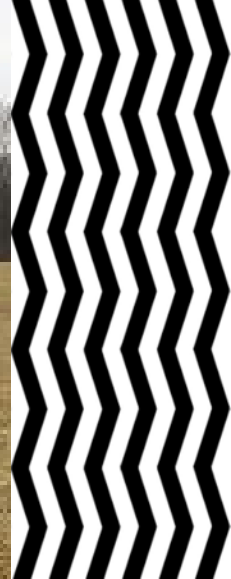




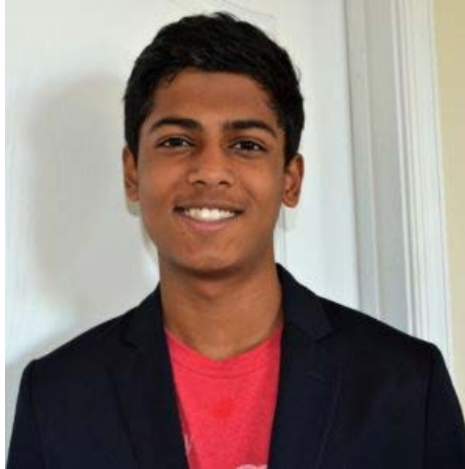
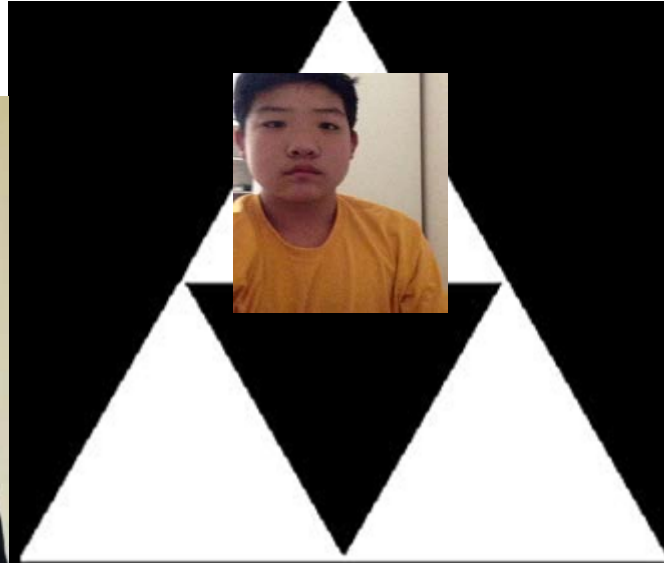
Team 19-5180

