Israeli-Indian Hackathon 2025

Team Num: T080

Team Name: Drone Developers

Title of Project / Idea	:	DDS (Drone Dispach System - For Medical Supplies)
Problem Theme	:	7 - Open Innovation
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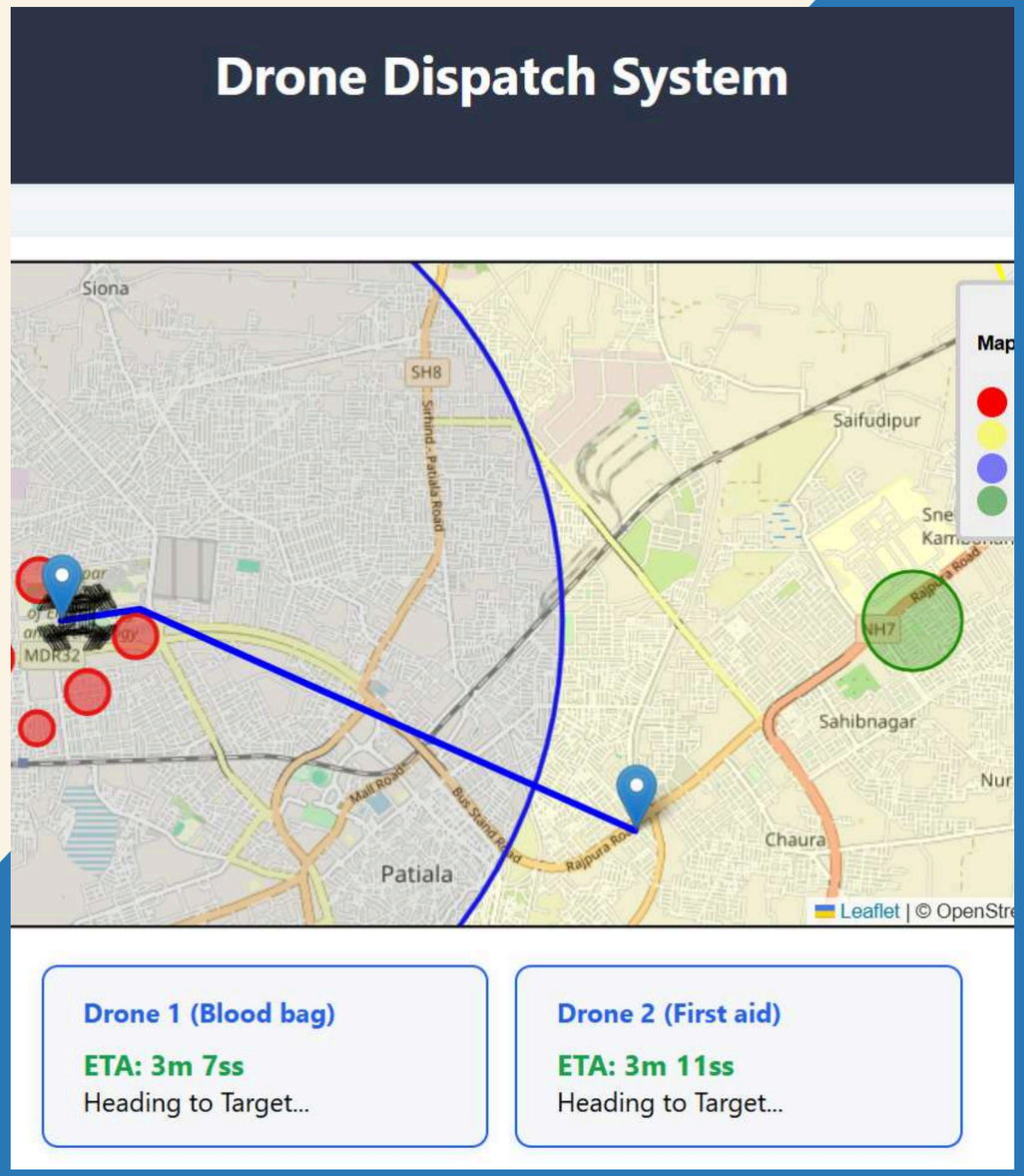
Drone Dispatch System

For Medical Supplies

TEAM: Drone Developers (T080)

“When every second counts, we’re in the air.”



