wi.MOVE

Traffic Monitoring in Transport Infrastructures

i.MOVE provides a cutting-edge solution for Traffic Monitoring by utilizing data from both fixed and moving cameras. Leveraging on advanced AI and Deep Learning techniques, the system provides useful insights regarding aggregated traffic statistics and assess driver behavior. Machine Vision Algorithms are utilized to detect, track and classify road users in different categories. It also detects potentially dangerous situations in real-time and issues early warnings. Predictive models forecast future traffic patterns, while an intuitive dashboard enables administrators to make informed decisions and manage traffic flow efficiently in real time.

Motivation

Urban Management

Accurate vehicle counts provide valuable insights regarding infra needs (e.g., dedicated lanes for motorcycles)

€110 bn the annual cost for EU on road congestion

Fluid traffic flows have a positive impact on urban economic growth

Environment

In congestion, fuel consumption is over **3 times higher** than at highway speeds

21% of total CO_2 emissions in the EU stem from road traffic

60% of carbon pollution from the transportation sector comes from passenger vehicles

Driving Behavior

94% of motor vehicle accidents were caused by driver error

54% of fatal crashes are related to aggressive driving

Public Safety

Every **1%** increase in average speed results in a **3%** rise in fatal and severe crashes

30% of road fatalities are caused by excessive or inappropriate speed

Road accidents are the most important contributor to global mortality rates

U-turns are three times riskier than other maneuvers, involved in 5% of all traffic accidents

Prolonged traffic queues increase response times for emergency services

Real-time monitoring of vehicle speeds allows immediate intervention minimizing the severity of accident injuries

wi.MOVE through its intelligent algorithms aims to reduce traffic congestion, risk for accidents and environmental pollution.

Transformation of multiple video streams into valuable analytics

Multiple Video Streams → Features → Analytics

Insights/Decisions

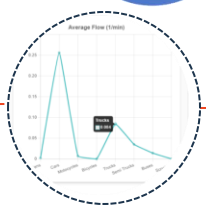
- Early warning
- Detect potentially dangerous situations
- Microscopic characteristics description
- Fast decision making
- Forecasting capabilities

Data Sources

The primary data source is the Data Acquisition System, which consists of cameras installed in transport infrastructures. These cameras capture real-time video footage of the traffic flow.

Detection Model

The system employs Machine Vision Algorithms for Vehicle Tracking and Classification. This model is designed to detect and classify various types of road users. The algorithms use computer vision techniques to identify and track these objects in the video streams. Input from ML-based Predictive Modeling uses the extracted metrics to forecast future traffic patters or conditions.



Visualization Dashboard

The video streams, the inspection results and the insights derived are accessible through a powerful visualization dashboard, allowing administrators to obtain comprehensive views of the traffic monitoring outcomes in transport infrastructures, real-time monitoring data and significant metrics.

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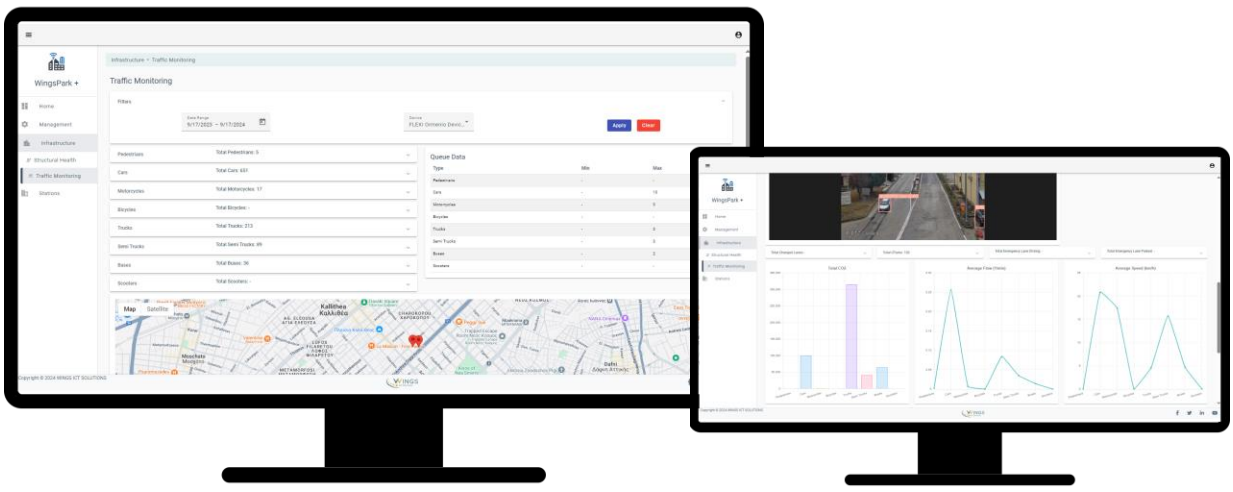
FEATURES

Visualization Dashboard:

- Traffic inspection output & Realtime monitoring
- Realtime camera feed from active devices
- Traffic Heatmaps
- Potentially harmful situations detection
  - Dangerous Lane Changes, U-Turns, Driving / Parking in Emergency Lanes
- Filter by Date or Source
- Inspection & management of devices
- Statistics and analytics:
  - CO2 Emissions
  - Flows Per Class
  - Speed



ABOUT WINGS

WINGS ICT Solutions provides comprehensive IoT solutions for smart cities, e-health, and public utility services, utilizing innovative technologies such as Artificial Intelligence, Big Data, advanced wireless networking, and security technologies.

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