

Video-Based Intelligent Road Traffic Universal Analysis Tool (VIRTUAL)

Researchers at the University of South Florida have developed a tool to analyze highway segments, including intersections and roundabouts using drones and helicopters.

Traffic congestion is a major problem for everyone within and outside the city. The main reasons for the occurrence of traffic congestion is due to the increase in the amount of cars on the road and poor road management. The analysis of traffic has to be done for traffic management. Currently, the analysis is done through a lengthy and laborious manual process. Hiring people to count and record these measures either onsite or offline with videos is slow, costly and unreliable. Hence, there is a need for a faster, cost effective, and reliable method for traffic analysis.

Researchers at USF have proposed a tool that can extract videos of vehicle trajectory, speed, acceleration, headway, spacing profiles, and lane changing movements. The tool first extracts detailed vehicle trajectories with vehicle classification and lane number with customized tracking and adaptive classification algorithms mapped to real-world roadway coordinate systems. The invention also extracts throughput, speed, density for traffic studies at highway facilities like segment, intersections, and roundabouts. The high-resolution videos and drone technologies are less expensive than current methods for collecting massive video data. This tool can help governments and consulting companies complete relevant studies.

ADVANTAGES:

- Easy for traffic analysis
- Reliable
- Cost effective
- Faster
- Long range and high accuracy
- High automation

An Analysis Tool for Traffic Patterns



Depiction of how Vehicles are Identified

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