

Aerial Quest 2.0

Event Description:

The objective of this event is to attract *aero modelling* enthusiasts to provide them with the immense opportunity of testing the agility of their Fixed-wing aircraft models. This event will provide the aero modellers to test their Flying Skills as well.

Aerial Quest is an all-electric class aero-modelling event. The mission is to design a light-weight, UAV style aircraft. Aerial quest will be featuring only micro class, all electric only. High performance and operational availability are critical through the entirety of the competition.

Event Details:

Aircraft Specification:

- The aircraft is to be designed in such a way that it travels quickly in air, is easily manoeuvrable and can carry the maximum payload.
- Gearboxes in Micro Class are allowed. Multiple motors, multiple propellers, propeller shrouds, and ducted fans are allowed.
- Gyroscopic assist or other forms of stability augmentation are not allowed.
- Competing designs are limited to fixed wing aircraft only. No lighter-than-air or rotary wing aircraft such as helicopters will be allowed to compete.
- The payload must consist of a support assembly and payload plates. All payloads carried for score must be carried within the cargo bay(s). The support assembly must be constructed so as to retain the weights as a homogeneous mass.
- The payload should not provide any addition to the strength of the wings and fuselage or any aerodynamics advantage for e.g. steel rods to strengthen the wings are not allowed.
- Usage of Ready-to-Fly (RTF) and Almost-Ready-to-Fly (ARF) kits is strictly prohibited.
- Any dimension of the aircraft should not exceed 1000 mm i.e. maximum allowed dimension is 100cm, whether it is the wingspan or the length of the aircraft. Any exception to this rule will render the participant disqualified.
- Metal propellers are not allowed.
- Anyone found not following the above rules will be disqualified.

Launching method:

Aircraft may be launched by firmly grasping the fuselage and using a one-step (stride) launch. Only one person may be used to hand launch the aircraft

Take off: After the signal from the respective AERIAL QUEST representative the team will have only 2 min to prepare their respective UAV and take off. Two attempts will be given for the round.

Landing: Landing is defined as occurring from initial touchdown to the point at which the aircraft stops moving. A crash-landing invalidates the landing attempt and the round. A good landing for a successful flight is defined as touching down within the designated landing zone. Rolling-out or sliding beyond the landing zone limits is allowed, provided the aircraft initial touch down occurs within the landing zone.

Competition Rules:

- The participant will be considered for scoring only if his plane follows the mentioned path. Otherwise, his score stands at zero.
- The competition will be held for only one .Two chances will be given for each round only if the plane lands before first cone or it fails to launch. If the plane crosses the first pole than no second chance will be awarded for that round.
- All parts must remain attached to the aircraft during flight and landing.
- Broken propellers are allowed, and will not invalidate a flight attempt.
- The payload must be secured to the airframe to ensure that the payload will not shift or come loose in flight.
- The use of 2.4 GHz radio is required for all aircraft competing.
- A maximum time of 3 minutes will be given to complete the circuit.
- The weight of the payload and empty weight of the plane will be checked by the coordinator after every round.

Judging Criteria:

$$\text{Score} = (N \div 2) + 1 / ((T/W) * t) + LP + PF$$

where, N = No. of rounds.

T/W = Net thrust: Weight Ratio= 0.75 (maximum).

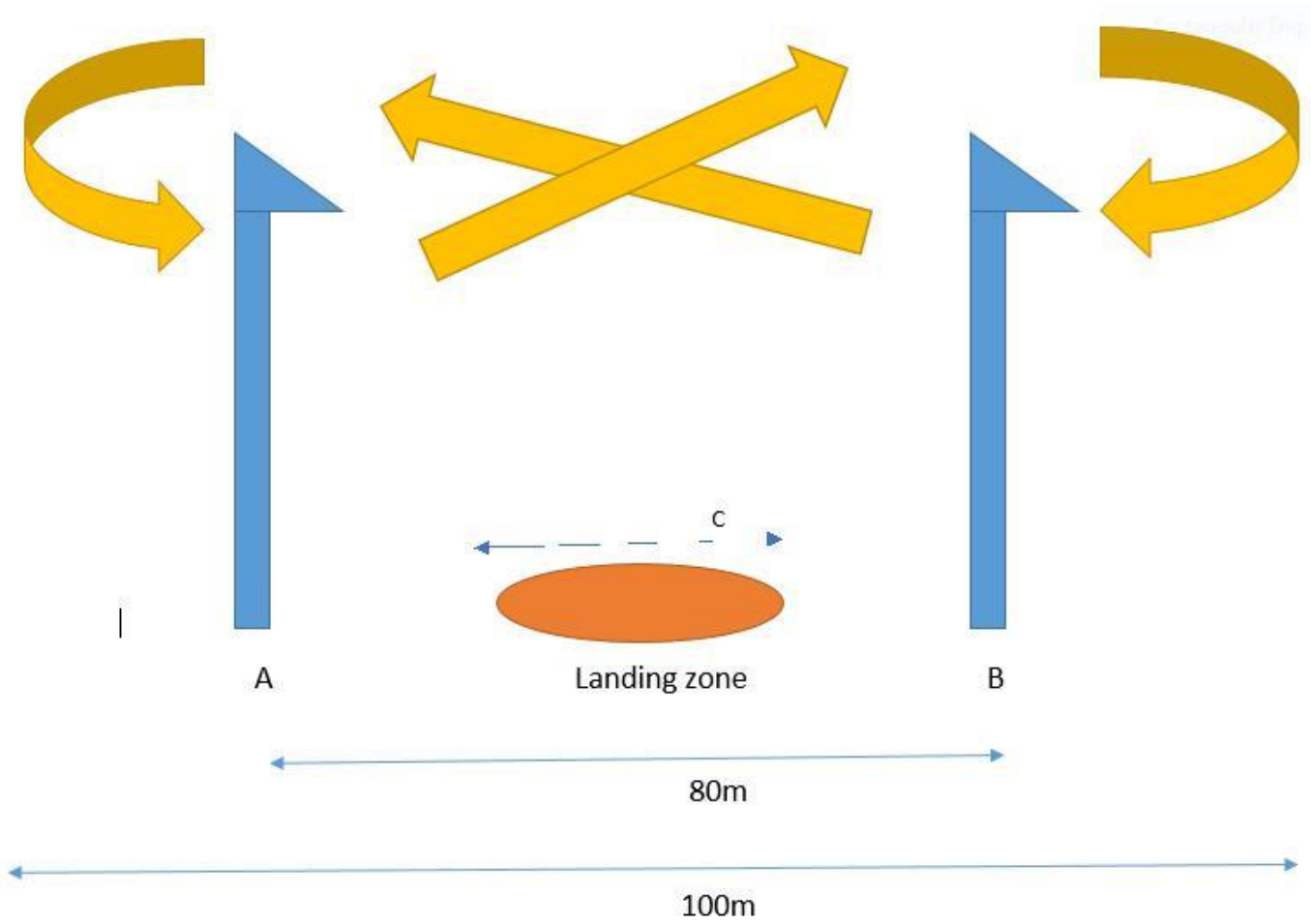
t = Time taken to complete.

LP = Landing Point.

PF= Payload Fraction.

PAYLOAD FRACTION = PAYLOAD WEIGHT / (PAYLOAD WEIGHT + EMPTY WEIGHT)

Arena:



TEAM SPECIFICATION:

A team can consist of a maximum of four participants. All students with a valid identity card of their respective educational institutes are eligible to participate in the competition.

It is recommended that the teams bring their own pilot.

For any queries contact: Stuti: 7809424381 Suman: 7327094298 Ankush: 7504412558