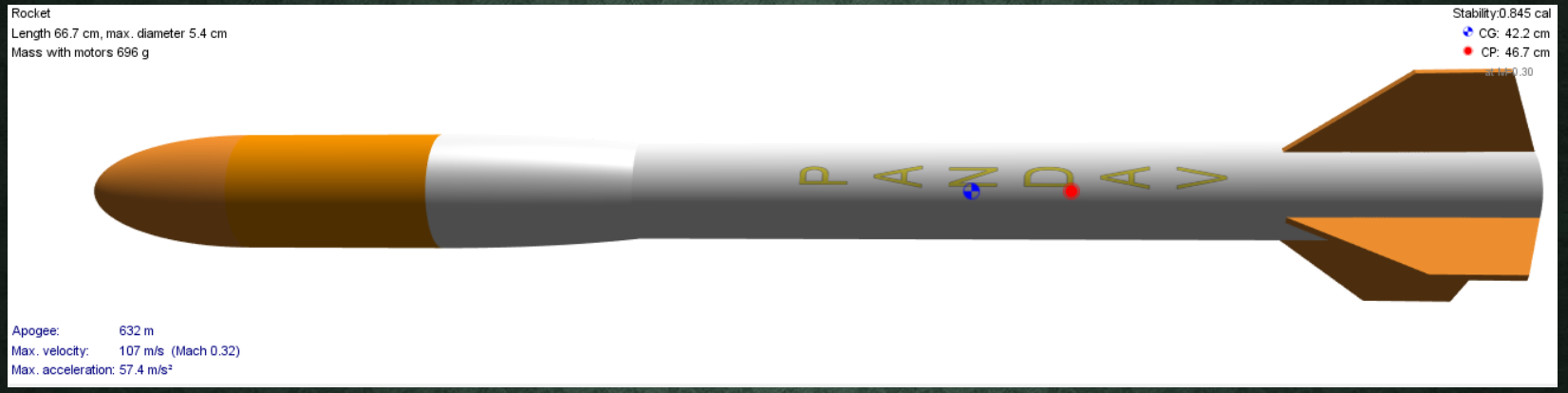

WELCOME
Engineering portfolio of Nitesh Neupane

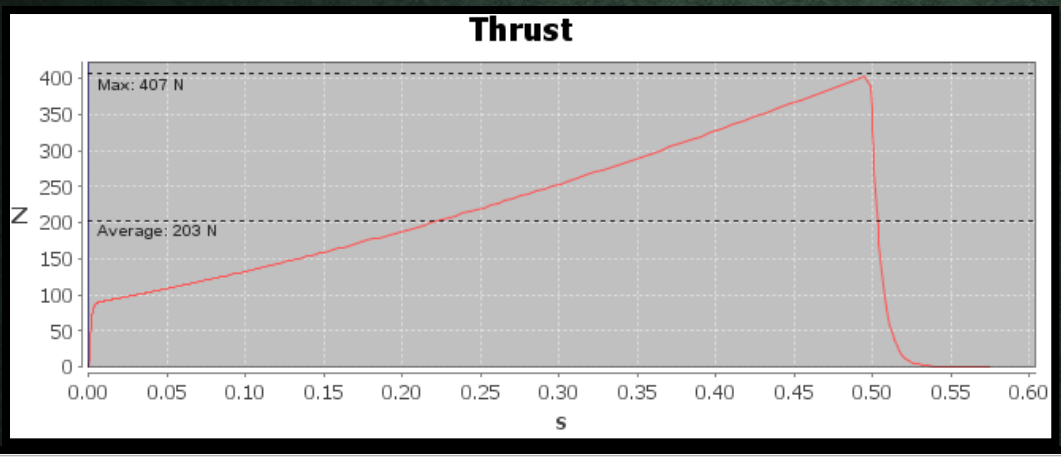
PROJECT INDEX

1.Model rocket	**Reusable mid power rocket with datalogger and parachute**
2.Equitorial mount	-mount for cancelling earth rotation
3.Thrust test stand -	-device to measure thrust of solid rocket motor (up to 20kg)
4.SMOS	
5.HAB	-*****
6.RC plane	-Kit plane repaired and restored.

1.MODEL ROCKET



Pandav is a mid range rocket weighing 700 grams approx. made to developed sub system like parachute deployement,flight datalogger .It has a cardboard body tube of 40cm enforces with epoxy. Powered by a G25W equivalent motor it achieves the velocity of Mach 0.32 and apogee of 632 m

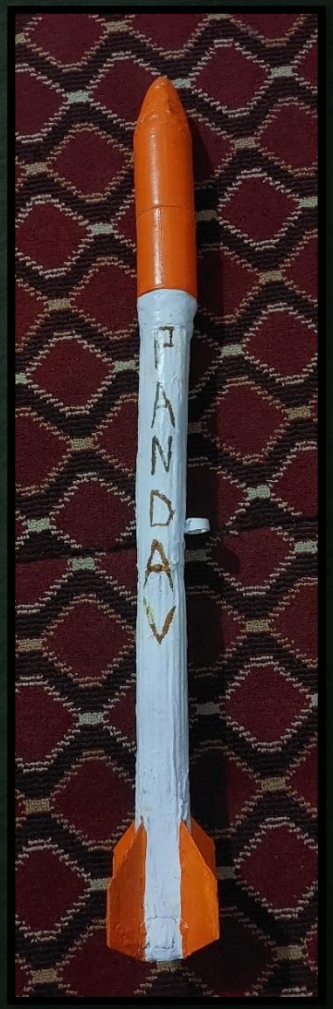


All Motors | All Thrust | All Pressure | vmotor

ating	Total Impulse	ISP	Max Thrust	Average Thust	Max Pressure	Fuel Mass	Volume Loading	Safty Factor
4% G-203	117 Ns	139 s	407 N	203 N	13.3 MPa	85.5 g	90%	NA

General Parameters | Grain Geometry | Simulation Results

ame:	Casing:		Nozzle:	
New Motor 1	ID	22.6 mm	efficiency	0.85
uel: KNSU	OD	27.89 mm	exitDiameter	20 mm
asing: CylindricalChamber	burstPressure	Null	throatDiameter	5 mm
	length	130 mm		



2.EQITORIAL MOUNT

Equatorial mount is use to track the planets, nebula and other heavenly object.

