Cargo Drop Challenge - Abstract

Team Name – The Albatross

Implementation Steps –

The project can be divided into 2 main parts –

1. Designing the control mechanism for marking the given target on ground and relaying it to the payload dropping mechanism.
2. Designing the aircraft suitable for sustaining the above mechanism

Part - 1 (5th May – 25th May)

- Devising an Arduino circuit which will comprise of the following components:–
    1. Pitch Sensor and 2 axis Gyroscope
    2. Dual axis Accelerometer
    3. GPS sensor
- Coding for collecting, analysing and computing the data from the above sensors in order to devise a fully automated dropping mechanism (i.e. drop the payload as soon as the target is in range and position)
- Calibrating the Arduino for increasing accuracy.
- Coding to make an auto-stabilizer for the aircraft to stabilize the aircraft while approaching the given target

Part 2 (15th May – 31st May)

- Building an aircraft to accommodate and execute the purpose of the above control mechanism
- The aircraft should briefly have the following features:–
    1. A top - wing configuration with a rough wingspan of 1 - 1.1 m
    2. A large fuselage enough to accommodate the given payload and the control circuitry.
    3. A cargo-bay door to drop the payload.
    4. Control surfaces – ailerons, elevator, rudder.
    5. 6 Servo motors for the above controls.
    6. 3 Landing gears
    7. 1 Motor with nearly 1 kg of thrust.
    8. Suitable battery for the above motor

Part – 3 (1st June – 15th June)

- Testing and Calibration of the overall aircraft to look into the various after – construction technical problems)