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Atlantic Technological University

# TrafficVision

Conor Murphy – G00399177
https://github.com/ConorPadraigMurphy/FYP

## Introduction

Welcome to TrafficVision's poster presentation on an application that aims to innovate traffic data collection and analysis. This project is designed to efficiently and accurately process traffic videos, allowing users to upload videos for analysis to extract useful data, which can be used to generate useful graphs.

This collected data will be used to generate two graphs, displaying traffic congestion at different times of the day and as well as displaying similar information for buses.

These graphs will provide valuable insights for users of the application into traffic patterns and enable users to make more informed decisions based on past and present information, allowing users to plan travel and commuting more efficiently.

In short, TrafficVision has the potential to impact public transport and the commuting experience for users. The presented findings can benefit commuters, transport authorities, and students alike.

## Objectives

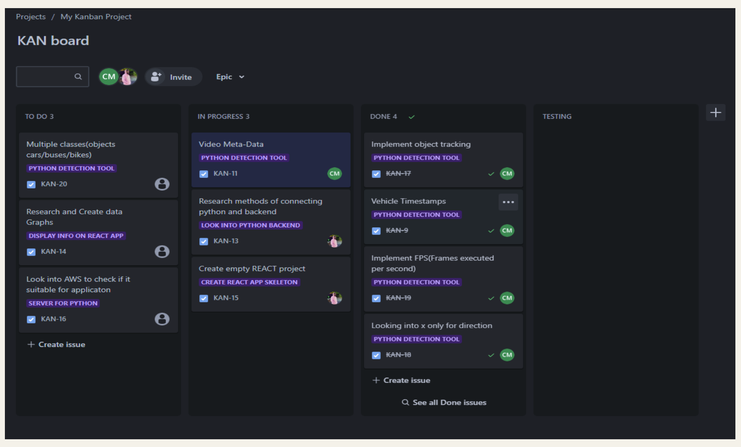
**Application Objectives**

- Create a user-friendly application that is capable of taking uploaded videos and processing them.
- Enable users to upload a traffic video that gets processed for the relevant data.
- Visualise the collected data to display useful information to users.
- Provide commuters with insights into traffic patterns.
- Offer bus timing information to users.

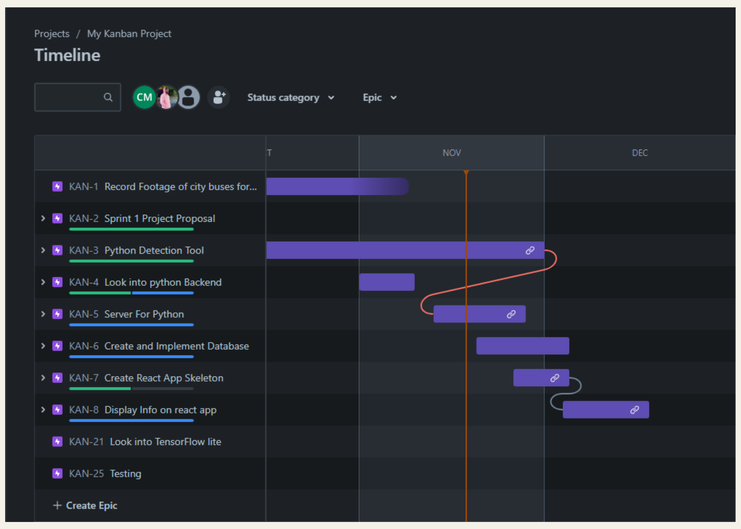
## Methodologies

Agile methodology was used during the development of the TrafficVision application. It is an iterative and flexible approach to software development that prioritises adaptability, collaboration, and stakeholder satisfaction. Jira's software for Kanban Board and Gantt Chart was used to track the application's progress.

