**Parinde – Aerial Intelligence for Public Safety**

**Parinde** is a purpose-built drone designed to empower frontline public service workers—such as police officers, emergency medical responders, and firefighters—with real-time aerial intelligence. Developed with the goal of improving accessibility, response time, and situational awareness, Parinde directly contributes to enhancing public safety, especially in densely populated and infrastructure-challenged areas.

**Mission & Vision**

In many urban and semi-urban regions of our country, narrow roads and heavy congestion hinder the effective movement of emergency services. **Parinde** addresses this by providing a compact, highly mobile aerial platform capable of navigating these environments and delivering critical real-time data.

Its core functionality is focused on **image processing** and **real-time analytics**—detecting traffic congestion, identifying its root cause, and triggering alerts to the relevant departments. Whether it’s an accident, a fire, or a medical emergency, Parinde ensures that the **Police, Fire Department, and Health Services** are informed and coordinated swiftly to safeguard the lives of citizens.

**Key Features**

* **Real-Time Congestion Detection:** Uses onboard camera and image processing algorithms to detect and analyze road blockages and high-traffic zones.
* **Emergency Service Coordination:** Automatically notifies relevant departments based on the nature of the situation detected.
* **Remote Surveillance Capability:** Enables the police to maintain aerial surveillance over congested or inaccessible regions.
* **Compact & Maneuverable Design:** Ideal for flying through tight spaces, small roads, and crowded localities.

**Technical Specifications**

* **Flight System:**
  + 4 × 2200KV brushless motors with 5-inch propellers
  + 4 × 30A electronic speed controllers (ESCs)
  + 3500mAh Li-Po battery for extended flight time
* **Control & Processing:**
  + **Raspberry Pi 4 (4GB RAM)** – primary onboard computer
  + **IMU 9250** – Inertial Measurement Unit for accurate roll, pitch, and yaw stabilization
  + **UBLOX NEO-M8N GPS Module** – for precise navigation and geofencing
* **Communication:**
  + **LoRa SX1278 Module** – for long-range, low-power communication
  + **FS-i6 Flysky Remote Controller** – for manual control and redundancy
* **Imaging:**
  + **Waveshare RPi Camera (B) – 5MP with adjustable focus** for high-quality image and video capture

**Digital Infrastructure**

In addition to the hardware, Parinde is supported by a **secure web platform** designed to interface with authorities in real time. The platform will include:

* **Live Data Visualization**
* **Encrypted Communication Channels**
* **Interactive 3D Frontend** powered by **Three.js** for immersive data representation
* **Real-Time Alerts & Logs** for emergency event tracking

**Future Goals**

* Integration of **AI-based threat detection**
* Autonomous flight modes and dynamic path planning
* Expansion into **disaster response**, **crowd control**, and **environmental monitoring**