



1st Design Iteration

Team Name: GENEI RYODAN

Wing Information	
Airfoil	NACA2412
Span	1417.9
Root Chord	202.6
Tip Chord	202.6
Offset	0
AR	7
S_w	287.2
Incidence Angle	0
Twist	0
Dihedral	0

Vertical Tail Information	
Airfoil	NACA0009
Semi Span (Total Length)	324.9
Root Chord	108.3
Tip Chord	108.3
Offset	0
S_v/S_w	122.5
AR_v	3
V_v	0.035
Incidence Angle	0
Tail Arm	405.1
Shifted Length in Z-Direction	0

Horizontal Tail Information	
Airfoil	NACA0009
Span	440.3
Root Chord	146.8
Tip Chord	146.8
Offset	0
S_H/S_w	0.225
AR_H	3
V_H	0.45
Incidence Angle	-2
Tail Arm	405.1
Shifted Length in Z-Direction	0

Propulsion System Information					
Brushless Motor	Manufacturer	Model	Voltage	No Load	Resistance

			Constant [KV]	Current [A]	[ohm]
	Electrifly	Rimfire .15	1200	1.7	0.0415
Battery	Manufacturer	No. Of Cells	Voltage	Capacity [mAh]	C-Rating
	LiPo	3	3.7	5000	45/60C
Propeller Size (Diameter x Pitch)	10*4.7				
Speed Controller (Current Rating Value)	60A				

Flight Phases

Phase 1 (payload isn't deployed)	
MTOW	1.5
X_{CG}	146.7
Static margin (%)	10
CL_{cruise}	0.1236
V_{Stall}	8
V_{Cruise}	26
α_{Trim}	1.86
Required Static Thrust	0.609
Required Dynamic Thrust (at V_{Cruise})	0.3672

Phase 2 (payload is deployed)	
Mass	1.05
X_{CG}	146.7
Static margin (%)	10
CL_{cruise}	0.1209
V_{Stall}	8
V_{Cruise}	22
α_{Trim}	1.86
Required Static Thrust	0.4734
Required Dynamic Thrust (at V_{Cruise})	0.2848

➤ Note: lengths should be in (mm), angles in (deg), weights and thrust in (Kg).