Request for Proposal (RFP) for Drone AI Video Analytics System for Kerala Police Cyber Division

1. Introduction

The Kerala Police Cyber Division is seeking proposals from qualified solution providers to design, deploy, and maintain an AI-powered Drone Video Analytics System. The system is envisioned as a next-generation platform to enhance aerial surveillance and real-time monitoring capabilities. It will serve as an advanced tool for law enforcement and security agencies to detect, analyse, and respond to critical events captured through drone-mounted cameras.

The solution will integrate AI/ML-based video processing with drone telemetry data to support crowd monitoring, intrusion detection, vehicle and vessel tracking, and behavioural anomaly recognition. The design and structure should be robust, user-friendly, and aligned with the operational objectives of aerial surveillance, ensuring compliance with security, data privacy, and regulatory standards.

2. Objectives

The primary objective of this project is to deploy a secure Drone AI-based video analytics solution and a responsive web portal to strengthen aerial surveillance and anomaly detection capabilities. The system aims to provide real-time intelligence to law enforcement, public safety agencies, and related stakeholders through advanced AI/ML-driven drone video analysis. The solution should:

- Act as a centralized hub for analysing live and recorded drone feeds, integrating AI overlays, alerts, and metadata.
- Facilitate automated detection of events such as crowd gatherings, perimeter breaches, vehicle/vessel movements, and suspicious objects.
- Provide real-time updates and GPS-tagged alerts on security threats and anomalies through an interactive monitoring dashboard.
- Showcase collaboration between drone platforms, AI software, and law enforcement systems via seamless API and data integration.
- Ensure compliance with national and international standards for drone data security, privacy, and lawful use.

3. Scope of Work

The scope of work involves the supply, deployment, and commissioning of a Drone AI-based video analytics solution integrated with a secure and responsive monitoring portal. The system shall analyse live and recorded video streams from multiple UAV platforms, identify events of interest, and generate actionable intelligence for law enforcement and public safety agencies.

The vendor will be responsible for:

- Providing licensed Drone AI software and ensuring compatibility with multiple drone video formats.
- Integrating drone video feeds and telemetry data (GPS, altitude, orientation, speed) for synchronized event detection.
- Deploying AI/ML models optimized for aerial views to detect, classify, and predict objects, crowds, vehicles, vessels, and suspicious activities.
- Setting up a centralized web-based dashboard for visualization of real-time alerts, playback, and analysis.
- Implementing user management, access controls, and audit trails.
- Ensuring compliance with national and international drone data privacy and security standards.
- Providing training to designated personnel and offering 3-year extendable support.

4. Drone AI Software Requirements

The Drone AI software must include the following minimum capabilities:

- **Object Detection & Classification** - Detect humans, vehicles, boats, and other objects with bounding box overlays under varied altitudes and weather conditions.
- **Crowd Detection and Counting** - Real-time detection of gatherings with threshold-based alerts for mass events or stampede risks.
- **Intrusion/Perimeter Breach Detection** - Define geofenced zones and receive automated breach alerts.
- **Vehicle & Vessel Tracking** - Detection, tracking, and classification of vehicles and watercraft.
- **Abandoned/Suspicious Object Detection** - Identification of unattended objects with configurable time-based alerts.

- **Behavioural & Activity Prediction** – Detection of loitering, aggression, abnormal movements, and crowd flow analysis.
- **Drone Telemetry Integration** – Synchronization of GPS, altitude, and speed data with video events, enabling location-tagged alerts.

5. Technical Specifications

- Support for multiple drone video formats including MP4, MOV, AVI, and MKV.
- Capability to process a minimum of 20 concurrent drone video feeds, expandable as per operational requirements.
- Support for retraining AI models with drone-captured datasets.
- Modular architecture supporting specialized analytics such as thermal and night-vision data.
- RESTful API integration with Drone Command & Control (C2) systems, GIS, and law enforcement platforms.
- Administrative panel for configuration of zones, thresholds, alert sensitivities, and system monitoring.

6. Compliance and Standards

The solution must comply with:

- **Data Security** – ISO/IEC 27001 standards.
- **Drone Data Privacy** – DGCA and ICAO regulations, with GDPR-inspired practices for logging, consent, and lawful handling of personal data.

7. Web Portal and Monitoring Dashboard

The web portal must provide:

- Live drone video with AI overlays for alerts and object tracking.
- Visualization of intrusion zones, crowd density, vehicle/vessel movement, and suspicious objects.
- Event timeline with GPS-tagged playback and thumbnails.
- Filtering tools by drone ID, path, event type, and time.
- Configurable dashboards for operators and administrators.

8. User Access and Control

- **Login Security** - Two-factor authentication (2FA) and operator verification.
- **Role-Based Access** - Admin, Drone Operator, Analyst, and Viewer roles.
- **Multi-User Sessions** - Support for concurrent users with activity logging and session tracking.

9. Cross-Platform User Interface

- Fully responsive design for desktop, tablet, and smartphone access.
- Compatibility with modern browsers (Chrome, Firefox, Edge).

10. Security and Hosting

- Secure HTTPS web access with TLS certification.
- Encrypted storage of drone video and metadata.
- Deployment support for on-premise, hybrid, or cloud-based hosting, subject to compliance requirements.

11. Additional Requirements

- Minimum 3-year warranty and technical support after post deployment, extendable as per operational needs.
- Training and capacity building for designated law enforcement personnel.
- The company should transfer the complete source code of the software, including all associated build scripts, configuration files, and documentation.
- Continuous updates for AI models to ensure effectiveness against evolving threats.

12. Deliverables

- Fully functional and secure Drone AI Video Analytics software suite with integrated web portal.
- Administrative and user manuals for system operation, configuration, and monitoring.
- Integration of drone video feeds, telemetry data, and AI/ML models optimized for aerial analysis.

13. Budget

The proposal should include a detailed cost breakdown covering the following components:

- Licensing, deployment, and integration of Drone AI Video Analytics software.
- Web portal design, dashboard development, and hosting requirements.
- Training programs and user capacity-building sessions.
- Operation, maintenance, and support for a minimum of 36 months post-deployment.

14. Contact Information

For any inquiries or clarifications regarding this proposal, please contact to Mr. **Anuraj V, Sub-Inspector of Police**, Phone: 8086701272 or Email: "drone.pol@kerala.gov.in"