EN 618: PROJECT PRESENTATION
GROUP NO 14

PROJECT TOPIC:

DRONE-BASED TRANSPORT TECHNOLOGY (PACKAGE DELIVERY)
OPTIMAL PATH PLANNING & COST ESTIMATION

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Problem Statement

Primary Objective: A Drone has to deliver a package from a depot or warehouse to the predetermined destinations or consumers. The main objective of this project is to provide **path planning** that aims to **minimize the delivery cost** and **reduce the total energy consumption**

Secondary Objective: Considering scenarios for **drones** and **other vehicle** delivery to do the **cost benefit analysis** among drones and traditional delivery methods. We will focus on copters and more widely depicted format for package delivery.

Methodology

Independent of drone's model

- Problem Formulation (2D Grid)
- Algorithm Implementation for Minimum Path(Cost)

Considering drone's model

- Literature review on drones and Data Collection
- Cost Estimation & Comparison with existing Delivery Methods

Expectations and Results

1. Given the consumer locations, the algorithm should be able to find out optimum path which has the minimize the cost
2. Given the GPS coordinates, the programme should be able to make a 2D grid in Cartesian coordinates
3. Given the characteristics of the drone, we should be able identify the operating point for maximum efficiency which reduces the time of flight as well (trade off)
4. Cost comparison with existing delivery services to deliver in reasonable time
5. Visualisation of the optimum path in animated form
6. Obtaining plots for cost v/s payload for various drones

Work Distribution

Shivam Yadav :
-> GPS data collection
-> Drone Modeling and correlations with collected data
-> Flying Cost estimation for a chosen drone

Hemant Kumar Mehta:
-> Problem Formulation
-> Algorithm Implementation for Optimum path & Minimum Cost
-> Visualisation of obtained path

Rai Varunkumar Rajesh:
-> Market survey of other package delivery methods
-> Time and cost calculations for existing methods
-> Comparison with drones based delivery systems

C S Ruben:
-> Market research on various drones
-> Data collection for various drones & impact of drone delivery
-> Cost benefit analysis

Questions?

Thank You