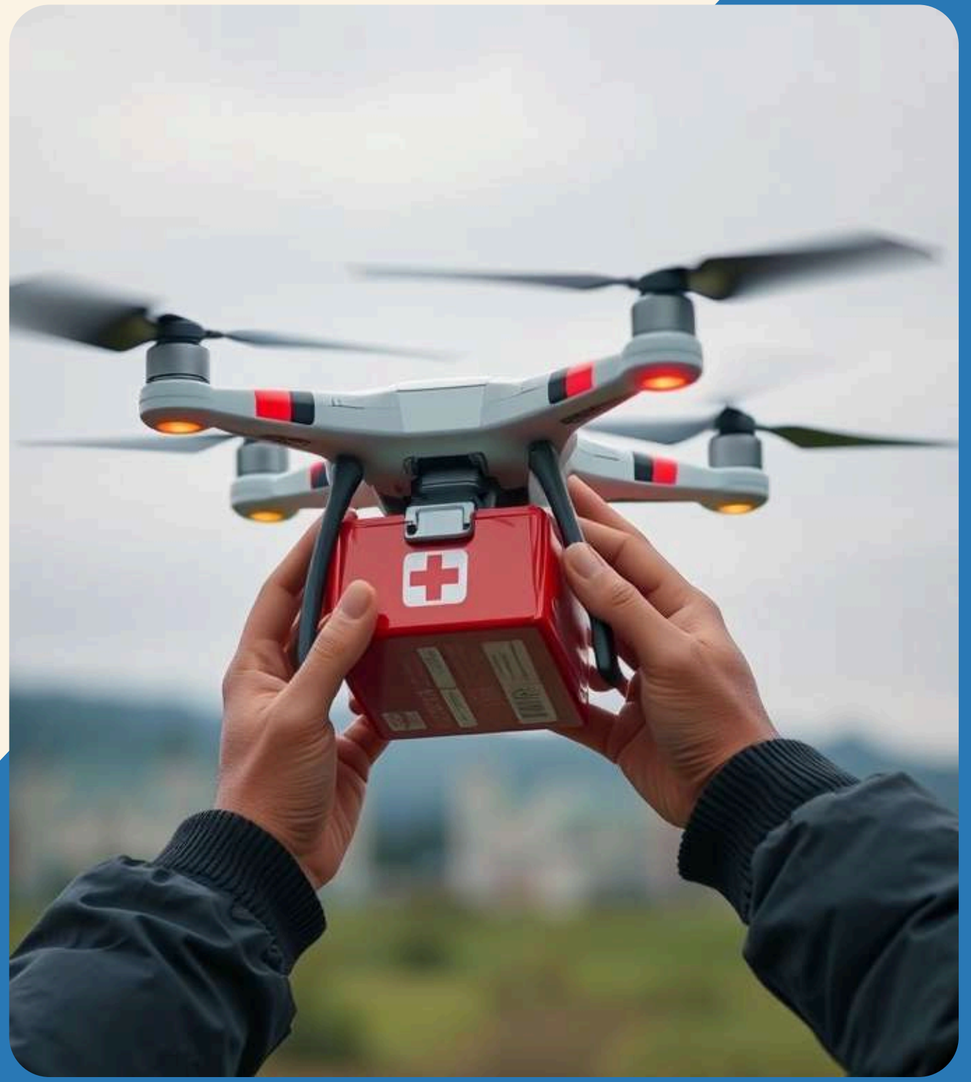
Thapar Institute of Engineering and Technology

Problem Statemen 07 : Open Innovation

WHAT IS THE PROBLEM?

Despite major advancements in drone technology, its potential for rapid delivery of essential medical supplies during critical emergencies remains largely untapped.

Utilizing drones for fast, reliable deliveries in these situations can save lives and dramatically enhance emergency healthcare response.



