Milestone Review Flysheet

Please see Milestone Review Flysheet Instructions.

Institution	University of central Florida	Milestone	CDR

First Stage (Both Stages Together or Single Stage)		Second Stage (If Applicable)	
Vehicle Properties		**Vehicle Properties**	
Total Length (in)	81.75	Total Length (in)	
Diameter (in)	4	Diameter (in)	
Gross Lift Off Weight (lb)	10.6	Gross Weight (lb)	
Airframe Material	Blue Tube	Airframe Material	
Fin Material	Fiberglass	Fin Material	
Motor Properties		**Motor Properties**	
Motor Manufacturer(s)	Cesaroni	Motor Manufacturer(s)	
Motor Designation(s)	J360SM-6	Motor Designation(s)	
Max/Average Thrust (lb)	126.1/81.4	Max/Average Thrust (lb)	
Total Impulse (lbf-sec)	227.73	Total Impulse (lbf-sec)	
Stability Analysis		Ignition Altitude (ft)	
Center of Pressure (in from nose)	67.8	Ignition Timing (From 1st Stage Burnout)	
Center of Gravity (in from nose)	56.6	Igniter Location	
Static Stability Margin	2.81	**Stability Analysis**	
Thrust-to-Weight Ratio	9.34:1	Center of Pressure (in from nose)	
Rail Size (in)	1	Center of Gravity (in from nose)	
Rail Length (in)	120	Static Stability Margin	
Rail Exit Velocity (ft/s)	71.5	Thrust-to-Weight Ratio	
Ascent Analysis		**Ascent Analysis**	
Maximum Velocity (ft/s)	670	Maximum Velocity (ft/s)	
Maximum Mach Number	0.6	Maximum Mach Number	
Maximum Acceleration (ft/s^2)	386	Maximum Acceleration (ft/s)	
Target Apogee (1st Stage if Multiple Stages)	3000	Target Apogee (ft)	
Recovery System Properties		**Recovery System Properties**	
Drogue Parachute		**Drogue Parachute**	
Configuration	X-Form	Configuration	
Size	36 inch diameter	Size	
Deployment Velocity (ft/s)	0	Deployment Velocity (ft/s)	
Terminal Velocity (ft/s)	36	Terminal Velocity (ft/s)	
Fabric Type	Rip-Stop Nylon	Fabric Type	
Shroud Line Material	Nylon Cord	Shroud Line Material	
Shroud Line Length (in)	18	Shroud Line Length (in)	
Thread Type	Dual Coats Outdoor	Thread Type	
Seam Type	Zig-Zag Double Seam	Seam Type	
Recovery Harness Type	1" Kevlar	Recovery Harness Type	
Recovery Harness Length (ft)	6	Recovery Harness Length (ft)	
Harness/Airframe Interface	Stainless Steel Quick Links	Harness/Airframe Interface	
Main Parachute		**Main Parachute**	
Configuration	X-Form	Configuration	X-Form (Payload Chute)
Size	76 inch diameter	Size	28
Deployment Velocity (ft/s)	36	Deployment Velocity (ft/s)	41
Terminal Velocity (ft/s)	20	Terminal Velocity (ft/s)	24
Fabric Type	Rip-Stop Nylon	Fabric Type	Rip-Stop Nylon
Shroud Line Material	Nylon Cord	Shroud Line Material	Nylon Cord
Shroud Line Length (in)	72	Shroud Line Length (in)	18
Thread Type	Dual Coats Outdoor	Thread Type	Dual Coats Outdoor
Seam Type	Zig-Zag Double Seam	Seam Type	Zig-Zag Double Seam
Recovery Harness Type	1" Kevlar	Recovery Harness Type	1" Kevlar
Recovery Harness Length (ft)	6	Recovery Harness Length (ft)	3
Harness/Airframe Interface	Stainless Steel Quick Links	Harness/Airframe Interface	Stainless Steel Quick Links
	Section 1 / Section 2		Section 1 / Section 2
Kinetic Energy of Each Section (ft-lbs)	38 / 38	Kinetic Energy of Each Section (ft-lbs)	212 /

Milestone Review Flysheet

Institution	University of Central Florida	Milestone	PDR

First Stage (or Single Stage)		Second Stage (If Applicable)	
Recovery System Properties		**Recovery System Properties**	
Altimeter(s)/Timer(s) (Make/Model)	Parallax MS5607	Altimeter(s)/Timer(s) Make/Model	
	Parallax MS5607		
Transmitters (Model-Frequency-Power)	Xbee Pro 900 RPSMA-900 MHz-600 mW	Locators/Frequencies (Model-Frequency-Power)	
Black Powder Charge Size Drogue Parachute (grams)	1.4	Black Powder Charge Size Drogue Parachute (grams)	
Black Powder Charge Size Main Parachute (grams)	2	Black Powder Charge Size Main Parachute (grams)	

Payloads

	Overview
Mandatory Payload	Raspberry Pi interfaced with camera module, using OpenCV libraries to do object detection.
3.1	

	Overview
Optional	Rocket will consist of 2 in series stages. Addition of a seperation stage and recovery system to original design. Payload 1

	Overview
Optional Payload 2	Modifying nosecone into a Payload Fairing. Will separate at apogee and deploy payload from nosecone.

Test Plans, Status, and Results

Ejection Charge Tests	The ejection charge test will ensure that the current design for the ejection system is capable of separating rocket components and deploying the parachute/payload. This will be conducted on the ground with each section tested and adjusting the amount of black powder for optimum design.
Flights	The subscale test flight will show that the overall design of the rocket is capable of completing the necessary design requirements. The subscale is used to minimize cost and to reduce risk if a possible failure were to occur. Sub-scale Test
Flights	The full scale flight test will show that the rocket is ready for the competition and is capable of fulfilling its design requirements. The full scale flight test will be launched in the same manner as the subscale but with most of all functions of the rocket being tested. Full-scale Test

Additional Comments