YOLOv8 Object Detection Project Report

Project Title

Real-Time Object Detection System using YOLOv8 and ONNX Export for Deployment

Project Summary

This project demonstrates the complete pipeline of building a real-time object detection system using YOLOv8. It includes dataset preparation, annotation, model training, evaluation, exporting the model to ONNX for deployment, and performance visualization. The model detects 7 individuals: Ali, Mosa, Ammar, Ghazi, Saad, Zia, and Idrees.

Objectives

- Develop an object detection model using YOLOv8.
- Train the model to recognize 7 custom classes.
- Evaluate model performance.
- Export the model to ONNX.
- Visualize the results.

Technologies Used

Model: YOLOv8

Annotation Tool: X-AnyLabeling

Language: Python

Export: ONNX

Visualization: Matplotlib

Deployment: Ready

YOLOv8 Object Detection Project Report

Evaluation Metrics

Class-wise mAP@0.5:

Ali: 0.995

Mosa: 0.995

Ammar: 0.995

Ghazi: 0.995

Saad: 0.995

Zia: 0.995

Idrees: 0.995

Mean mAP@0.5: 0.995

Model Export Command

yolo export model=runs/detect/train3/weights/best.pt format=onnx dynamic=True imgsz=640

Why This Project is Valuable

- Custom trained model for real-world use.

- High accuracy performance.

- ONNX conversion allows flexible deployment.

- Reusable training pipeline.

Freelancing Use Case

Use this project to:

- Showcase your skills on Fiverr/Upwork

- Offer services like:

  * Object Detection

  * Custom Model Training

  * ONNX Conversion

  * Deployment to Edge Devices

Client Delivery Package

- best.pt (YOLOv8 weights)

- best.onnx (Deployment model)

- Class names file

- mAP result images

- Training, evaluation & export scripts

- This PDF report