It also cancels the rotation of the earth.

The polar axis is at fixed angle of 27.

The counter weight can be mounted on the declination axis pipe.

Since the mount is mounted rigidly on concrete base with nuts and bolts vibration is minimum.

The next iteration will be adding motors and aluminum body

3.ROCKET MOTOR THRUST TESTER V1

Thrust produced by rocket varies with time

Which is given by a this devise RMTT .The thrust is measure with the help of loadcell(strain gauge)

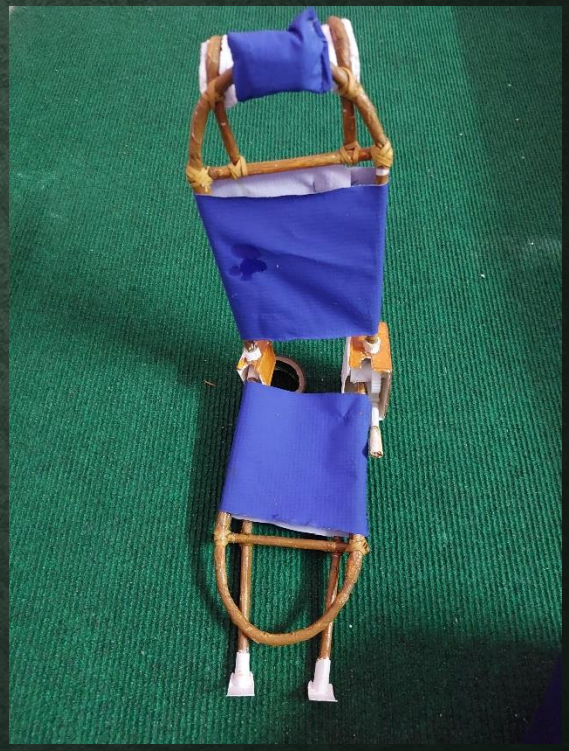
It has 20kg load cell

The data is boosted from the hx711 weighing module and stored in SD card .it is based on Arduino nano .

To test the mount ,I made a small motor with 27 gm approx. propellant(sugar+kno3) .The mount calculated the thrust to be 7 N. But the simulation calculated up to 25N
The decrease in thrust was caused by erosion of nossel which was made out of Mseal(putty epoxy)
The next test the nossel is made out of ceramic

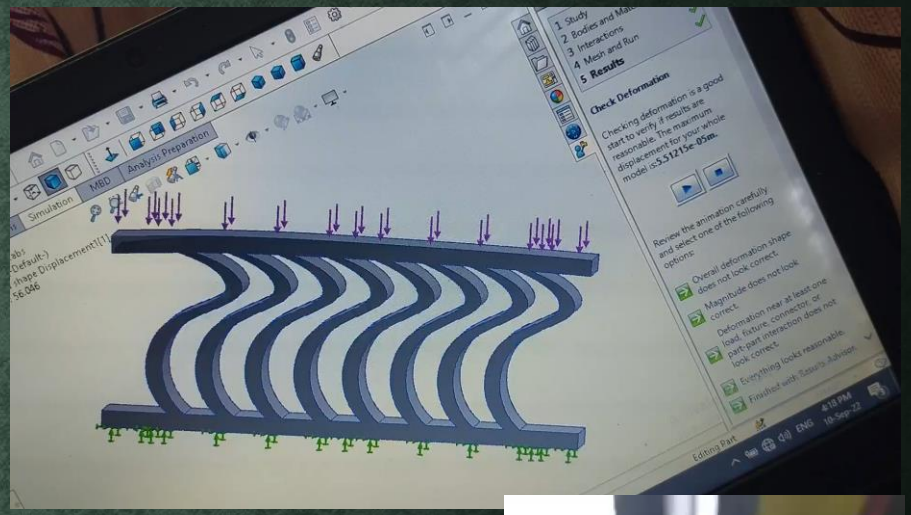
Prototyping of SMOS

Single Man Operated Stretch (SMOS) medical emergency use transport equipment. It is a portable version of a stretcher to carry people on a carrier's back. The idea of SMOS came to existence as there are people in villages carrying patients in a wicker basket (Doko) which is very uncomfortable to both the patient and the carrier.



Project Udaya (HAB)

Project udaya is a High altitude balloon project by student in Kathmandu University.
In the project I am working on sock absorption structure in the can sat 's infill



I have done some simulation for deformation and elasticity of structure
And now currently brainstorming the type of structure that will be best for the purpose.

5.RC PLANE

The new Skywalker RC plane kit was damaged .I repair the electronics and got to work on RC transmitter and receiver . The flight mechanism roll ,yaw and pitch and its respective control surface .The working of servo motors and flight computer. SC and lipo BLDC motor.

6.TELESCOPE ADAPTOR

This part connects the telescope with the EQ mount firmly . First a inexpensive prototype was made to know the feasibility and at last a 3d model was made .The part was later 3d printed out of pla