Market Research

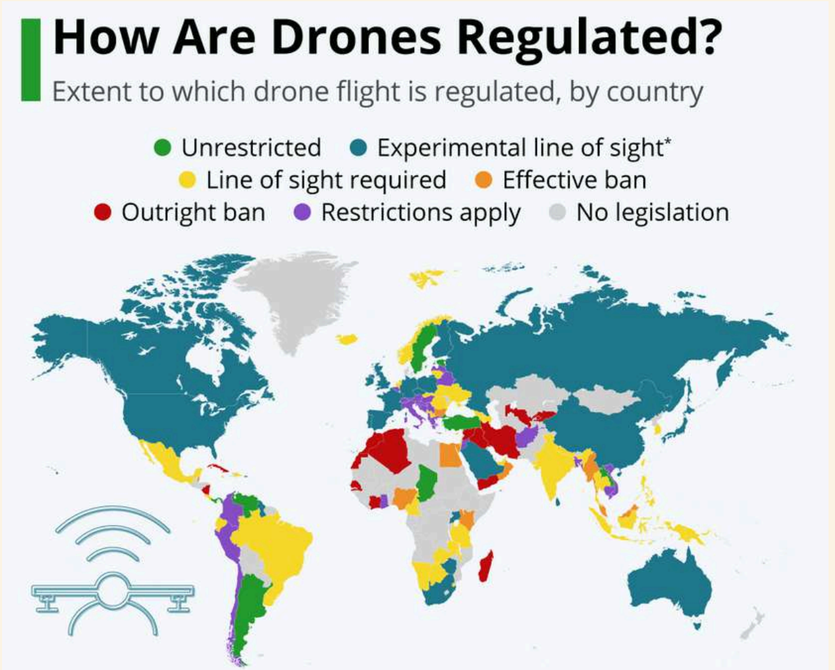
Currently Available Solutions:

- **Zipline**: Large-scale drone delivery of blood and vaccines in Rwanda, Ghana, and parts of North America. Highly reliable with significant time savings.
- **Swoop Aero**: Integrate drone networks into existing health supply chains, mainly in Australia and Africa.

fig. Drone Model of Zipline Company

Gaps In The Market:

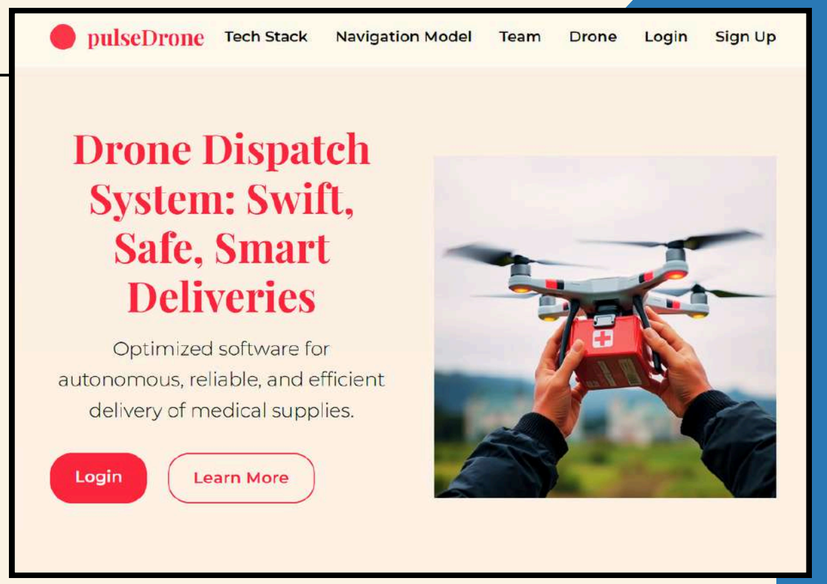
- Existing medical drone delivery systems are restricted to specific locations
- require expensive infrastructure and hardware
- lack flexibility for changes or fully automated operations
- Limited accessible, open-source tools for simulating drone management before real-world deployment



