

INTERNSHIP REPORT

Project Title: People Counting and Zone Management System using YOLOv8

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Internship Platform: Infosys Springboard

Internship Domain: Python Technology

Internship Duration: 40 Days

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1. Introduction

The People Counting and Zone Management System is a real-time computer vision application developed using YOLOv8. The system detects and counts people through a live camera feed and monitors predefined zones for crowd control and safety purposes. This project helps improve surveillance systems by automating people detection and tracking processes.

2. Objectives

- Detect people using YOLOv8 object detection model.
- Count the number of people in real-time.
- Monitor restricted or specific zones.
- Enhance safety and surveillance efficiency.
- Develop a practical implementation using Python technology.

3. Technologies Used

- Python
- OpenCV
- YOLOv8 (Ultralytics)
- NumPy
- Live Camera Integration

4. About YOLOv8

YOLOv8 is an advanced object detection model developed by Ultralytics. It provides high accuracy and real-time detection capabilities. The algorithm processes the entire image in a single pass, making it efficient and suitable for live video applications such as surveillance and monitoring systems.

5. Methodology

1. Capture real-time video from a live camera.
2. Process each video frame using YOLOv8 pre-trained model.
3. Detect persons and draw bounding boxes around them.
4. Count total detected persons in each frame.
5. Define specific zones within the frame.
6. Monitor and update zone-wise count dynamically.
7. Display live output with bounding boxes and counters.

6. Features

- Real-time people detection
- Live people counting
- Zone-based monitoring
- Efficient performance
- Visual bounding box representation

7. Conclusion

The People Counting and Zone Management System successfully detects and counts people using a live camera feed. By integrating YOLOv8 with Python and OpenCV, the system achieves real-time performance and accuracy. This project demonstrates practical implementation of AI in surveillance systems.

8. Future Scope

- Overcrowding alert system
- Database integration for storing records
- Web-based monitoring dashboard
- Heatmap generation for crowd density analysis
- Performance optimization using advanced AI models

Declaration

I, Bhumi Ingale, hereby declare that this project report titled 'People Counting and Zone Management System using YOLOv8' is completed by me during my 40 days internship under Infosys Springboard under the guidance of Savita Mam.