Business Report: Automatic Number Plate Recognition (ANPR) Project

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1. Executive Summary

Project Goal: The ANPR project focuses on developing a real-time system that uses image processing techniques to automatically read vehicle license plates from images or videos, aimed at improving traffic monitoring, tolling systems, parking management, and security access.

Time Frame: The project began September 8, 2024, with an estimated completion by September 28, 2024, currently in the development phase.

Key Highlights: Significant results achieved include the development of a custom YOLOv8 model for vehicle and license plate detection, and successful integration of PaddleOCR for text recognition from license plates.

2. Project Objectives

- Short-term: Develop and implement vehicle and license plate detection using YOLOv8.

- Long-term: Achieve real-time ANPR system deployment for traffic and security management.

3. Progress Report

Tasks Completed:

- Developed YOLOv8 model architecture.

- Trained the model with a dataset sourced from Roboflow.

- Integrated EasyOCR for license plate recognition.

Ongoing Work:

- Finalizing video processing with SORT for vehicle tracking.

Upcoming Work:

- Enhance OCR accuracy and improve license plate detection in low-quality images.

4. Budget and Financials

Budget Allocation: $100.

Expenditures: $45.

Remaining Budget: $55.

Risks to Financials: Delays in data annotation and model training could result in budget overruns.

5. Challenges and Risks

Challenges:

- Difficulty in detecting license plates under poor lighting.

- Accuracy of OCR in noisy images.

Risk Mitigation: Using more robust image preprocessing and improving model training with diverse data.

6. Team and Resources

Team Structure: Ahmed Talha (Lead Developer).

Resource Allocation: Sufficient resources are available for software development, but more annotated datasets may be required for better accuracy.

7. Timeline and Milestones

Completed Milestones:

- Dataset preparation and model training completed on schedule.

Future Milestones:

- Final system testing on September 30, 2024.

Delays: Minor delays encountered during data preprocessing.

8. Stakeholder Updates

Regular updates provided to stakeholders including project managers, funding agencies, and technical teams regarding project milestones and system performance.

9. Next Steps

- Test the system on real-world data and refine the detection model.

- Deploy the system for monitoring traffic in live environments.

10. Conclusion and Recommendations

The ANPR system has shown promising results in detecting vehicles and license plates. For further improvement, additional funding for acquiring higher-quality training data and extending the system's capabilities to new regions is recommended.