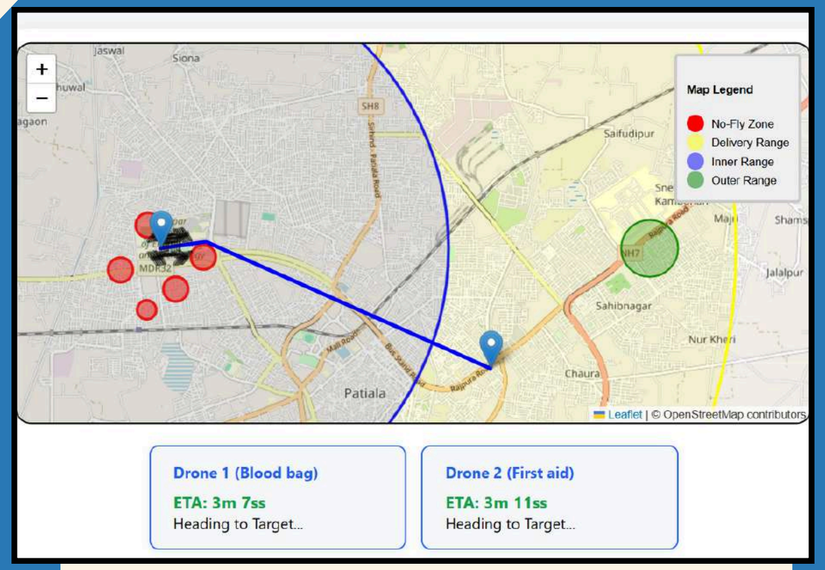
The Solution

1. We are developing a web platform where verified users can select from predefined medical payloads and specify delivery drop-off locations.
2. The system autonomously dispatches drones, simulating realistic, real-time deliveries along machine learning-optimised routes.
3. It continuously monitors drone operations, automatically optimising for efficiency and safety.
4. All activities are recorded and stored, providing comprehensive data for review, performance analysis, and continuous improvement.

For now, our system is completely virtual (no physical drones).
This serves as a proof of concept and operational blueprint, paving the way for future real-world implementations.
Note: Our system is designed for special, time-sensitive situations that require rapid, urgent deliveries.(no for mass-scale normal deliveries)



