**Sentinel Skies: AI-Driven Drone Surveillance for Public Safety**

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***Abstract***

**This project aims to enhance public safety through the development of AI-powered drone surveillance system equipped with facial recognition technology. By leveraging AWS Cloud Computing, the system provides real time identification and tracking of individuals in large crowds, aiding law enforcement in identifying potential threats or locating individuals of interest. The drone’s advanced facial recognition facial recognition capabilities match faces against a law enforcement database, sending alerts to the police with the individual’s photograph and exact location. This system ensured continuous tracking, even if the target evades immediate capture, providing law enforcement with real-time updates. The project addresses key concerns in modern crowd control and public safety, while also exploring the ethical implications of using such technology in public spaces. This offers a scalable solution to crowd monitoring in public events and protests.**

***Problem Statement***

Public gatherings, protests, and events, by their nature, pose significant challenges to maintaining order, especially when the scale of the crowd renders traditional methods of surveillance insufficient. Law enforcement agencies often struggle to identify the persons of interest within large groups due to limitations of human surveillance and the reactive nature of current systems. This problem is exacerbated by the unpredictability of crowd dynamics, wherein a peaceful assembly can quickly devolve into chaos if individuals with criminal intent are left unchecked.

One of hr critical issues lies in the inability to detect and apprehend individuals with a history of criminal activity or those flagged as security threats in real time. The delays caused by manual identification processed or reliance on outdated surveillance technologies create a window of opportunity for criminal activities to escalate before law enforcement can respond. Furthermore, the challenges are not limited to criminal analysts. Protests, especially those motivated by political or social issues, often attract large crowds with diverse agendas, increasing the risk of confrontation and violence.

The riots during the Kanwar Yatra of 2024 in India serve as a stark example of this problem. During the religious pilgrimage, what began as a peaceful gathering turned violent when certain individuals incited riots and caused widespread damage. Law enforcement was unable to respond effectively due to sheer scale of the crowd and the difficulty in identifying the perpetrators quickly enough to prevent further violence. This incident highlighted the critical need for a surveillance system that could operate efficiently in real-time and at scale.

**The current project aims to solve this problem by providing law enforcement with a drone-based facial recognition system that can instantly identify individuals within large crowds. The system will be connected to pre-existing database of individuals flagged by law enforcement, allowing for immediate cross-referencing and identification. By automating the identification process and delivering real-time alerts, the system significantly reduces the time it takes for law enforcement to respond to potential threats. Additionally, the system’s continuous tracking capability ensures that even if a person of interest attempts to evade capture, their last known location is always available to the authorities.**

**In sum, the primary problem being addressed is the efficiency of current crowd control methods in detecting and responding to criminal activities or threats during large gatherings. The proposed solution leverages advancements in AI, drone technology, and cloud computing to create a system that offers law enforcement a more effective and timely response mechanism.**