BVRIT HYDERABAD
College of Engineering for Women
Department of Information Technology
Mini Project - Academic Year 2023-24

TEAM 5

Automated Vehicle Detection and Counting System

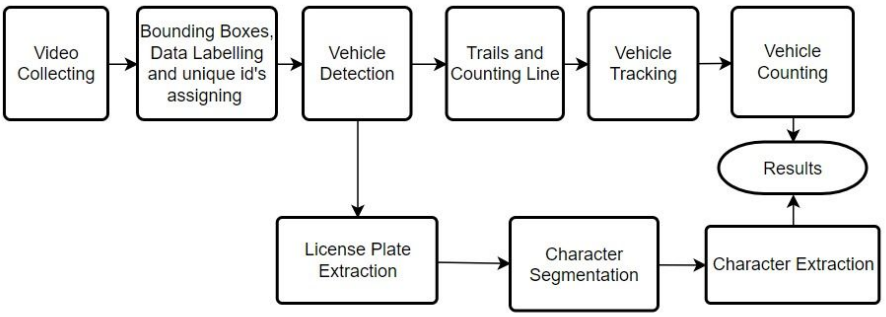
Abstract

Innovating traffic management, our Automated Vehicle Counting System excels in detecting and classifying diverse vehicle types. Manual vehicle counting and classification processes are labor-intensive, error-prone, and lack the agility needed for dynamic traffic scenarios. Utilizing advanced video analysis, it accurately counts vehicles and efficiently transfers the detected number plates to an Excel sheet. This feature enhances data precision for comprehensive traffic monitoring and streamlined management. This seamless integration facilitates real-time tracking and analysis, providing actionable insights for traffic optimization. By delivering this information to an Excel sheet, our system becomes a pivotal tool for enhancing both present-day traffic management and future urban mobility strategies. The utilization of cutting-edge video analysis techniques, including frame extraction, background estimation, and object detection, marks a significant leap towards ·achieving comprehensive and intelligent highway traffic management.

Modules

- Data Collection and Preprocessing
- Vehicle Detection
- Vehicle Tracking and Counting
- Data Integration and Analysis

Architecture



Tools and Technologies

- **Optical Character Reconization(OCR), YOLOV8**
- **Simple Online and Realtime Tracking(SORT)**

Conclusion and Future Scope

The "Automated Vehicle Detection and Counting System" introduces a groundbreaking solution, seamlessly integrating detection, classification, and counting, including number plate recognition. The integration of sending detected number plates to an Excel sheet marks a significant advancement. Future efforts involve refining machine learning algorithms for improved accuracy, integrating real-time traffic analytics, and collaborating with smart city infrastructure. Strengthening security features, incorporating real-time vehicle identification, and exploring GPS integration for geospatial insights are promising avenues.

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Github links

1. https://github.com/Anika-Reddy/Automated-Vehicle-Detection-and-Counting-System
2. https://github.com/JeevithaSimma/Automated-Vehicle-Detection-and-Counting-System
3. https://github.com/LikithaReddy1248/Automated-Vehicle-Detection-and-Counting-System