



DEPARTMENT OF MECHANICAL ENGINEERING
NSS COLLEGE OF ENGINEERING,
PALAKKAD-8

BTECH FINAL PROJECT 2024 - 25

1. **Project No** : B142025
2. **Project Title** : DESIGN AND FABRICATION OF AERIAL REFORESTATION SYSTEM
3. **Students Name:**

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4. **Project Guide** : SRAVAN K K

5. **Abstract** :

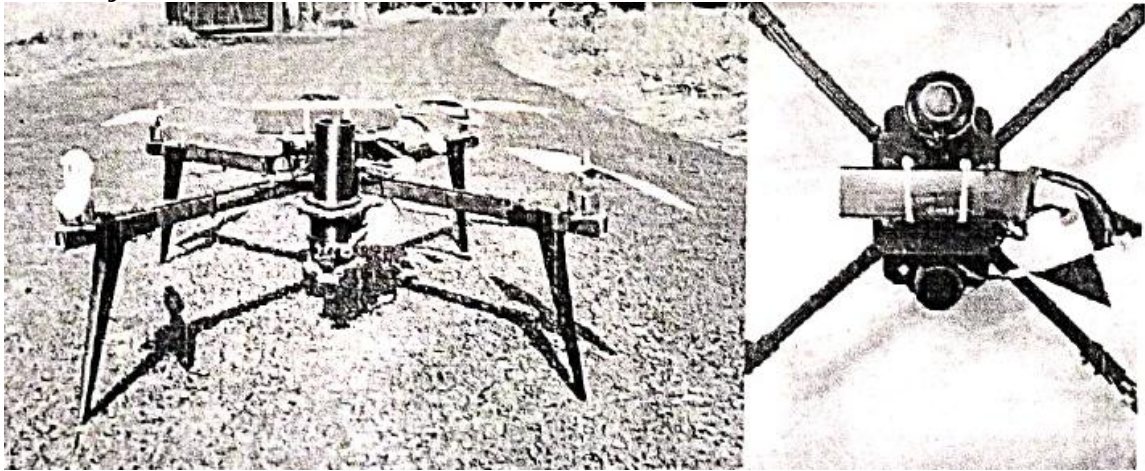
In response to the pressing need for large-scale reforestation, this project introduces an innovative aerial reforestation system designed to facilitate the efficient and precise deployment of seed balls using a drone. Traditional reforestation methods face challenges such as difficult terrain, limited accessibility, and high labor costs. Our approach leverages drone technology to address these issues, enabling rapid reforestation efforts across diverse landscapes, including remote and ecologically sensitive areas.

The project is divided into two main components: drone fabrication and seed ball optimization. The first part focuses on the design and construction of a drone tailored for seed ball dispersal. Key considerations include drone payload capacity, range and ease of control. To accommodate these requirements, we have designed a robust, lightweight drone capable of carrying and releasing seed balls efficiently over large areas. Special attention is given to the deployment mechanism, which ensures controlled and accurate dispersal at designated locations.

The second part involves a comprehensive study of seed balls to maximize germination rates. Seed balls—seeds encased in a mixture of soil and nutrients—are an effective means of protecting seeds during aerial deployment. This study evaluates factors such as soil composition, weight of the seed ball and height of dropping the seed ball to determine the optimal configuration for various environmental conditions. Our aim is to identify the most effective combination for enhancing seed survival and growth after deployment.

Overall, this aerial reforestation system aims to provide a scalable, cost-effective solution for environmental restoration. By combining drone technology with optimized seed ball techniques, our project presents a promising method to accelerate forest regrowth in deforested or degraded areas. The findings of this project contribute to the field of sustainable environmental management and highlight the potential of drone-based reforestation as a viable strategy for addressing climate change and biodiversity loss.

6. Project Picture :



7. Project Report: https://drive.google.com/file/d/1DoUp0rzW8rpyO1JHVmxX1HD49OY5MSR3/view?usp=drive_link