SAE Mini Baja

Midpoint Review

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Overview

- Introduction
- Need Statement
- Previous Progress
- Current Progress
  - Frame
  - Cost Report
- Project Plan
- Conclusion

Project Introduction

- 2014 SAE Baja Competition
- Customer is SAE International
  - Create international design standards
  - Hold various collegiate design competitions
- Stakeholder is NAU SAE
- Project advisor is Dr. John Tester

Need Statement

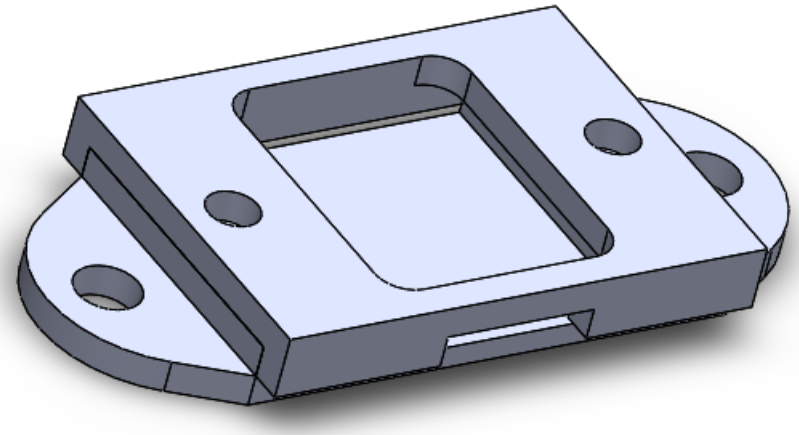
- NAU has not won an event at the SAE Baja competition in many years.
- Goal of the frame team is to design the lightest possible frame within the SAE Baja rules.
- Goal changes to overall vehicle safety compliance after completion of the frame.

