PRADARSHANA 2024
Open Day - Project Exhibition
16.05.2024 & 17.05.2024

RAMAIAH Institute of Technology

PROJECT POSTER PRESENTATION

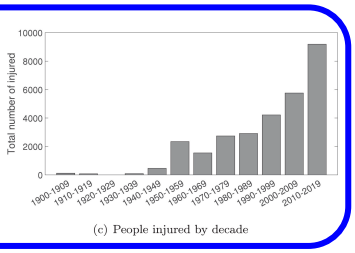
Crowd Behavior Analysis for Enhanced Event Safety and Management

Jatin B (1MS20IS054) **Manoj S (1MS20IS070)**
Pannaga N (1MS20IS083) **Sanjeev G (1MS21IS406)**

Department of Information Science and Engineering **Guide: Ms D Evangeline**

INTRODUCTION

Crowd management and safety at large-scale events poses significant challenges due to the potential for unexpected incidents like overcrowding. The resulting risks of accidents and stampedes.



(c) People injured by decade

OBJECTIVES

1. **Density of Crowd:**
   Measuring the number of people in a given area

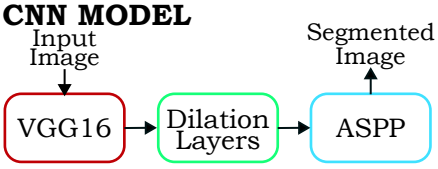
2. **Anomaly detection:**

   a) **Identify Fast Moving objects:**
   Detecting objects that are moving at a faster than the rest of the crowd

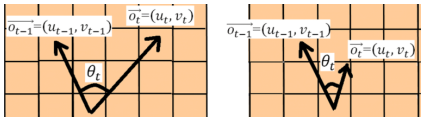
   b) **Identify Detect People in a Different Direction:**
   Identifying individuals who are moving in a direction that is different from the crowd

METHODOLOGY

1. **CNN MODEL**

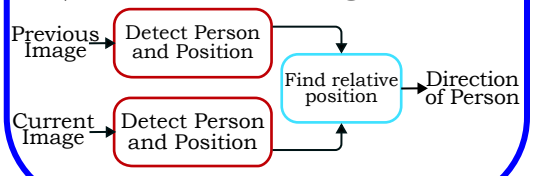


2. a) **Optical Flow**



Fast Movement Slow Movement

b) **YOLO v8 Tracking**

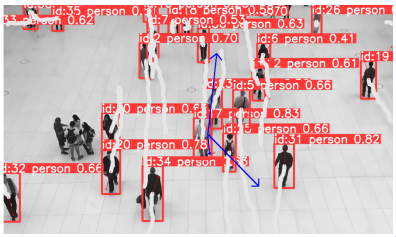


RESULTS

1. ASPP gives 15%+ accuracy than VGG model

2. a) Highlights fast moving objects

b) Displays the average direction of crowd movement



CONCLUSION

Our study offers a robust framework integrating deep learning and computer vision for crowd management at large events.

- Accurate crowd density estimation
- Anomaly detection enable swift response to emerging issues
- Real-time people tracking enhances safety measures

Future Scope:

- Integration of multiple sensor modalities
- Modeling and predicting crowd behavior for proactive management strategies
- Integration of crowd sentiment analysis tools