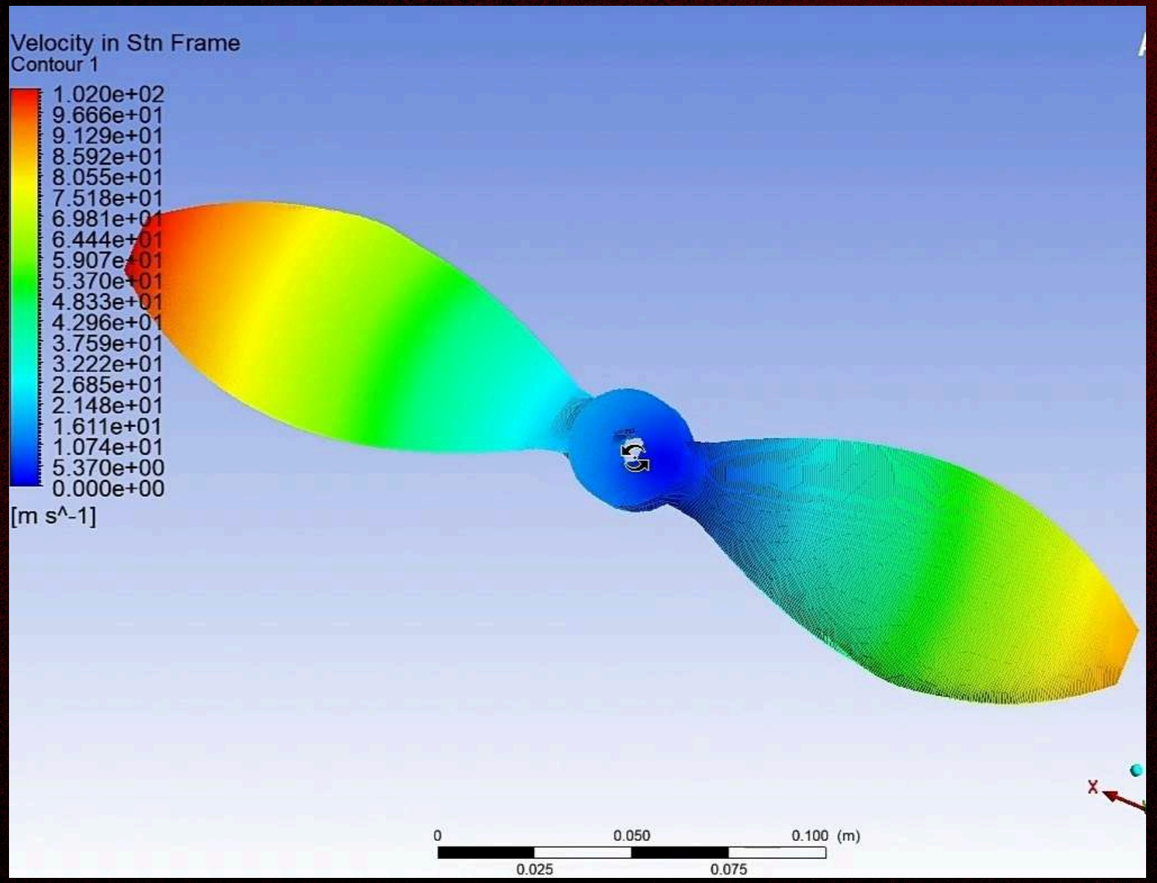