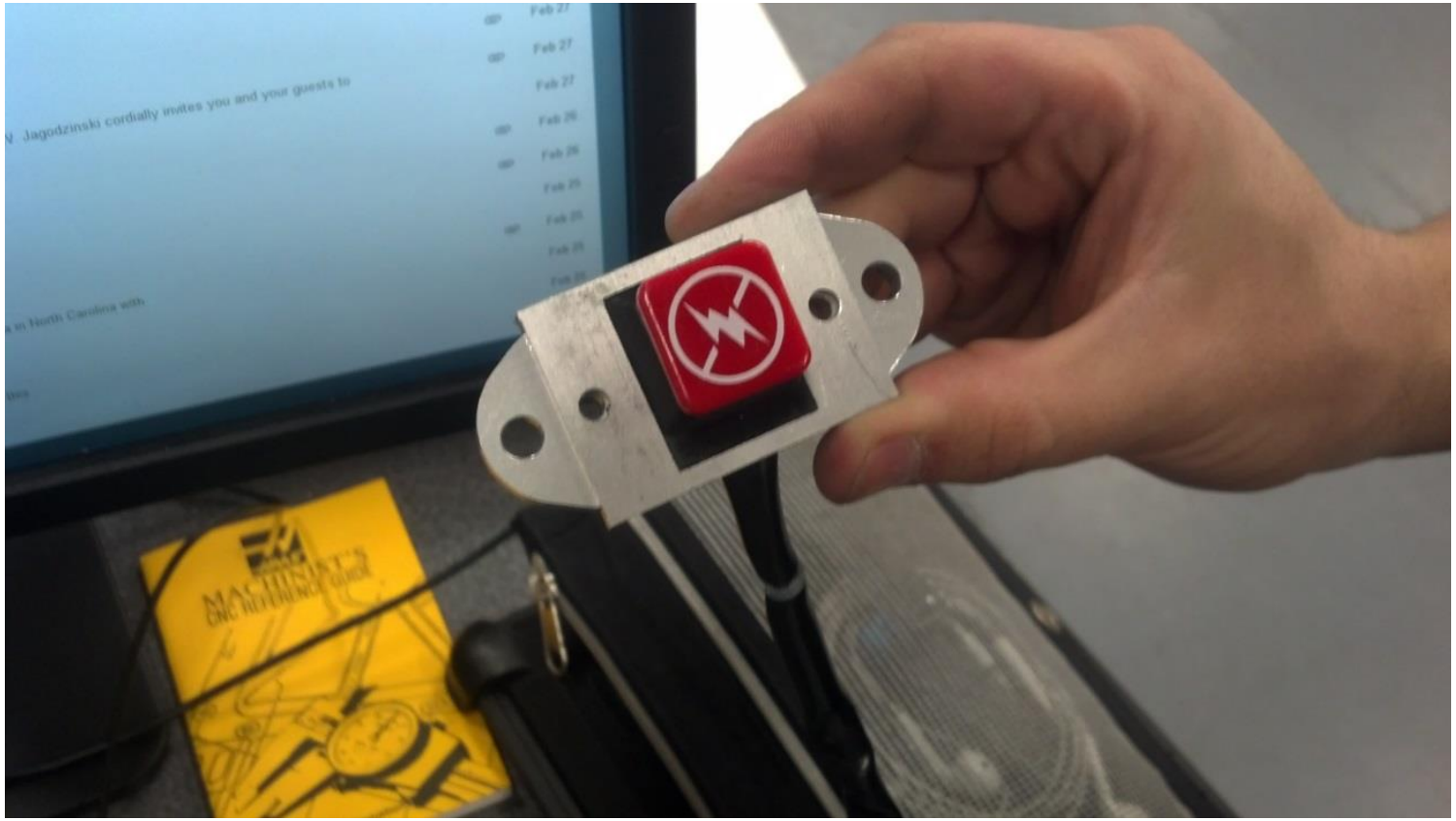
Previous Progress

Current Progress

Current Progress

Current Progress





Current Progress

2014 Baja SAE Official Costing Sheet

NAU Lumber Jack Racing

	ILL	TEX	KAN
Car Number		106	
Total Cost		$ 13,018.30	

Sect #	Item	Description	Subassembly Costs		Vehicle Assembly Labor		Subtotal	
			Material	Labor	Time(min)	Cost	Material	Labor
1	Engine		$1,139.93	$17.50		$0.00	$1,139.93	$17.50
2	Transmission		$1,917.60	$17.50		$0.00	$1,917.60	$17.50
3	Drive Train		$1,351.22	$70.00		$0.00	$1,351.22	$70.00
4	Steering		$1,128.01	$26.25		$0.00	$1,128.01	$26.25
5	Suspension		$3,441.65	$105.00		$0.00	$3,441.65	$105.00
6	Frame		$543.94	$353.60			$543.94	$353.60
7	Body		$261.50	$11.67		$0.00	$261.50	$11.67
8	Brakes		$1,428.36	$35.00		$0.00	$1,428.36	$35.00
9	Safety Equipment		$259.15	$17.50		$0.00	$259.15	$17.50
10	Electrical Equipment		$278.00	$35.00		$0.00	$278.00	$35.00
11	Fasteners		$0.00			$0.00	$0.00	$0.00
12	Miscellaneous		$0.00	$0.00		$0.00	$0.00	$0.00
13	ILL Event		$0.00	$0.00		$0.00	$0.00	$0.00
14	TEX Event		$579.92	$0.00		$0.00	$579.92	$0.00
15	KAN Event		$0.00	$0.00		$0.00	$0.00	$0.00
		ILL Total:	$11,749.36	$ 689.02		$ -	$ 11,749.36	$ 689.02
		TEX Total:	$12,329.28	$ 689.02	0	$ -	$ 12,329.28	$ 689.02
		KAN Total:	$11,749.36	$ 689.02		$ -	$ 11,749.36	$ 689.02