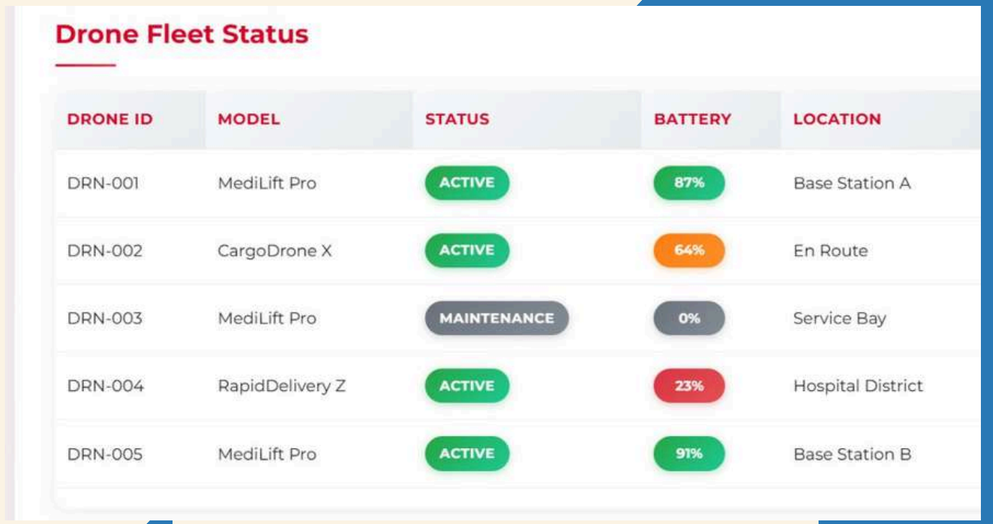
Our Website Login Page



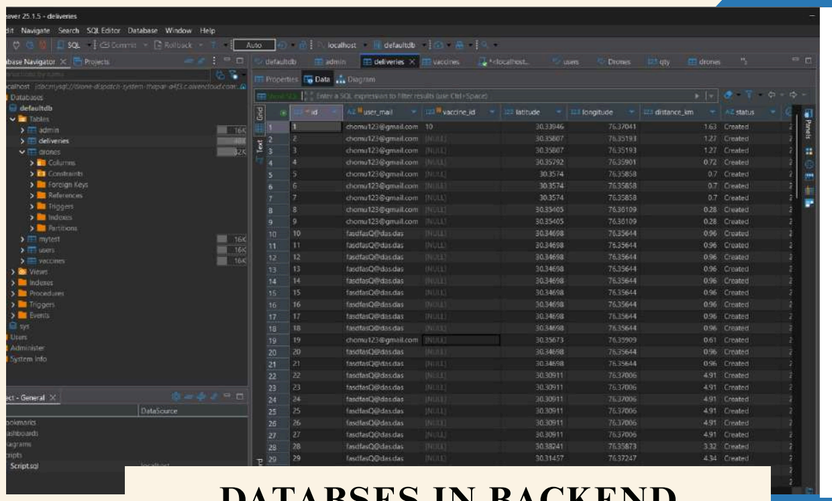
Smart Navigation System

USP OF OUR SOLUTION

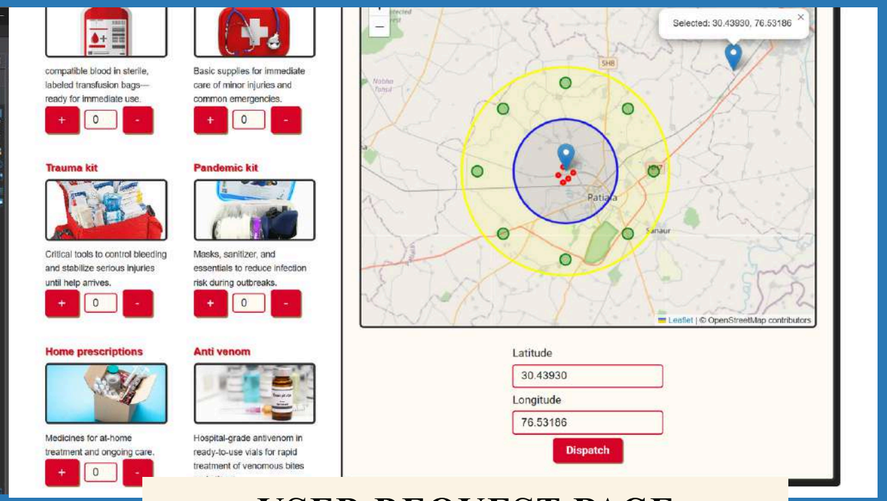
1. **Secure & Encrypted Dispatch**
2. **Intelligent Autonomous Navigation System [in-house]**
3. **Scalable Swarm Coordination [multi-drone delivery]**
4. **Realistic Virtual Simulation & Testing:**
5. **Rapid Deployment & Low-Cost Design**



DRONEs



DATABSES IN BACKEND



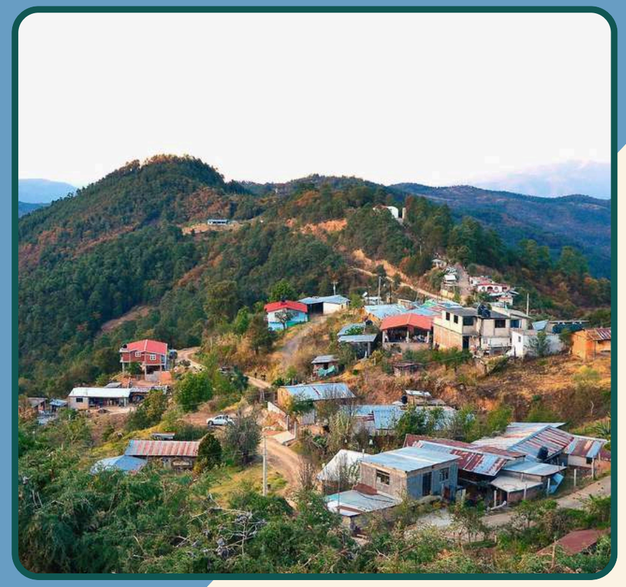
USER REQUEST PAGE

Target Audience

Who will benefit from this project?