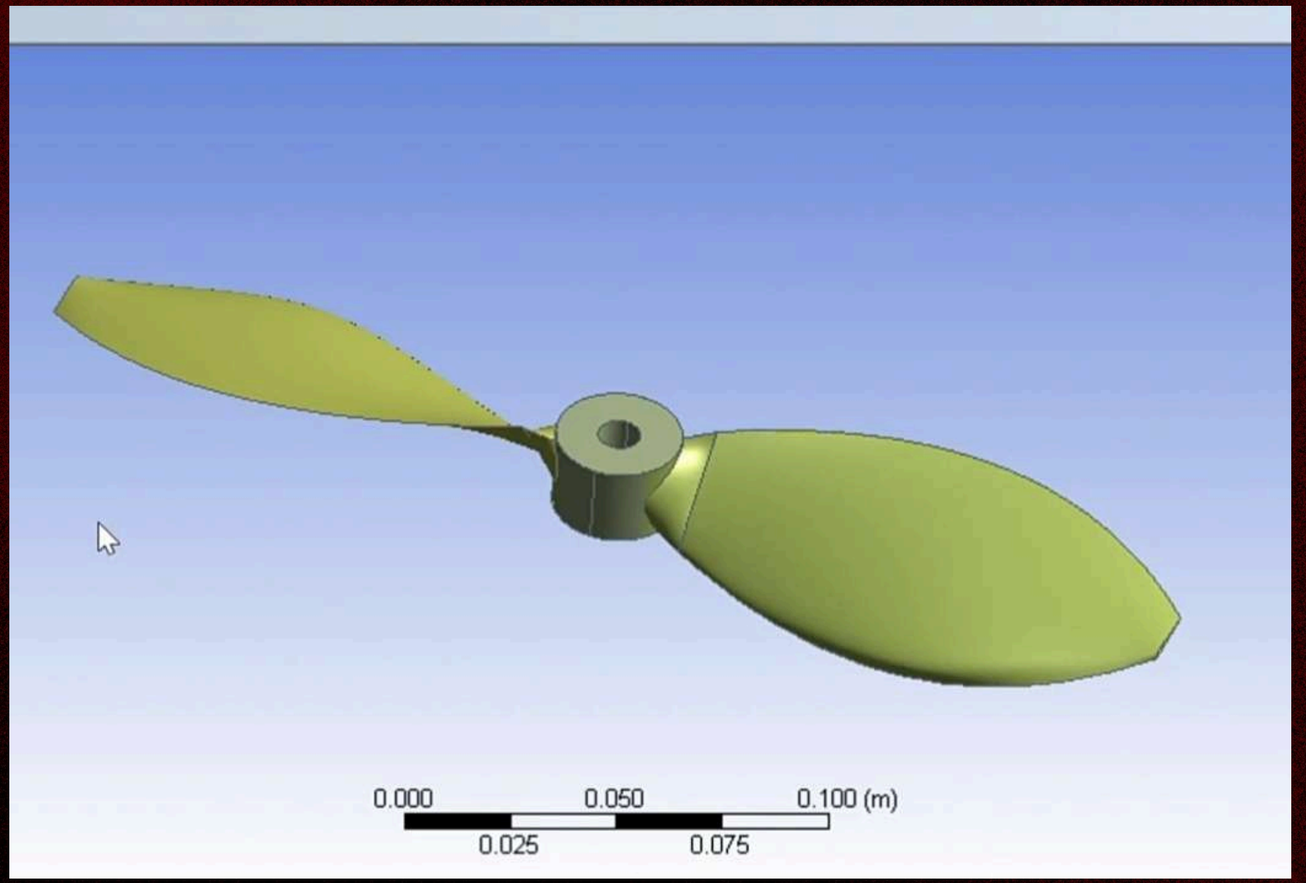
CFD ANALYSIS OF A DRONE PROPELLER