Team Captain: _____ Date: _____ Approval: _____ Date: _____

Level 1 Summary

Revision: 2014 Rev A

Current Progress

Frame Subsystem Form A

Item	Category	Description	Purchased	Fabricated	Vendor	Quantity	Material Cost	Labor Cost	Extended Material Cost	Extended Labor Cost	Extended Total
1	Complete Roll Cage	Roll Cage		X	University Machine Shop	1	$301.67	$143.60	$301.67	$143.60	$445.27
2	Firewall			X	University Machine Shop	1	$14.87		$14.87	$0.00	$14.87
3	Hitch			X	University Machine Shop	1	$43.96		$43.96	$0.00	$43.96
4	Body mounts			X	University Machine Shop	1	$47.76		$47.76	$0.00	$47.76
5	Seat Mounts			X	University Machine Shop	1	$16.69		$16.69	$0.00	$16.69
6	Suspension mounts			X	University Machine Shop	1	$29.00		$29.00	$0.00	$29.00
7	Tube caps			X	University Machine Shop	1	$36.01		$36.01	$0.00	$36.01
8	Transmission mounts			X	University Machine Shop	1	$14.00		$14.00	$0.00	$14.00
9											
10											
11											
12											
13											
14	Seat	Racing Seat	X		Summit Racing	1	$39.97		$39.97	$0.00	$39.97
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
		Subsystem Assembly Time (min)	360		Subsystem Assy Cost					$210.00	$210.00
		Totals							$543.94	$353.60	$687.54
									Total:		$897.54

Current Progress

Frame Subsystem
Form B

Frame Subsystem Form B

Line 1 on Frame Subsystem Form A

Description: Completed Roll Cage Tubes Only

Material:

Item	Part Name	Material	Density	Unit	Amount	Weight	$/Unit	Cost
1	1.25 x.065 round tubing	4130 Chromly Tubing	0.284	in^3	278.3	79.04	$2.00	$158.07
2						0.00		$0.00
3						0.00		$0.00
4						0.00		$0.00
5						0.00		$0.00
6						0.00		$0.00
							Subtotal:	$158.07

Labor:

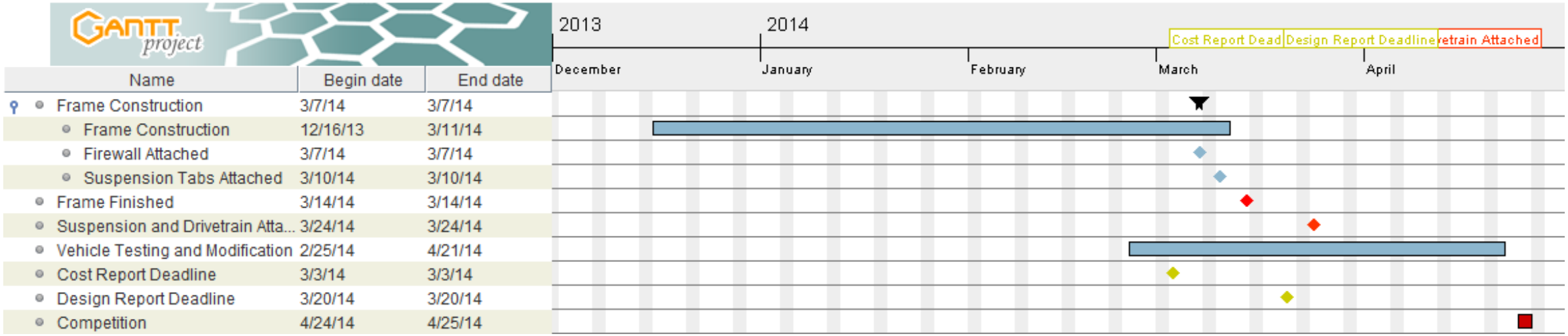
	Manufacturing Process	Amount	Unit	$/Unit	Cost
4	Welding	246	Inches	$ 0.35	86.10
5	Tube Cuts	70	Inches	$ 0.40	28.00
6	Saw Cuts (cut to length)	40	Inches	$ 0.40	16.00
7	Tube Bends	10	Bends	$ 0.75	7.50
8	Radiusing tube ends	8	Ends	$ 0.75	6.00
9					0.00
10					0.00
				Subtotal:	143.60

		Material Total	158.07
		Labor Total	143.60
To Form A Line	1	Subassembly Total	301.67

