Using AI to Improve Work Zone Simulations and Reduce Congestion
(STRIDE Project G2)

PROJECT OVERVIEW

Work zones reduce road capacity, increase traffic delays, and create dangerous situations for drivers and construction workers. Current work zone traffic simulation models typically use default parameter values instead of real-world traffic and driver behavior data. As a result, the simulation results may not be as accurate or reliable.
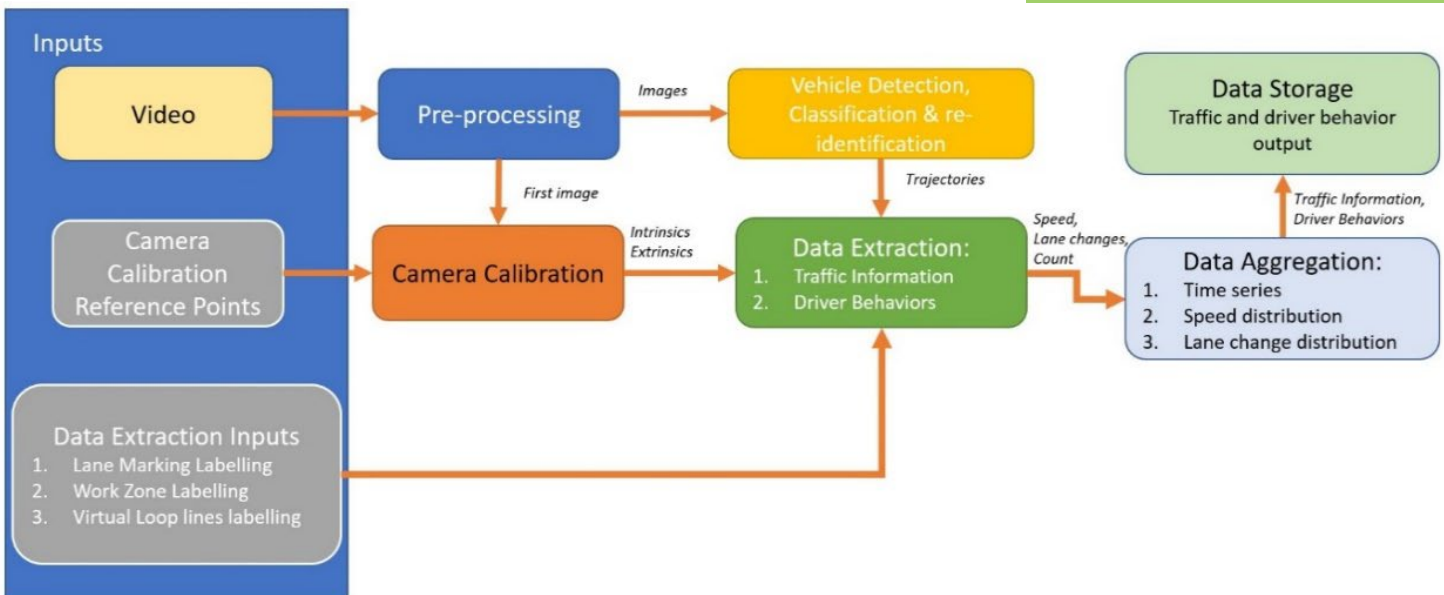
GOAL

The goal of this project was to develop a system that uses Artificial Intelligence (AI) to extract real-world traffic and driver behavior data from traffic cameras.

PRODUCT DESCRIPTION

AI-based work zone traffic and driver behavior information extraction system

Using widely available traffic camera footage, the system uses AI to extract driver behavior and traffic information including, vehicle count, vehicle classification, vehicle speed, time headway, and merging locations. There are six operating modules in the system. The figure below illustrates the architecture of the AI-based system and the inputs that are associated with each module. The system allows transportation agencies to leverage their existing traffic cameras to extract real-world data that can be used to optimize traffic flow and minimize traffic congestion in work zones. Future efforts include a pilot study to further validate, refine, and implement the method.

PRODUCT

An AI-based system for extracting real-world data from traffic cameras that can improve the accuracy of work zone simulations.

IMPACT

Real-world data can help agencies minimize congestion in work zones.

WHO BENEFITS?

- Transportation agencies (counties and cities with limited resources)

RESEARCH TEAM

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