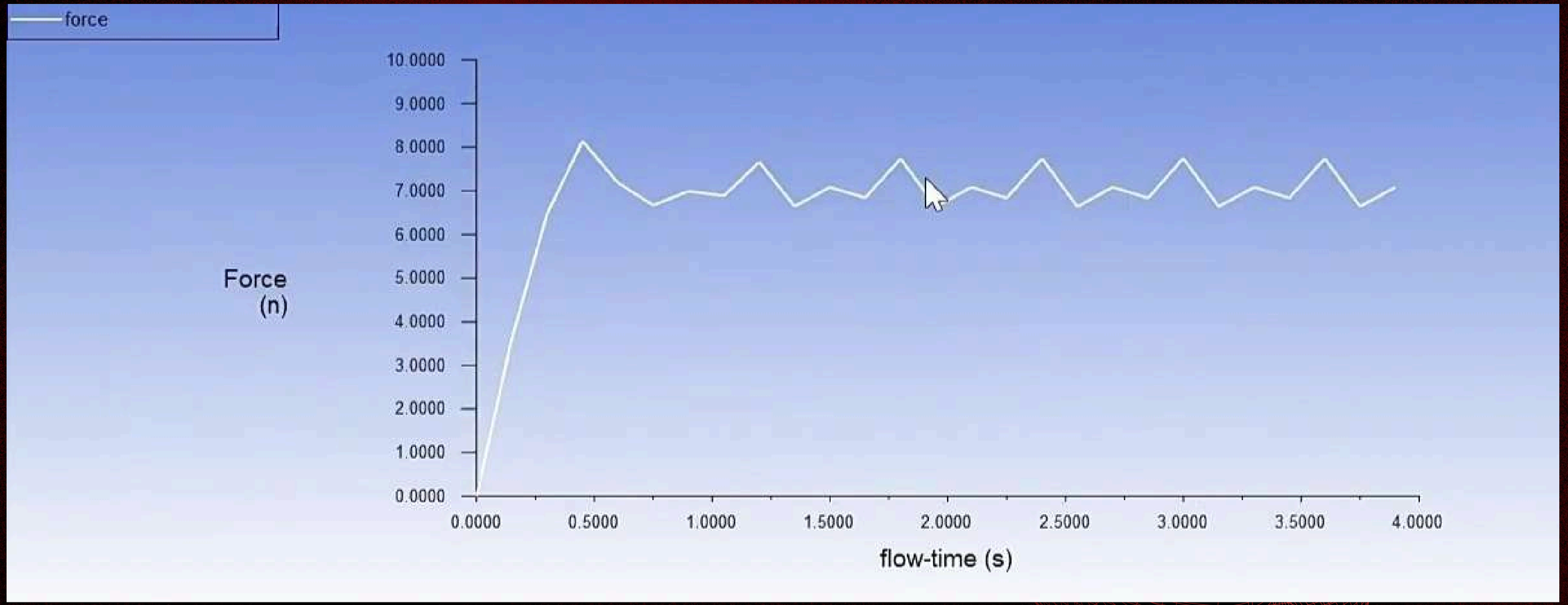
by jatin kumar

Data used in the simulation

Parameter	Parameter value
Propeller rotation	6500rpm
Maximum meshing size	5 mm
Gravity	9.81 m/s^2
Time	Transient
Time step size	0.15
Number of time step	26
Number of iteration per step	100
Viscous model	K-Epsilon (realizable)
Near wall treatment	Scalable wall function
Flying medium	Air
Specified operating density	1.225 kg/m^3


Velocity in Stn Frame
Contour 1
1.020e+02
9.666e+01
9.129e+01
8.592e+01
8.055e+01
7.518e+01
6.981e+01
6.444e+01
5.907e+01
5.370e+01
4.833e+01
4.296e+01
3.759e+01
3.222e+01
2.685e+01
2.148e+01
1.611e+01
1.074e+01
5.370e+00
0.000e+00
[m s^-1]
0
0.050
0.100 (m)
0.025
0.075


0.000
0.050
0.100 (m)
0.025
0.075



propeller	(0.16574285 7.1235298 0.98266821)			(0.00041944198 -0.040684122 0.014306989)		(0.16616229 7.0828457 0.9969752)
Net	(0.16574285 7.1235298 0.98266821)			(0.00041944198 -0.040684122 0.014306989)		(0.16616229 7.0828457 0.9969752)

Forces - Direction Vector (0 1 0)

	Forces (n)			Coefficients		
Zone	Pressure	Viscous	Total	Pressure	Viscous	Total
propeller	7.1235298	-0.040684122	7.0828457	11.630253	-0.066423056	11.56383
Net	7.1235298	-0.040684122	7.0828457	11.630253	-0.066423056	11.56383