Spring 2014 Project Plan

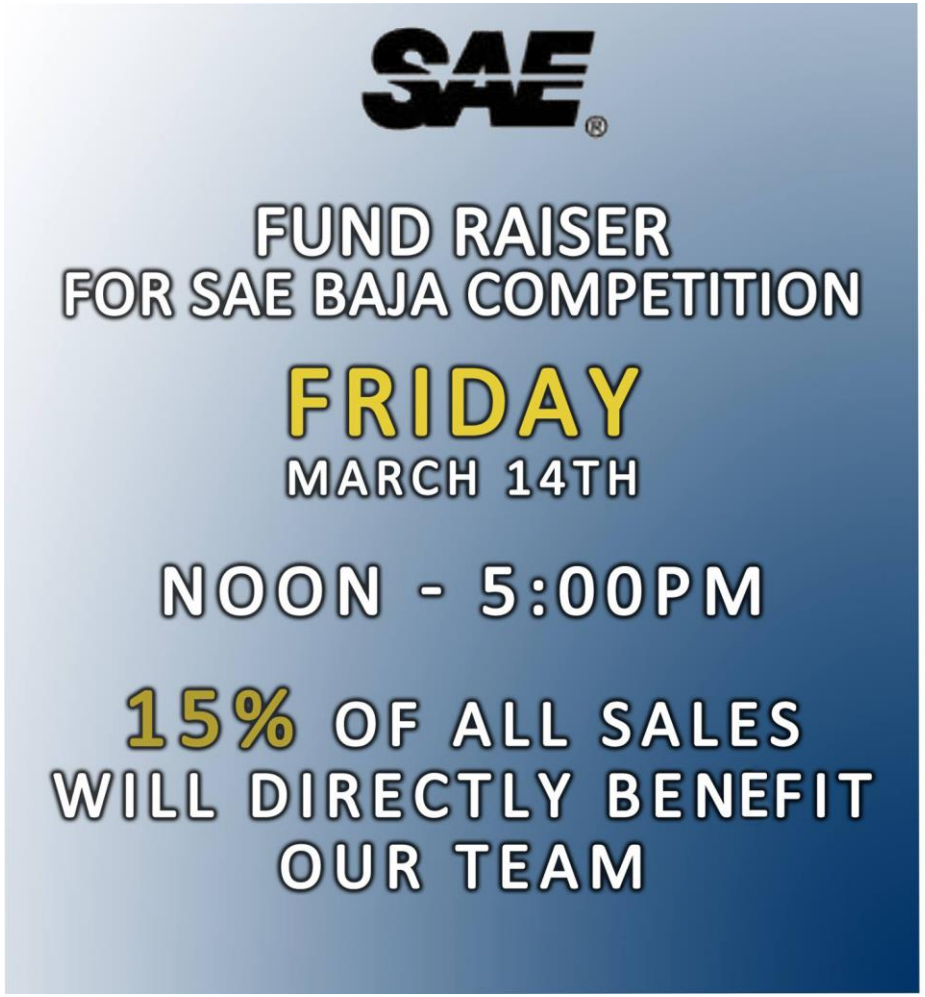
- Complete Frame by March 14
- Final Assembly by March 23
- SAE Design Report by March 20
- Competition April 24 - 28

Spring 2014 Gantt Chart



Name	Begin date	End date
Frame Construction	3/7/14	3/7/14
Frame Construction	12/16/13	3/11/14
Firewall Attached	3/7/14	3/7/14
Suspension Tabs Attached	3/10/14	3/10/14
Frame Finished	3/14/14	3/14/14
Suspension and Drivetrain Atta...	3/24/14	3/24/14
Vehicle Testing and Modification	2/25/14	4/21/14
Cost Report Deadline	3/3/14	3/3/14
Design Report Deadline	3/20/14	3/20/14
Competition	4/24/14	4/25/14

Spring 2014 Fund Raising



LOUIE'S CHICKEN SHACK

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Conclusion

- SAE international is the client, NAU SAE is a stakeholder, and Dr. John Tester is the project advisor.
- The frame team will build the lightest possible frame to maximize chances of winning.
- Construction of rear end was completed and welded to frame.
- Seat mounts were welded in and seat was installed.

Conclusion

- Firewall tabs were constructed and firewall was fabricated.
- Safety kill switches mounts were designed and machined.
- SAE cost report was created and submitted.
- The team is currently on track, however, more time was allotted for the installation of suspension mounting points.

Questions?