Safer Outdoor Activities

On-Time Medical Supply



Intra-Hill
Rapid Delivery

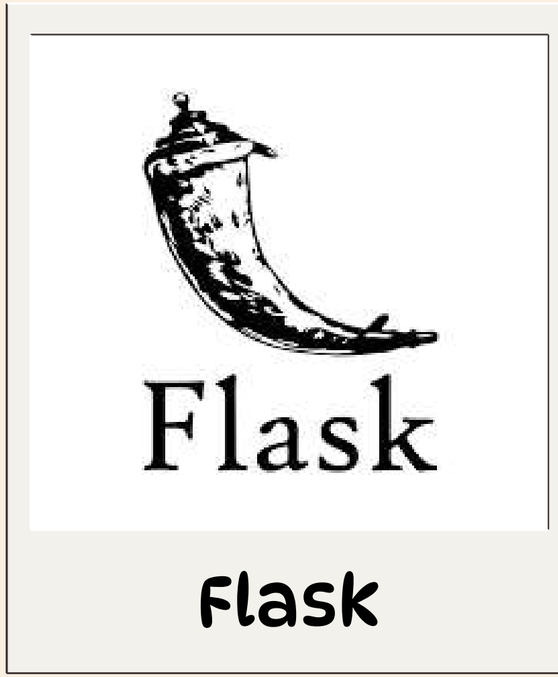
Emergency Responders At
Accident Sites

- Hospitals in crisis/time-critical situations where medicine delivery takes priority
- Remotely located patients, and in cases of traffic-induced delays
- Remote and rural communities with limited access to timely medical care
- Critical medical aid for hikers and trekkers
- Emergency responders who require quick access to critical medical items on-site.
- Public health agencies and NGOs working in disaster and epidemic response.

TECHNOLOGY STACK

Aiven Cloud

[Database]



Flask

[Backend]

Leaflet JS

[Map API]

HTML,CSS & JS

[Frontend]

Business Model

Revenue Streams

Government Subsidies and Seed Funding

Direct Emergency Services Revenue

Private and Public Hospitals and Clinics

Civilian Non-Medical Deliveries

- We will combine **multiple revenue streams** for sustainable growth.
- We will partner with private and public hospitals and clinics to service recurring **medical deliveries through contracts or subscriptions.**
- Initial deployment is supported by government subsidies and seed funding to cover early costs.
- In emergencies like epidemics or wars, we offer **government-paid critical delivery services (per-delivery).**
- After validation, we plan to **expand into civilian markets** by partnering with **retail delivery services** (like Blinkit, Zomato etc.) for non-medical items.
- Additionally, we license our tested system to other operators, creating a steady income source

IMPACT ASSESSMENT

Faster Emergency Response

Quickly delivers essential medical supplies to remote or disaster-affected areas, saving lives.

Increased Healthcare Reach

Enables hospitals to serve underserved and hard-to-reach communities effectively.

Cost Savings

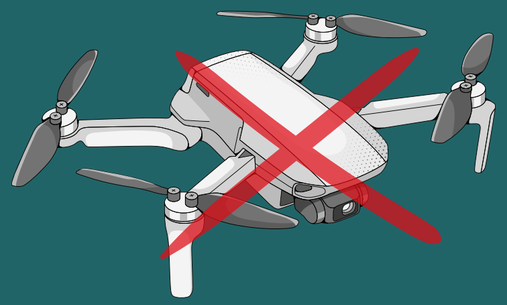
Virtual first development and optimized routes reduce expenses compared to traditional delivery methods.

Operational Efficiency

Streamlines delivery workflows and resource use for faster, more reliable emergency logistics.