Details of **Contour 1**

Geometry | Labels | Render | View

Domains: All Domains

Locations: propeller

Variable: Velocity in Stn Frame

Range: Global

Min: 0 [m s^-1]

Max: 102.86 [m s^-1]

# of Contours: 250

Advanced Properties

Details of **Contour 1**

Geometry | Labels | Render | View

Domains: All Domains

Locations: propeller

Variable: Pressure

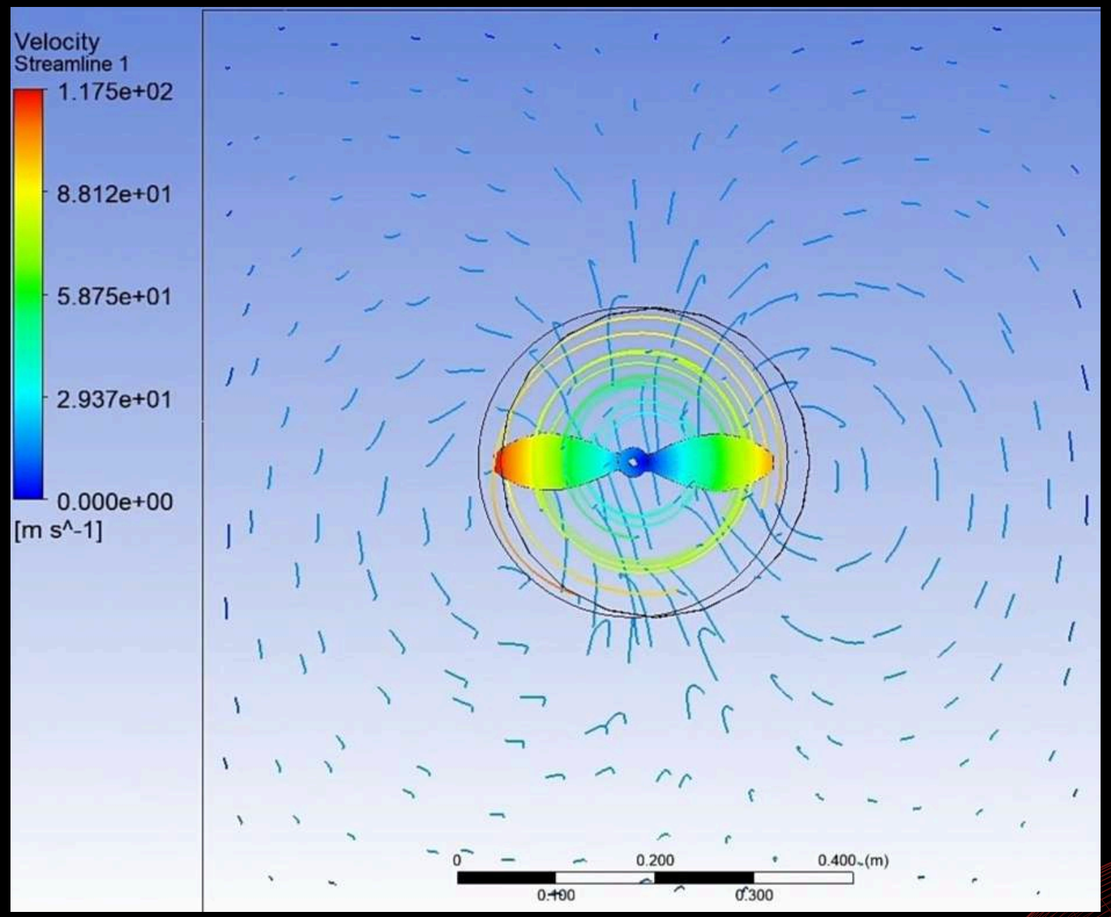
Range: Global

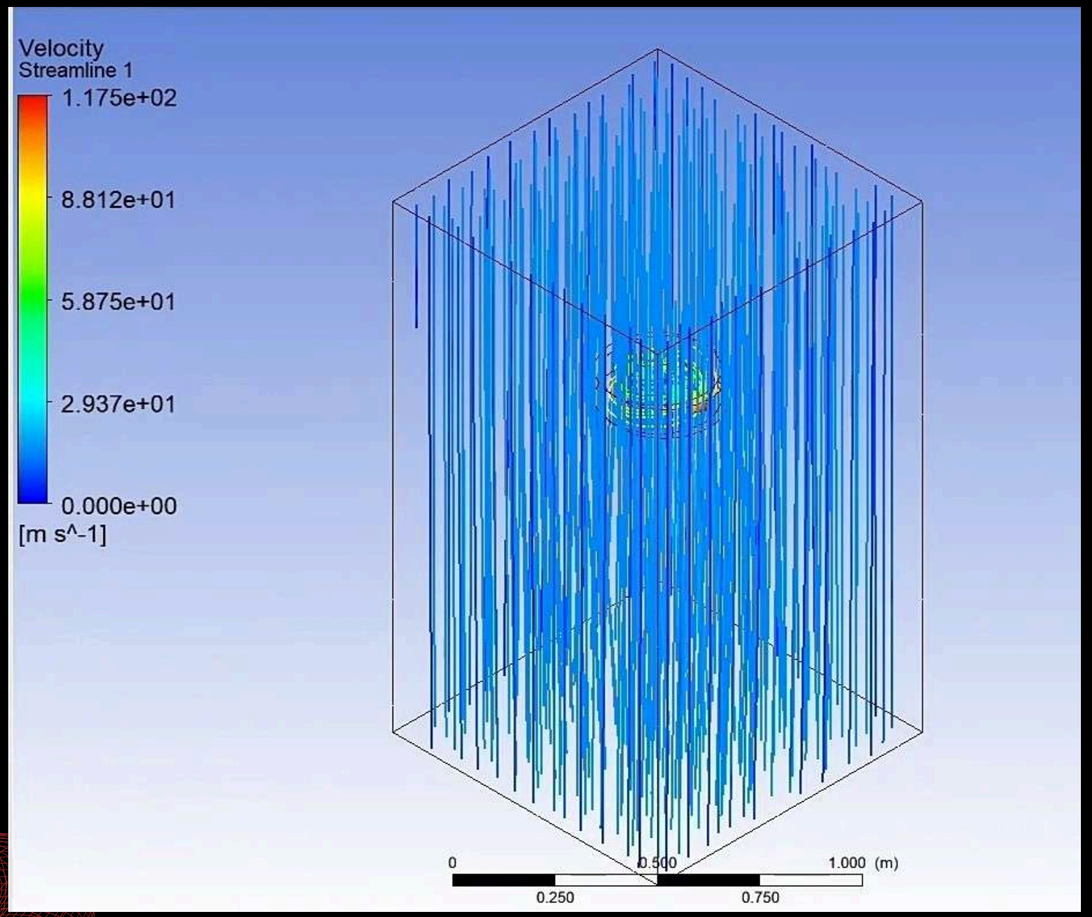
Min: -2733.7 [Pa]

Max: 1174.32 [Pa]

# of Contours: 250

Advanced Properties


Velocity
Streamline 1
1.175e+02
8.812e+01
5.875e+01
2.937e+01
0.000e+00
[m s^-1]
0
0.200
0.400 (m)
0.100
0.300


Velocity
Streamline 1
1.175e+02
8.812e+01
5.875e+01
2.937e+01
0.000e+00
[m s^-1]
0
0.500
1.000 (m)
0.250
0.750

Flux Reports

Options

- Mass Flow Rate
- Total Heat Transfer Rate
- Radiation Heat Transfer Rate

Boundaries Filter Text

Results

Boundaries	Results
contact_region-src	
contact_region-trg	
inlet	15.30219088160835
interior-7	
interior-rotating_disk_	
interior-static_	
outlet	-15.30222785213422
propeller	
wall-13	
wall-14	
wall-static_	

Save Output Parameter...

Net Results (kg/s)

-3.697053e-05

Compute Write... Close Help