

2024 DTRG Indoor Drone Competition

Design Requirements for the Attachment



Teams are required to design and build an attachment to the base of the drone to score points in Task 2 (Sample Collection and Deposit).

The design requirements for the attachment are as follows.

- Maximum weight of 100 grams including any actuators (such as the provided servo) and all fasteners.
- The attachment must be fastened to the drone using the acrylic **attachment plate** shown in Figure 1. The plate has 2 x M3 inserts spaced 63 mm apart as is located at the centre of the drone.
- The attachment should not cover the outlets of the ducted rotors. The edges of the ducts are 25 mm on either side of the centreline of the drone.
- The attachment should not cover the radio receiver attached to the back.
 - The edge of the receiver is located 50 mm from the centre of the attachment plate.
- A single actuator (such as the provided servo) can be connected to the receiver and controlled from a separate radio transmitter. The receiver provides a PWM signal (1000-2000 microsecond range) and any actuator connected should not have a current draw of more than 1 Amp. The supplied 9g servo draws a maximum of 0.5 Amp.
- Teams are permitted to provide their own electronic equipment as part of their attachment design, including and not limited to: actuators, radio equipment, batteries.
- The drone with attachment must be level during takeoff and landing.
 - The instant that the attachment first contacts the sample should be treated as a landing, i.e. all rotors may be stopped and the drone must remain level.

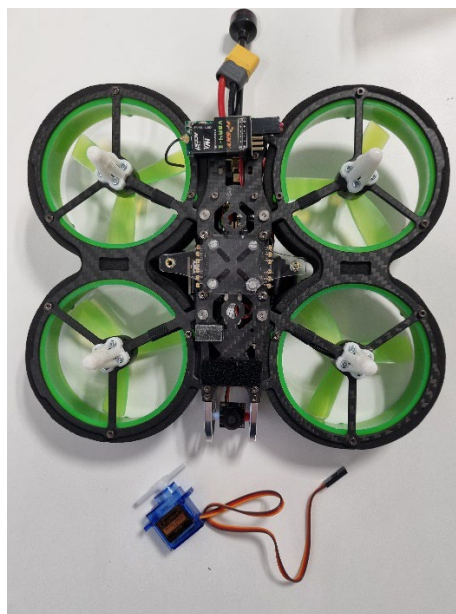


Figure 1. Base of the drone and servo

Note:

- Dimensions provided are approximate. Teams are expected to fit and flight test their attachment in one or more of the training sessions and not leave this to the competition day.