

# Dev-Progress Report:

Using existing CCTV networks for crowd management, crime detection and prevention and work monitoring for Railway Stations.

Team: Meta Minds

Reporting Period: January 30-February 6, 2024

## I. Feature Development Updates:

1. Data Collection: Acquired a few railway platforms datasets from different sources for crowd detection and anomaly detection.
2. Model Training: Trained a YOLO v7 model for crowd(object) detection and tracking with around 65% accuracy. Built and trained a CNN and RNN model for anomaly detection. Initial results show an accuracy of around 40% on the validation set. Currently experimenting with hyperparameter tuning to improve accuracy and explore other potential model alternatives.
3. API Development: Developed RESTful API endpoints using Flask to receive new tweets and return sentiment predictions. Completed basic functionality for single tweet analysis and exploring options for batch processing.
4. Frontend Development: Created a basic front-end prototype using React for visualizing results of crowd management and detection of run-time anomalies along with the visualization of data in graphical form along with timestamps.

## II. AI Model Training and Results:

1. Hyperparameter Tuning: Experimenting with different learning rates, optimizers, and network configurations and improved the model accuracy from 32% to 68%. Using CNN and RNN techniques for extracting the frames and passing it through multiple layers for removal of excess data. LSTM for sequential organization of frames. 70 Epochs for maximum accuracy.
2. Evaluation Metrics: Tracking accuracy, precision, recall, and F1-score on both the training and validation datasets. Exploring additional metrics by graphical representation and curve analysis.

## III. Basic Frontend:

1. Current Features:
  - a. Service page available comprising three options- Crowd Management, Crime detection and Dashboard.

- b. Crowd Management page with graphical display of crowd count every hour and availability of previous data.
  - c. Anomaly detection page with the crime cases displayed- Solved and unsolved.
- 2. Planned Features:
  - a. Graphical representation and analysis of Crime records and look through for unsolved cases.
  - b. Dashboard preparation for analysis and prediction of crowd management and crime data.