TEAM ID: HA-229333

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| Boeing competitioN | Abstract |

**ABOUT:**

The rc plane utilizes NACA 4512 airfoil which is suitable for gliders. The plane is designed to carry atleast 3 balls and has T/W <1. The movement of rc plane is controlled using ailerons, rudder and elevator.

**MATERIAL AND COMPONENTS:**

* Coroplast
* Wooden cardboards
* Servo motors
* LiPo(2200 mAh)
* BLDC Motor
* Flysky FS i6 ( transmitter and reciever)

**RC plane design and calculation:**

* Wingspan = 1 m
* Chord length = 20 cm
* Wing area = 0.2m2
* Aspect ratio = 5
* Fuselage length = 75 cm
* F1 = Nose length = 15 cm
* F2 = Tail length 30 cm
* F3 = Stabilizer Width = 10 cm
* Fuselage height = 7.5 cm
* Aileron width= 2.5 cm
* Aileron length=10 cm
* Horizontal Stabilizer Area = 400 cm2
* Horizontal Stabilizer width = 40 cm
* Horizontal stabilizer length= 10cm
* Elevator Sizing
* Elevator length = stabilizer length = 40 cm

Elevator area = 100cm2

Elevator width = 2.5 cm

* Vertical Stabilizer:

Vertical Stabilizer area = 132 cm2

Vertical Stabilizer width = 10 cm

Vertical Stabilizer length = 13.2 cm

* Rudder Area:

Rudder area = 66 cm2

Height of Rudder = 13.2 cm

Rudder Width = 5 cm

* Center of gravity “CG”:

CG = 5 cm

* Angle of Attack: 3-4 degree
* RC Plane total Weight with components= 1 kg
* Wing Loading= Weight/Wing area=5

**CAD Model Analysis and Result:**

Design of the Plane was done in Solid works and analysis of the aerofoil (NACA 4512) was done in xflr to understand its behaviour for different angle of attacks.

 





