PLA UAV

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Introduction

The Polylactic Acid Drone project addresses the increasing demand for sustainable and adaptable aerial surveillance solutions. Utilizing a biodegradable PLA frame powered by efficient lithium polymer (LiPo) batteries, the drone offers a lightweight, eco-friendly design with space to accommodate optional cameras or defensive systems. This innovation enhances operational flexibility across various applications while promoting environmental responsibility.

Constraints

Industry Standards: The Drone meets the ISO and ASTM standards

Light Weight: Ensuring a Balance of Strength and Lightweight Design

Environmental Resistance: Adaptable to various environmental conditions

Specifications

Max Weight < 2 kg

10 °C =< Temperature <= 50°C

Flight time > 15 min

Project Impact

Economic Impact: Provides a cost-effective, eco-friendly alternative to traditional drones, promoting affordability and local job creation.

Societal Impact: Enhances search, surveillance, and disaster response capabilities while reducing risks to humans in hazardous areas.

Environmental Impact: Utilizes biodegradable PLA and sustainable materials, minimizing waste and aligning with global sustainability goals.

Prototype Design

PLA UAV Physical Prototype

Dimensions of PLA UAV

Novelty

PLA Based Drone Frame

The use of PLA for the drone frame, a biodegradable and eco-friendly material, unlike the now-existing drones

Sustainable Manufacturing

Facilitating efficient and rapid production of the drone frame through 3D Printing

Creativity

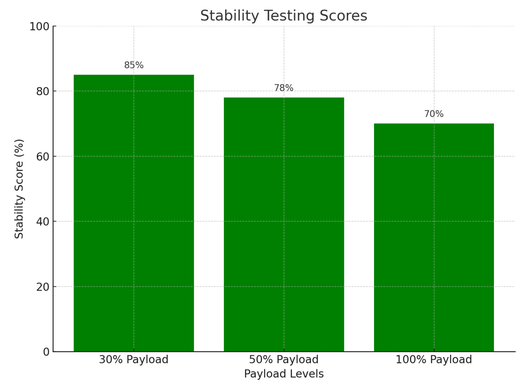
Multi-Purpose Functionality

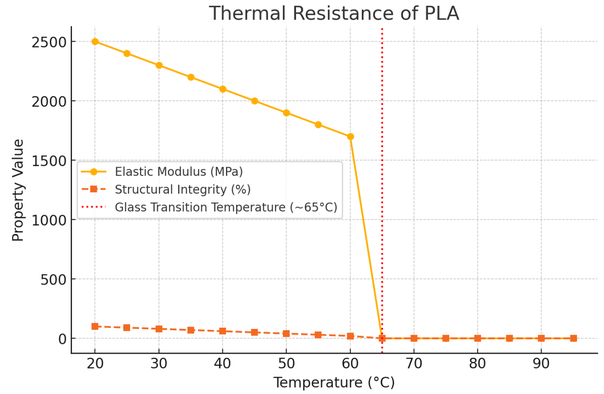
Flexible design to accommodate optional cameras or defensive systems

Cost-effective Design

Utilizing affordable materials such as PLA, LiPo Batteries and simple manufacturing

Testing & Validation





Conclusion

The project focuses on sustainability, efficiency, and adaptability. The lightweight PLA drone, coated with Acrylic Clear for durability, supports diverse applications with a modular design for customizable payloads. Powered by an efficient lithium polymer battery, it balances reliable performance with eco-friendliness. Biodegradable materials and 3D printing minimize waste, while streamlined manufacturing ensures cost-efficiency.

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