A Real-Time Vehicle Traffic Monitoring Prototype

Bá Văn Nguyên
Thai Nguyen University of Information and Communication Technology
Thai Nguyen University, Thai Nguyen, Vietnam
dtc19h4801080001@ictu.edu.vn

***Abstract*—This undergraduate thesis investigates real-time observation and counting of road vehicles. Traffic monitoring requires a way to identify vehicles in incoming observations and present counts to an operator. The thesis describes a vehicle-detection and counting workflow and a connected Android display. Its chapters present system design, processing components, and interface examples for viewing traffic information. The manuscript shows a student prototype for detecting or counting vehicles and presenting the resulting information. It discusses possible uses for traffic management, but does not establish that the system was deployed in city infrastructure or improved actual transport decisions. No independent benchmark of detection accuracy, camera coverage, weather robustness, or sustained real-time performance is provided. Benefits to congestion and safety remain prospective rather than measured findings. The contribution is a documented student study or prototype whose stated scope can guide further testing.**

***Index Terms*—vehicle detection, traffic monitoring, real time, Android**

I. Introduction

Traffic monitoring requires a way to identify vehicles in incoming observations and present counts to an operator. This thesis investigates real-time observation and counting of road vehicles. It begins from a practical engineering need and explains the technologies and workflow chosen for the case. The objective is to document a student implementation or comparative investigation, together with the evidence available in the manuscript. Broader operational or economic effects require separate measurements and are not assumed from the existence of a prototype [1]. Earlier ICTU student work on related designs is included here for context [2], [3]. Related published studies provide context for the subject and methods [4], [5], [6], [7], [8], [9], [10]. These contextual works were selected for this English summary; they are not asserted to appear in the original thesis bibliography.

II. Methods

The thesis describes a vehicle-detection and counting workflow and a connected Android display. Its chapters present system design, processing components, and interface examples for viewing traffic information. The source is summarized through its stated design, implementation material, examples, and conclusion. Features shown in the manuscript are distinguished from proposals for later development. This review does not add a new experiment, fill missing measurements with estimates, or treat a planned capability as an observed result. The source thesis remains the provenance for the reported work [1].

Supervisor: Phạm Xuân Kiên, Thai Nguyen University of Information and Communication Technology (pxkien@ictu.edu.vn).

III. Results

The manuscript shows a student prototype for detecting or counting vehicles and presenting the resulting information. It discusses possible uses for traffic management, but does not establish that the system was deployed in city infrastructure or improved actual transport decisions. The report's screens, configurations, examples, or measurements constitute the evidence for this summary. A capability described only as a design intention is not counted as a validated operational outcome. No additional performance, adoption, financial, or safety figure has been introduced here. The result is interpreted within the scope of the student's documented setup [1].

IV. Discussion

No independent benchmark of detection accuracy, camera coverage, weather robustness, or sustained real-time performance is provided. Benefits to congestion and safety remain prospective rather than measured findings. Further work could test labeled road video across camera angles and conditions, document missed or duplicate counts, and evaluate latency before operational use. These limitations affect how the evidence should be read. The current manuscript can support understanding of the design and reported demonstration, while independent tests would be needed for stronger claims. Any later deployment should document its environment and separate observed outcomes from intended benefits [1].

V. Conclusion

The thesis documents real-time observation and counting of road vehicles. The manuscript shows a student prototype for detecting or counting vehicles and presenting the resulting information. It discusses possible uses for traffic management, but does not establish that the system was deployed in city infrastructure or improved actual transport decisions. No independent benchmark of detection accuracy, camera coverage, weather robustness, or sustained real-time performance is provided. Benefits to congestion and safety remain prospective rather than measured findings. Further work could test labeled road video across camera angles and conditions, document missed or duplicate counts, and evaluate latency before operational use. Accordingly, the present contribution is a source-grounded account of the student work and its tested

or illustrated scope. Claims about broader effectiveness should be assessed in later work using explicit evaluation conditions [1].

References

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