Challenges & their Mitigation

Regulations



We will comply with policies and aviation authorities to develop clear, unified regulatory frameworks and establish safety standards for BVLOS operations and controlled airspace use.

Sustainability

We will have to rely on financial planning, diverse revenue sources, and smart deployment location selection and cost allocation, supported by strategic partnerships.

Safety

We will ensure safety through robust operational protocols, risk assessment, real-time monitoring, and fail-safe mechanisms,and adherence to regulatory standards.

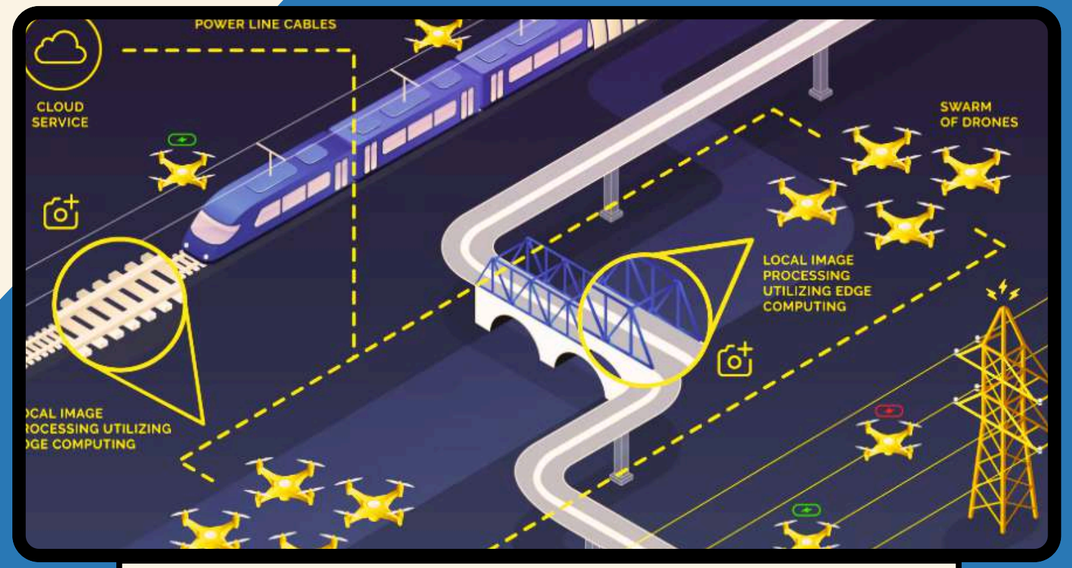
Future Roadmap

- **Strategic Hospital Partnerships:** Collaborating with hospitals such as REUS Hospital can provide real-world impact and valuable operational insights.

- **Computer Vision Integration:** Leveraging computer vision enables advanced features such as safer landing, payload recognition, and enhanced navigation.

- **Real-World Drone Deployment:** Integrating physical drone hardware allows the transition from virtual simulation to actual operational delivery systems.

Sensor Equipped Drones For Smarter Navigation



Inter Drone Communication And Delivery Operation

Team : Drone Developers

Drone Dispatch System

Thank You.

India - Israel Hackathon

(T080)

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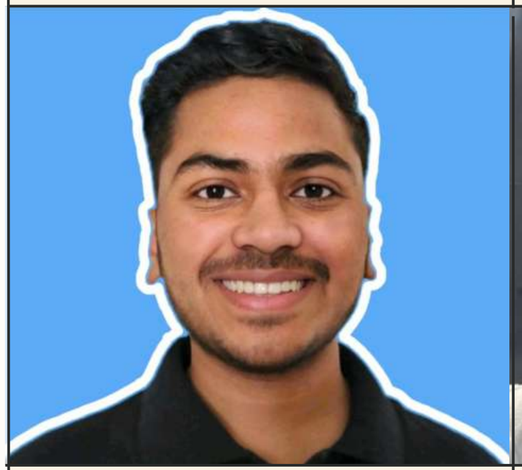

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