Explorer Post 1010



Introduction

Stephen Jin



Abhinav Yedla



Aneesh Bellam



The Five Steps To Building A Rocket



Step One: Design

Rocket

Length 71.9 cm, max. diameter 5.63 cm

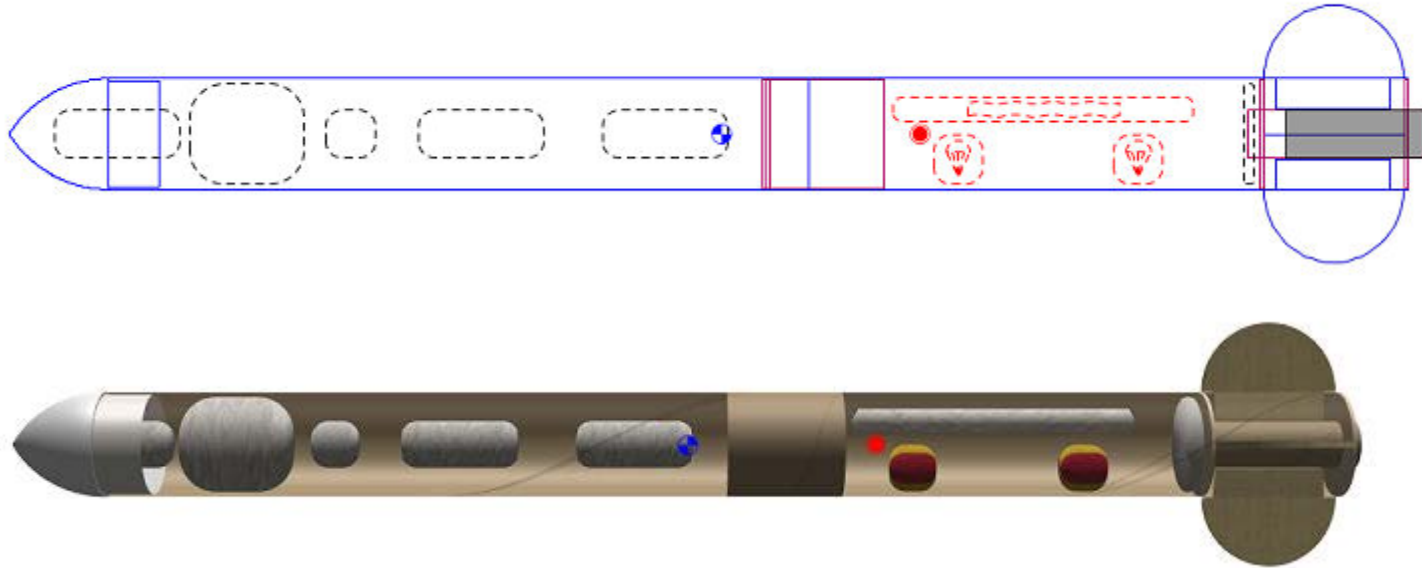
Mass with motors: 503 g

Stability: 1.79 cal

• CG: 36.2 cm

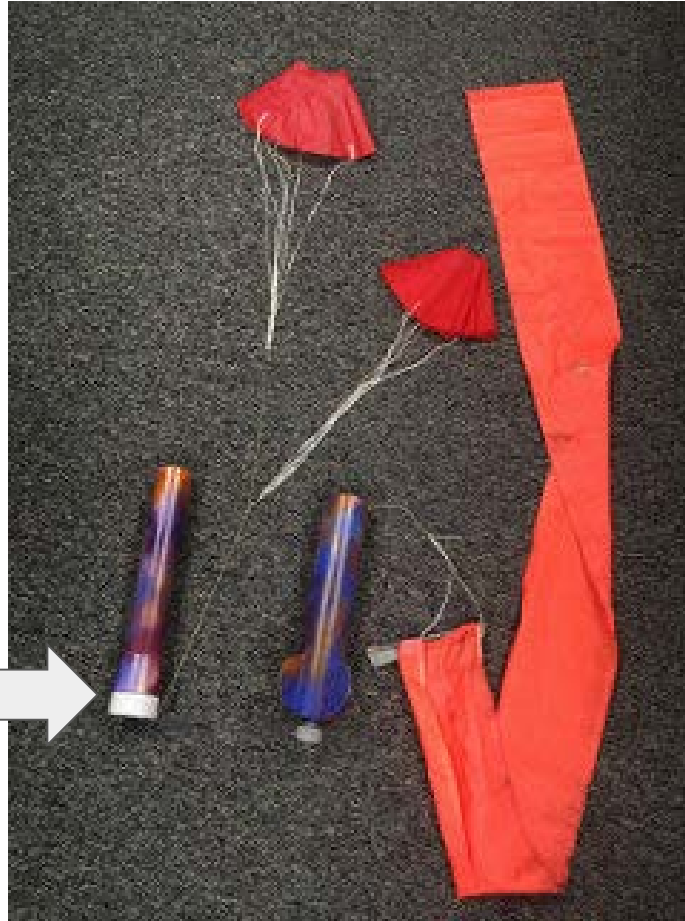
• CP: 46.3 cm

at $M=0.30$



Step Two: Build

PVC Coupler



Step Three: Watch your failing rocket crash and burn into the ground while all you can do is watch in horror and go home with a couple pieces of plastic and cardboard.