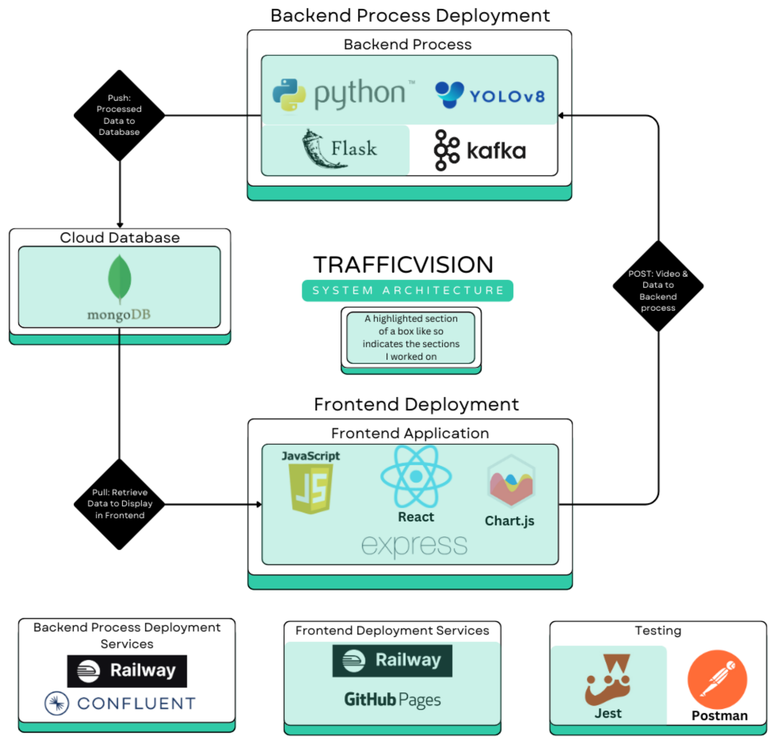
**Kanban Board**




**Gantt Chart**




## System Architecture & Technologies Used

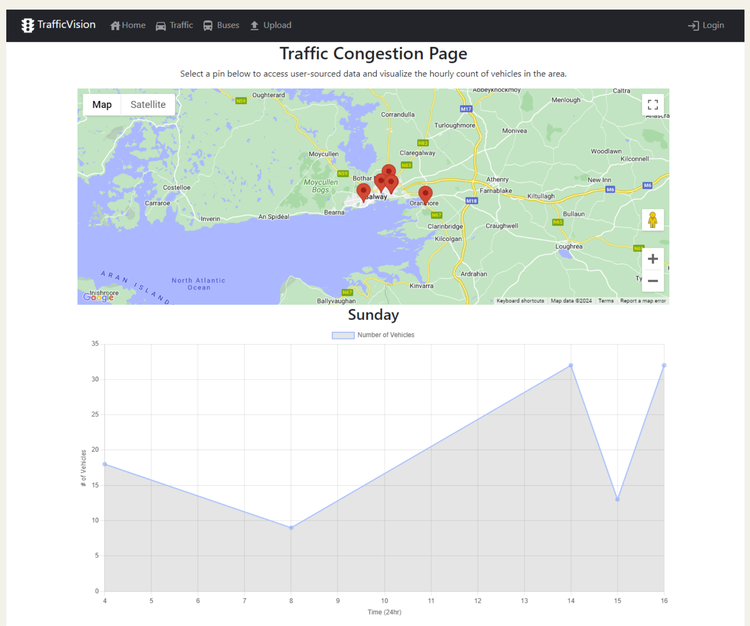


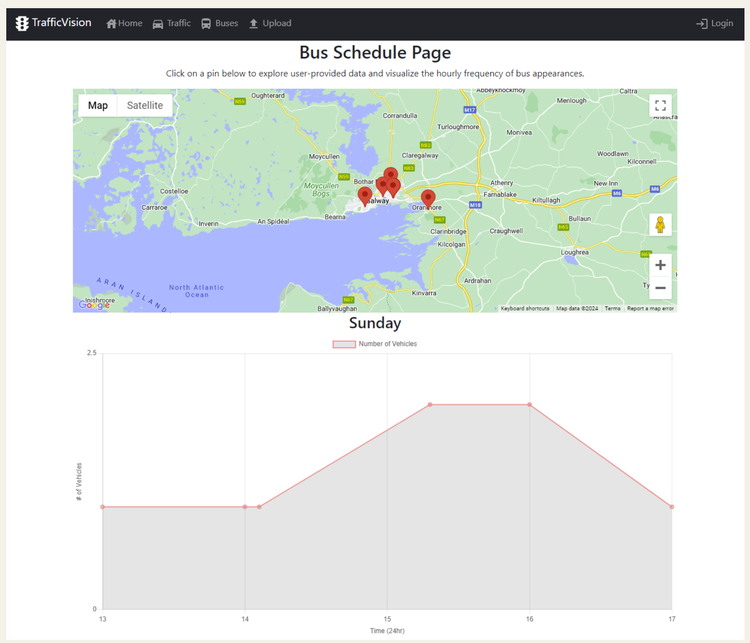

## Outcomes

With the previously mentioned objectives of the application, here are screenshots of the outcomes of those objectives.

**Object Detection & Tracking / Data Extraction**

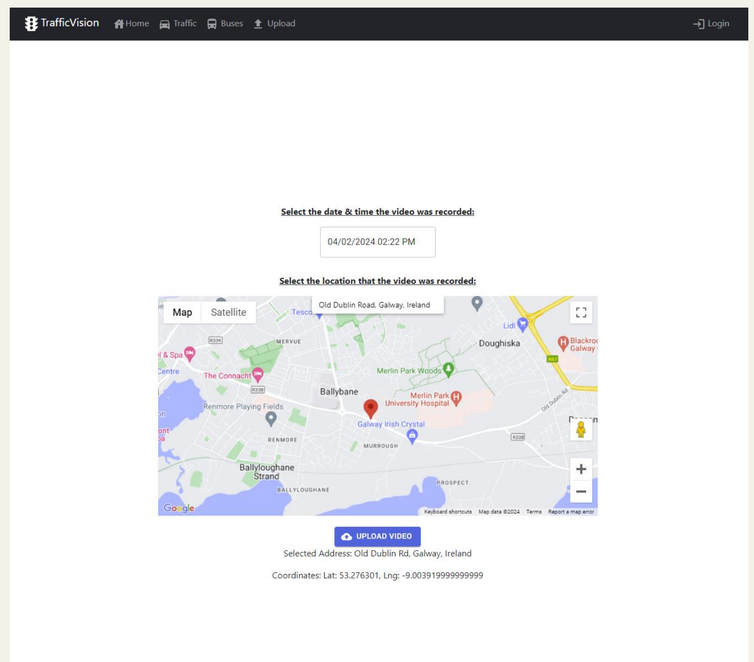

**User-Friendly User Interface**




## Outcomes Continued …

**Upload Page for Users**




## Conclusion

The TrafficVision application is an innovative approach towards traffic analysis, providing users with a user-friendly application for navigating urban and rural traffic and roads. The potential for further improvements to the application is great and will hopefully ensure it proves itself to be a useful tool for commuters.

**Key Objectives Met**:

- **User-Friendly Interface**: Offers an intuitive UI for users to navigate and access traffic data efficiently.
- **Reliable Data Extraction**: Using machine-learning technology, TrafficVision reliably extracts the essential traffic data to be used to visualize the data most important to a user.
- **Valuable Insights**: The application's users gain useful insights into traffic patterns by visualizing the extracted data, allowing users of the application to make informed decisions and plan their routes effectively.

## Future Work

The system evaluation helped identify areas for future development and investigation to further enhance the capabilities of the TrafficVision application. Although the current version of the application has met its primary goals, here are some future ideas that could provide additional value:

**Future Work Ideas**:

- **Optimising Processing Speed**
- **Real-Time Data Integration**
- **Bus Service Timing Information**
- **User Event Reporting**

By continuing to develop newer versions of the application, TrafficVision aims to improve its reliability and efficiency for its users, ensuring access to an ever-improving solution. These updates could make the application more intuitive and user-friendly and add new functionality, hopefully making TrafficVision a viable solution for those looking for information on traffic and traffic patterns in the future.

## Acknowledgements

Acknowledgements might go here.