackshaft and Mount	\$0	Completed	eBaja Team	Machine Shop	2-3 days	6061 T6 Aluminum
Rear knuckles	\$120	Completed	eBaja Team	Machine Shop	2-3 days	6061 T6 Aluminum
Motor Mount	\$20	Completed	eBaja Team	Machine Shop	1 day	Steel plate
Battery Casing	\$50	Completed	eBaja Team	Machine Shop	2-3 days	Steel plate, rubberised chain
Firewall	\$10	Completed	eBaja Team	Machine Shop	3-4 hours	Steel, Rubber
Rear Plate	\$100	Completed	eBaja Team	Machine Shop	3 days	Steel Plate

# MANUFACTURING PLAN





Figure 6: Finished FE Control Arm



Figure 7: Lower Control Arm Fitment

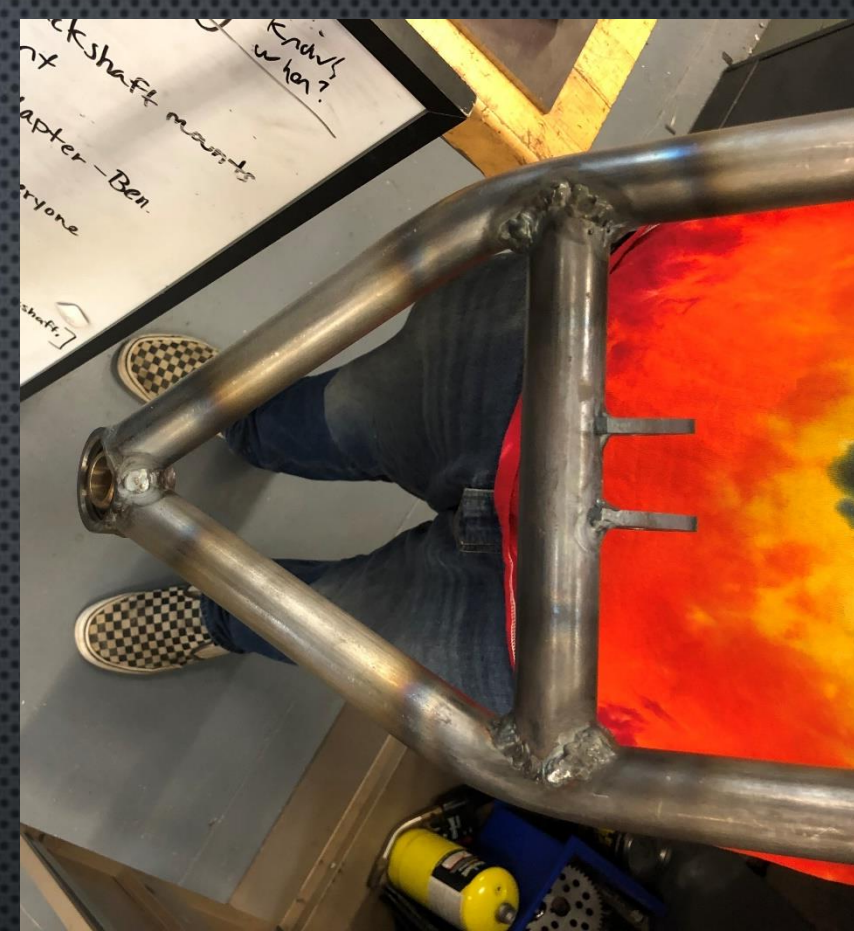


Figure 8: Slightly Less Terrible Welds





Benjamin Plis 21F13 04/26/22









Brendon Jameson 21F13 04/26/22









Figure 8: Jackshaft Mount Assembly





Figure 9: Rack-Pinion Gear Box (Steering)



