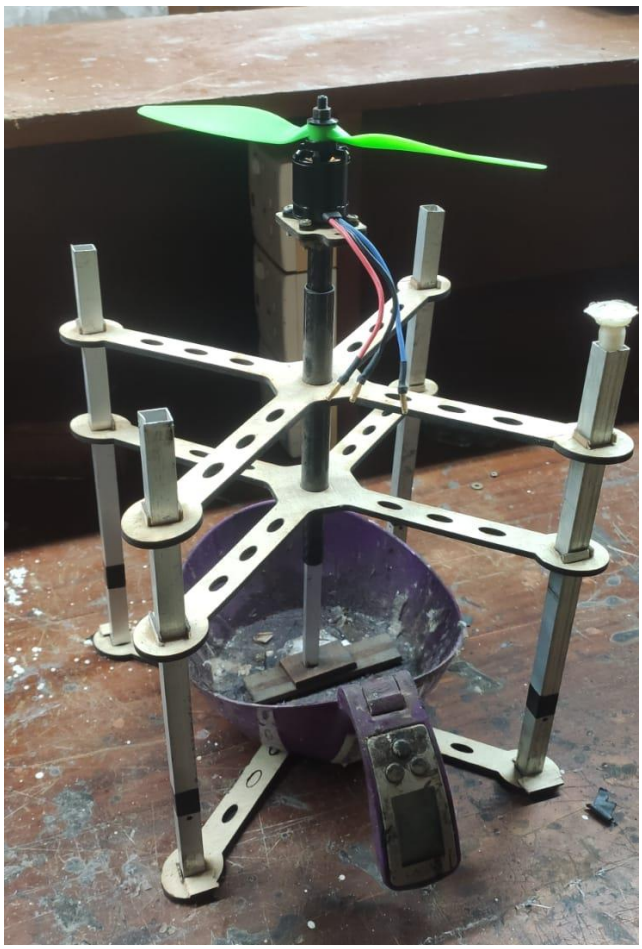
Thrust Test Report

1. Objective:

The primary objective of this thrust test was to quantify the thrust capabilities of each individual motor within the given resource constraints, focusing on the available propellers and Electronic Speed Controllers (ESCs). This assessment aimed to determine the performance boundaries of the motors when paired with specific propellers and ESCs, ultimately aiding in the selection of the most suitable combination for our aerial manipulator drone project.

2. Experimental Setup:

The thrust test was conducted using a dedicated thrust tester setup designed to measure the force generated by the motors in the direction of their axles.



3. Results:

Prop(inch)	Voltage(V)	PWM	Shunt resister voltage defference (mv)	Current (A)	force (gf)	Power (W)	Efficiency (g/W)
9047	15.5	1100	0.4	0.8	141	12.4	11.37096774
		1150	0.7	1.4	188	21.7	8.66359447
		1200	1.2	2.4	252	37.2	6.774193548
		1250	1.8	3.6	315	55.8	5.64516129
		1300	2.5	5	385	77.5	4.967741935
		1350	3.5	7	473	108.5	4.359447005
		1400	4.8	9.6	560	148.8	3.76344086
		1450	6.2	12.4	660	192.2	3.433922997
		1500	7.8	15.6	760	241.8	3.143093466
		1550	9.5	19	841	294.5	2.855687606

For reference:

Prop(inch)	Voltage(V)	Amps(A)	Thrust(gf)	Watts(W)	Efficiency(g/W)
APC9045	11.1	0.9	100	9.99	10.01001001
		2.1	200	23.31	8.58000858
		3.7	300	41.07	7.304601899
		5.3	400	58.83	6.799252082
		7	500	77.7	6.435006435
		9	600	99.9	6.006006006
		10.9	700	120.99	5.785602116
		13.3	800	147.63	5.418952787
		17.5	980	194.25	5.045045045