Step 3.5

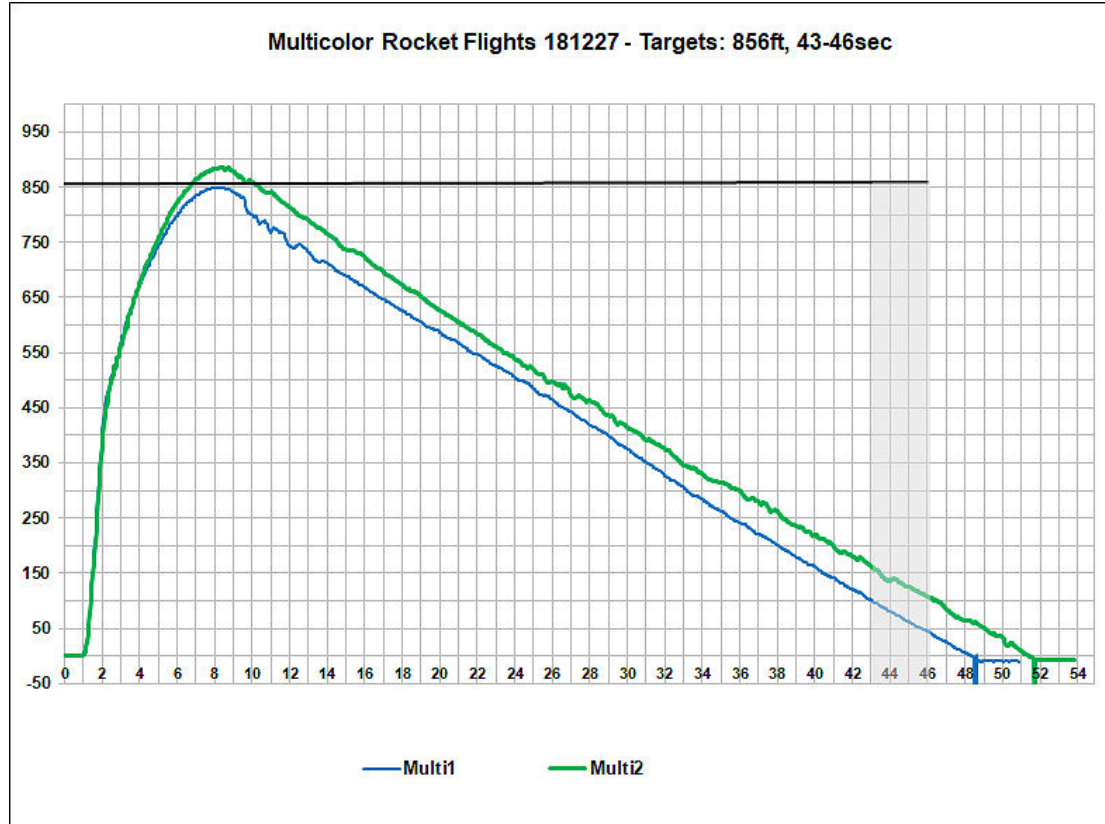
REanalyze rocket and determine a strategy to avoid the same fate in the second rocket

Step Four: Stay Strong And Build On

REanalyze: Coupler change Lessens load on rocket alao while creating more space for the three eggs. While also stabilizing rocket.