Figure 10: Steering Wheel Cut Using Tormach





Figure 11: Drivetrain Mount Fitting

Figure 12: UGRADS chassis

Figure 13: Drivetrain Mount Installation



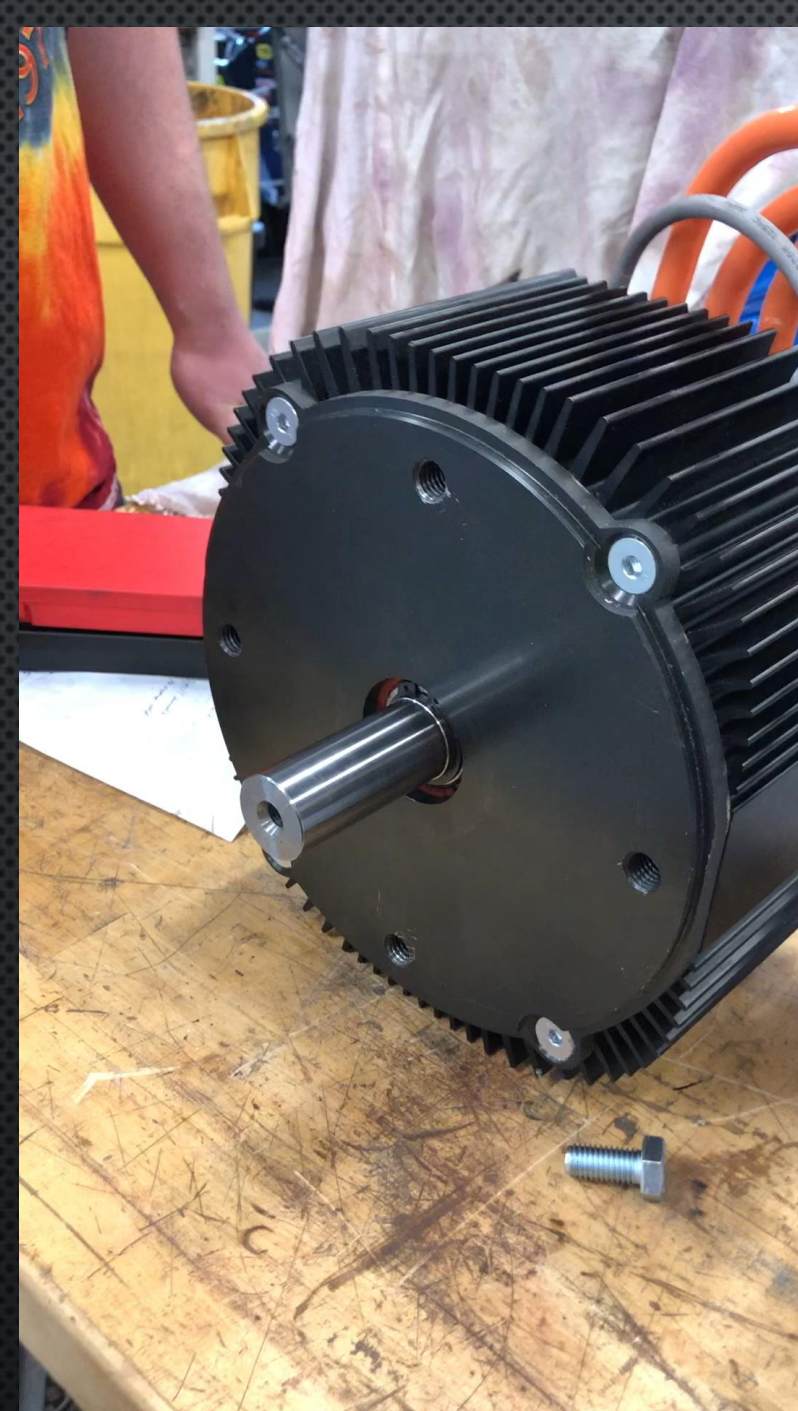


Figure 14-15: Drivetrain Coupler



Company Name  
Project Lead

Project Start:   
Display Week:

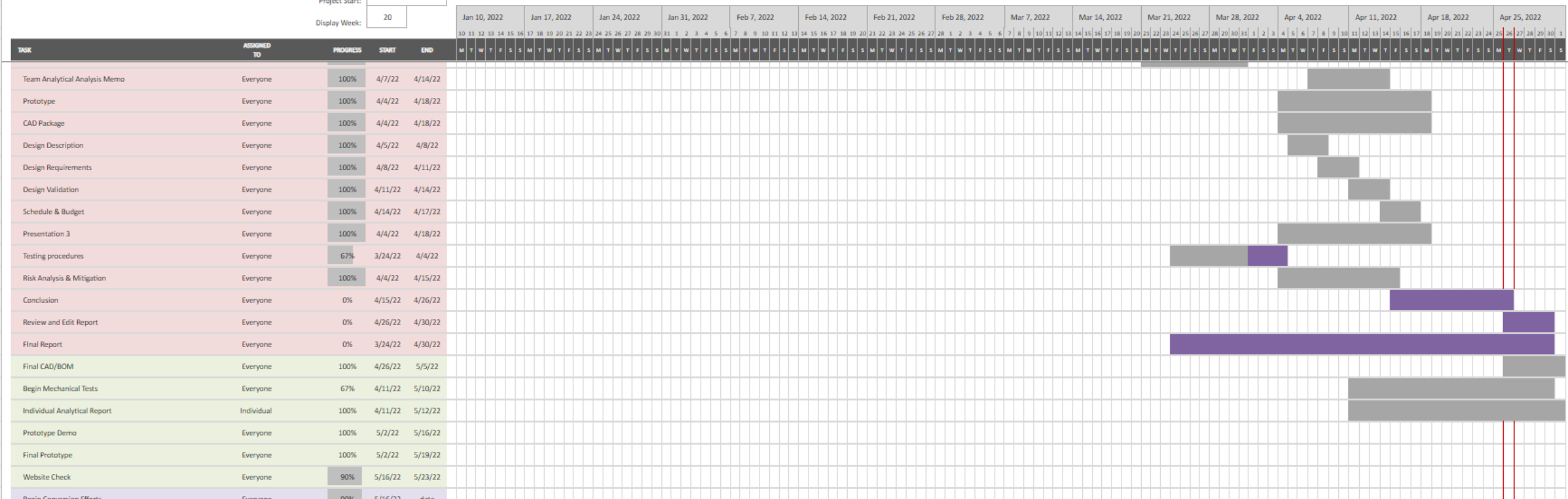


Figure 16: Updated Gantt Chart

# GANTT CHART



- THANK YOU, QUESTIONS?
- TOTAL HOURS OVER BOTH SEMESTERS

1st Semester	2nd Semester	Total Hours
857.63	1037.11	1894.74

