SMART INDIA HACKATHON 2022

Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation:
Autodesk India Pvt. Ltd
PS Code: AV991

Problem Statement Title: Design a Drone using Autodesk Fusion 360 Software for ANY ONE of the below services.

Team Name: Nexus Crew

Team Leader Name: Fanindra Saini

Institute Code: JUET Guna

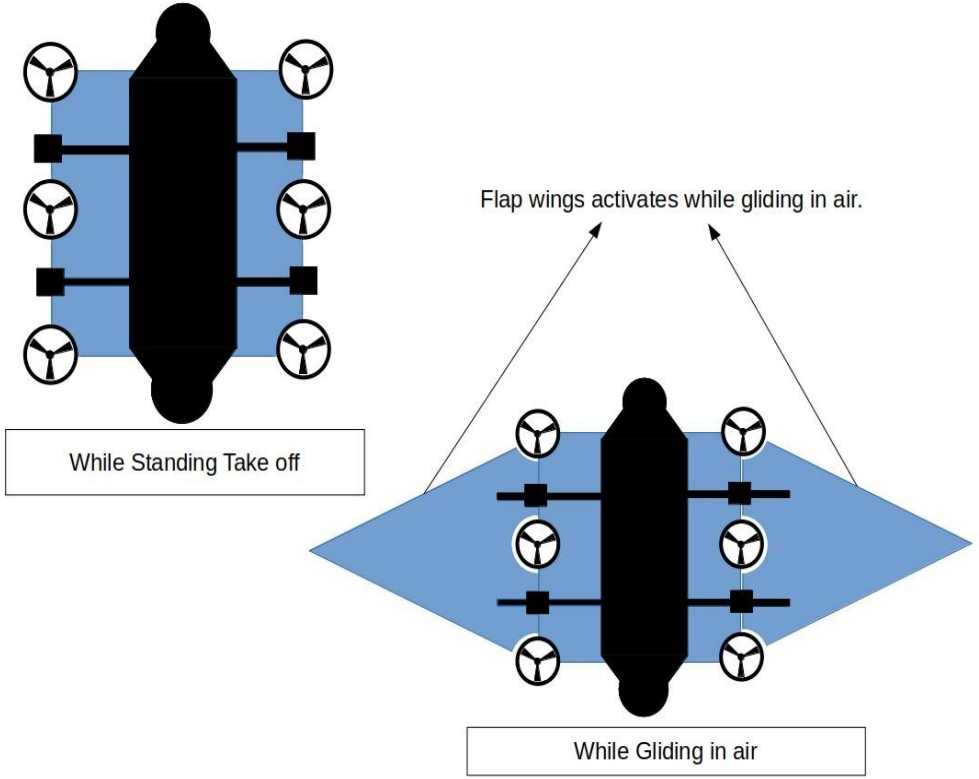
Institute Name: Jaypee University of Engineering and Technology.

Theme Name: Drones and Robots.

Idea/Approach Details

Idea/Solution/Prototype :

- Drones or Robots are one of the necessary requirement to accomplish many challenging tasks related to security, surveillance, delivery system etc.
- Our team is planing to design a Multipurpose, medium sized, High Speed drone.
- This drone will have 2 movable flap wings which will activate while gliding in air.
- It has 6 three blade Ducted Propellers among which 4 propellers can change its orientation to attain maximum speed in air while consuming less battery power.
- The Ducted Propellers provides high thrust and low noise as compared to normal drone propellers.
- This drone can equip with many different kinds of sensors, equipment and cameras, and can have various functionalities according to its use cases.
- For recharging solar panel can also be fixed over the flap wings.



Rough Design of Drone

Technology stack:

- Kite Shape Body.
- LIDAR Sensor.
- GPS, Wi-Fi & Radio Communication.
- Infrared Camera.
- Ducted Propellers.
- Movable Flap wings.

Idea/Approach Details

Use Cases

- This drone can be used in many situations like -
- In Rescue Missions it can provide necessary things in a very less time.
- It can be used in surveying and mapping.
- It can be used for pipeline inspection in industries.
- It can be used in Security and Surveillance.
- It can be used in Delivery System.

Dependencies / Show stopper

- Balancing the Pressure on the body of Drone.
- If the propeller ducts are designed perfectly they can give a huge advantage to thrust.
- The delivery materials on a drone can not be hanged because it will travel at high speed, they need to be fixed at static point.
- Adjustment of Center of mass to maintain stability.

Team Member Details

Team Leader Name: Fanindra Saini

Branch (Btech): Stream (CSE): Year (I):

Team Member 1 Name: Priyanshu

Branch (Btech): Stream (CSE): Year (I):

Team Member 2 Name: Nayan Soni

Branch (Btech): Stream (CSE): Year (I):

Team Member 3 Name: Hrishikesh Bhatt

Branch (Btech): Stream (CSE): Year (I):

Team Member 4 Name: Isha Shrivastava

Branch (Btech): Stream (CSE): Year (I):

Team Member 5 Name: Pravin Kumar

Branch (Btech): Stream (CSE): Year (I):

Team Mentor Name: Dr. Amit Kumar Srivastava

Category (Academic): Expertise (AIML/Robotics/Computer Vision): Domain Experience (18 years):