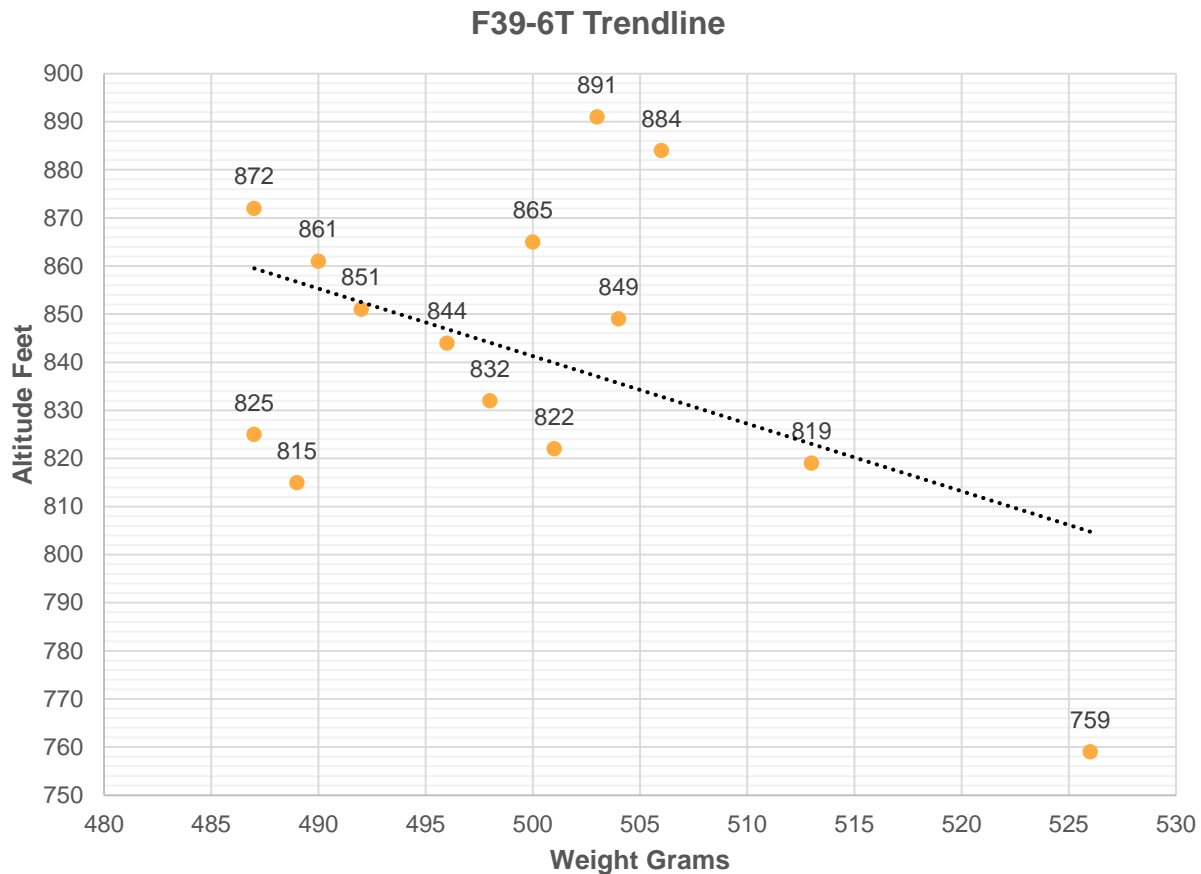
Step Five: Relaunch/Bask in the light of self success



Many Flights

Date	Rocket	Flight	Motor/Lot/Pack	Weiht	Alt	Recovery	Altitude	Time	Comment	DQ
11/17/2018	Multi (video-8463)	1	F39-6	526	12	2-15"/60"	759	42sec	straighter, chutes OK	
1/28/2019	Multi (video-8799)	1	F39-6	504	12	2-15"/12"	849	47sec	nice flight, score=11	
1/28/2019	Multi (video-8805)	2	F39-6 xxxx	506	12	2-15"/12"	884	50sec	ok flight, too high	
2/23/2019	Multi (video-8871)	1	F39-6 11191804	503	12	2-15"/12"	891	54sec	ok flight, too high	
2/23/2019	Multi (video-8892)	2	F39-6 11191804	513	12	2-15"/12"	819	46sec	ok flight, too low	
3/2/2019	Multi (video-8911)	1	F39-6 04091808	487	12	2-14"sp/12"	872	45sec	ok flight, chutes tangled	1
3/24/2019	Multi (video-9025)	1	F39-6 04091808 2	500	12	2-14" 2x30"	865	45sec	nice flight, score=9	
3/30/2019	Multi (video-9063)	1	F39-6 04091808 5	501	12	2-14" 2x30"	822	48sec	Nice flight, low	
3/30/2019	Multi (video-9076)	2	F39-6 04091808 5	487	12	2-14" 2x30"	825	49sec	Nice flight, still low	
3/30/2019	Multi (video-9082)	3	F39-6 04091808 ?	498	12	2-14" 2x30"	832	44.46sec	Q1=24	
3/30/2019	Multi (video-9088)	4	F39-6 04091808 ?	489	12	2-14" 2x30"	815	29sec	Streamer didn't deploy, Q2=DQ	1
4/7/2019	Multi (video-9063)	1	F39-6 04091808 8	496	12	2-14" 2x30"	844	47sec	Nice flight, low	
4/7/2019	Multi (video-9076)	2	F39-6 04091808 8	490	12	2-14" 2x30"	861	47sec	Nice flight, still low	
4/7/2019	Multi (video-xxxx)	3	F39-6 04091808 8	492	12	2-14" 2x30"	851	46.42sec	Q3=6.68	

Determining Rocket Weight for F39-6



Lessons Learned

1. We learned that just because a rocket looks nice does not mean it is gonna fly nice.
2. Hands on for the whole team at every process point.
3. The less attention chutes get the less they feel inclined to tangle.



Special thanks to:

