Internship 2022

Personal Progress Report

Name: Washington Kamadi

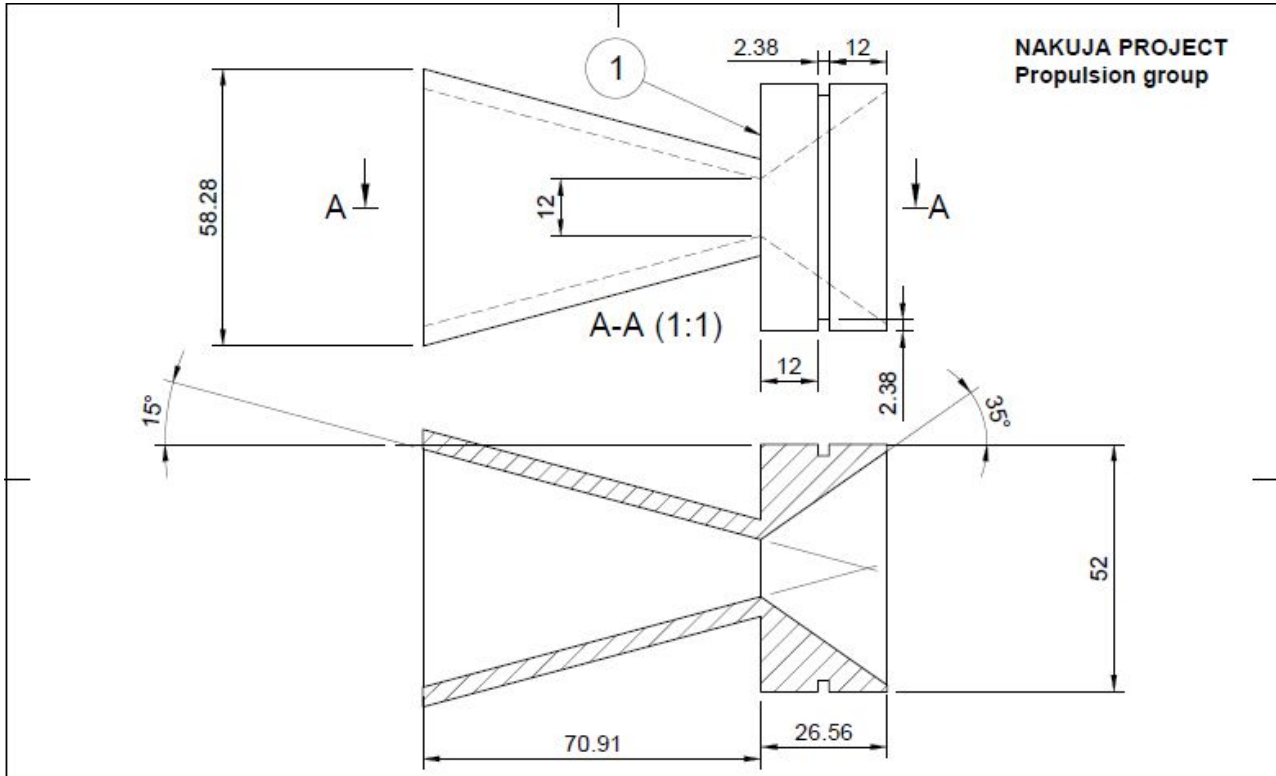
Tasks completed last week

- [#9] Design of electronics hub
- [#6] Optimum diameter for casing
- [#16] 3D Printing of electronics hub
- [#7] Nozzle designs
- [#36] Purchase of items
- [#20] OpenMotor fuel simulations
- [#52] In progress, Nozzle fabrication

3D Printed Electronics Bay

NOZZLE FABRICATION

NOZZLE DESIGN



Parts List				
Item	Qty	Part Name	Description	Material
1	1	Nozzle design		Aluminum

openMotor - C:/Users/washi/Desktop/nozzledes.ric*

File Edit Simulate Tools Help

Throat Diameter: 12.000000 mm

Exit Diameter: 52.000000 mm

Efficiency: 0.900000

Divergence Half Angle: 15.000000 deg

Convergence Half Angle: 35.000000 deg

Throat Length: 1.000000 mm

Slag Buildup Coefficient: 0.000000 (m*Pa)/s

Throat Erosion Coefficient: 0.000000 m/(s*Pa)

Expansion ratio: 18.778

Alerts | Cross Section

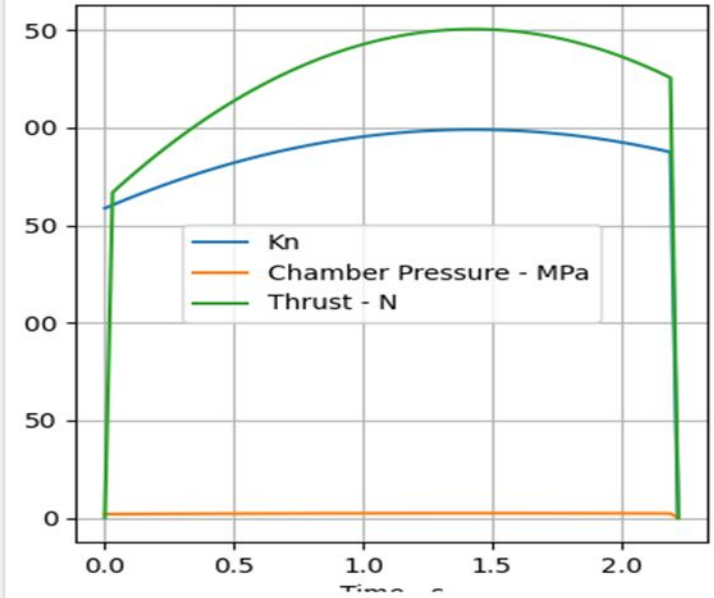
Apply | Cancel

Nakka - KNSB | Propellant Editor

	Type	Details
1	BATES	Length: 100 mm, Core: 17 mm
2	BATES	Length: 100 mm, Core: 17 mm

↑ ↓ Edit Copy Delete

BATES | Add grain



X Axis
- (•) Time
- ( ) Regression Depth
- ( ) Web

Y Axis
- [x] Kn
- [x] Chamber Pressure
- [x] Thrust
- [ ] Propellant Mass
- [ ] Volume Loading
- [ ] Mass Flow
- [ ] Mass Flux
- [ ] Regression Depth
- [ ] Web
- [ ] Nozzle Exit Pressure
- [ ] Change in Throat Diameter

Grains

Graph | Grains

Motor Statistics

Motor Designation:	I222	Average Pressure:	2.22 MPa	Propellant Mass:	0.64 kg
Impulse:	501.71 Ns	Peak Pressure:	2.37 MPa	Propellant Length:	200.00 mm
Delivered ISP:	80.50 s	Initial Kn:	158.67	Port/Throat Ratio:	2.01
Burn Time:	2.22 s	Peak Kn:	199.00	Peak Mass Flux:	874.75 kg/(m^2*s) (G: 2)
Volume Loading:	88.89%	Ideal Thrust Coefficient:	1.01	Delivered Thrust Coefficient:	0.89

Tasks in this week

- [#52] Nozzle fabrication
- [#53] Bulkhead Fabrication
- [#17] Load cells alternative
- [#16] Test stand design

Timeline

Month	Intern week	Tasks
Jan		
	Week 1	Designs [Fuel, Casing, Nozzle, Bulkhead, Casting tools, Test stand]
	Week 2	Fabrication of items
	Week 3	Fuel Fabrication and test stand revamp
Feb	Week 4	Fabrication of items & Fuel casting
	Week 5	Iterative Fuel tests
	Week 6	Launch Pad design and iterative fuel tests
	Week 7	Iterative fuel testing and improvement