

# AI-Based Weapon Detection System for Border Security

## Problem Statement: Gaps in Border Surveillance

India's borders span harsh terrains like mountains, forests, and deserts. Although systems like BOSS (by DRDO) and CIBMS have improved surveillance, they largely depend on human operators watching video feeds. This leads to:

- Missed intrusions due to fatigue
- No specific detection of weapons or guns
- Lack of real-time automated alerts
- Inadequate AI use in remote locations due to network or cost constraints

## Our Solution: AI-Based Weapon Detection System

We propose an AI-powered weapon detection system that:

- Uses YOLOv8 to detect guns in real-time from video feeds
- Works with existing IP/CCTV/RTSP cameras
- Sends automatic alerts via sound, email, or SMS
- Can run offline on edge devices (Jetson Nano, Raspberry Pi)
- Enhances both day and night security without relying solely on manual monitoring

## Impact and Benefits

- 24/7 real-time detection of firearms at the border
- Faster military response and reduced human monitoring burden
- Scalable system usable in smart cities, defence camps, and remote posts
- Integrates well with systems like BOSS or CIBMS
- Enables India's push toward smart, AI-driven defence infrastructure

## Conclusion

By bridging the gap between traditional surveillance and real-time AI detection, our system transforms existing border cameras into intelligent threat monitors. This not only increases national security but also supports India's vision of modern, autonomous defence technologies.