goodvision telelinkcity

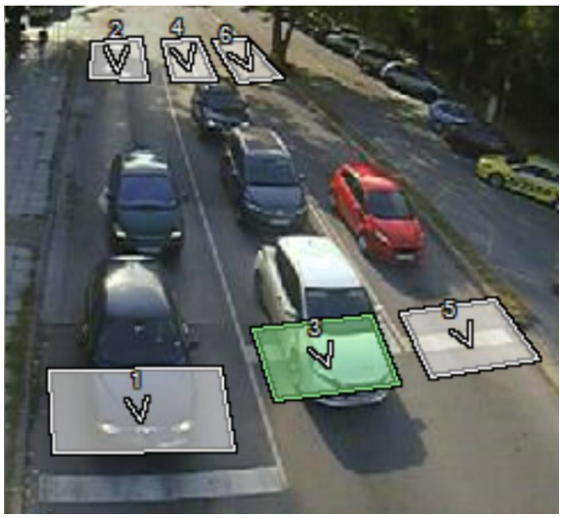
Case Study: Real-Time Traffic Monitoring for Congestion Prevention

GoodVision and Telelink City partnered to bring real-time traffic monitoring to Stara Zagora, yielding 97% accuracy.

Among the largest cities in Bulgaria, Stara Zagora has 150,000 residents, 70 buses for public transit, and a city management team of 40.

Stara Zagora Faces Traffic Data Challenges

City planners sought an all-in-one mobility system that supported the seamless operation and integration of multiple transit options in the city. They enlisted GoodVision partner Telelink City to implement a cutting-edge solution. Prior to engaging GoodVision, Telelink City used conventional traffic data collection methods and traditional video detectors that simply didn't deliver the high-quality data they needed:



An example of the old-school video analytics gating methods used

- **Environmental conditions** like sun, shade, and other obstacles reduced the accuracy of detection using traditional background subtraction video analytics methods.
- **Low accuracy** also meant that real-time traffic-control strategies couldn't be implemented to their full potential as the controller's reaction is only as accurate as the input data to it.
- **Micro and macro modeling** automation were impossible because the historical data was in a static format and of extremely low quality.

Telelink City Seeks a Real-time Traffic Monitoring Solution

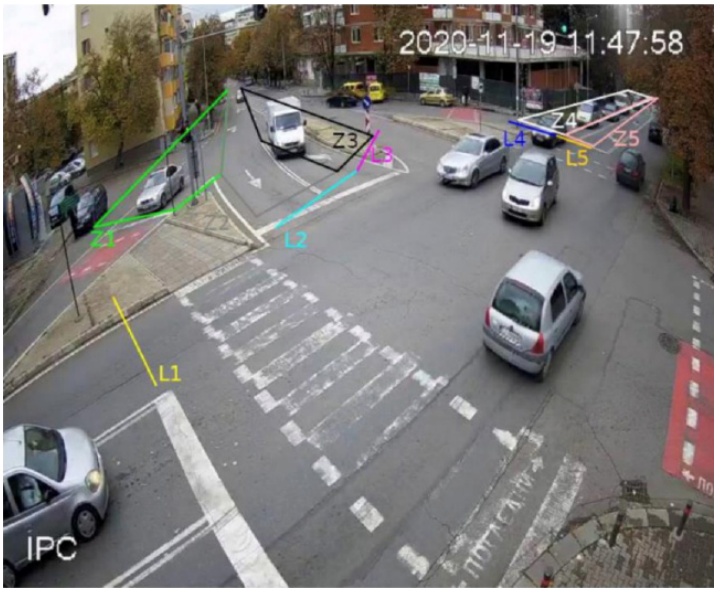
A transition to real-time traffic monitoring would give Telelink City the improved data they needed, without increasing costs. But real-time technology also offers a host of other benefits that are appealing for smart cities:

- **Decreased commute times**
- **Improved public safety**
- **Reduced environmental and public-health costs**
- **Potential to optimize routes and traffic in real time**
- **More efficient parking**

Indeed, the potential benefits of real-time traffic monitoring were incredibly appealing to Telelink City, given their focus on supporting the traffic management needs.

GoodVision Delivers Enhanced Data

Given these requirements, Telelink City chose GoodVision as their real-time traffic monitoring partner. Initially, the Telelink City team was concerned about the potential unknowns of implementing any new technology and whether GoodVision's platform would provide the robust data and real-time visibility they needed.



Examples of traffic scene setup in GoodVision Live Traffic in Stara Zagora

But they were quickly impressed with the flexibility during setup and the additional data they could collect. Furthermore, they found that they could leverage GoodVision's platform to collect new data, including the following:

- **Vehicle speed**
- **Queue indicators**
- **Saturation flows**
- **Stopped or delayed vehicles**
- **Traffic gaps**

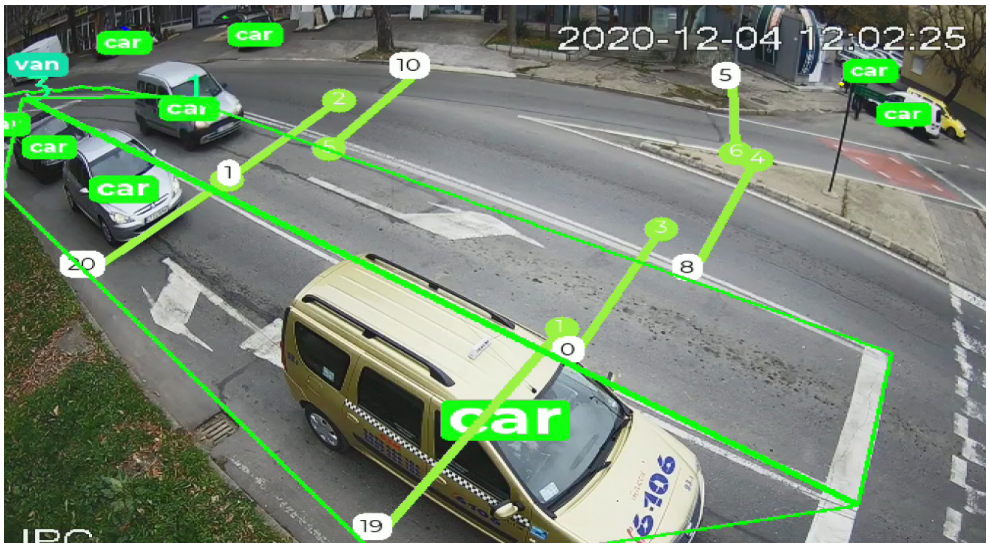
On top of that, GoodVision's solution provided full multimodal detection of vehicular traffic, bicycles and pedestrians at once, with the possibility to even extend the set of vehicle types if required.

Mladen Zamanov
Smart Solutions Engineer
Telelink City

"This object detection and tracking technology has countless applications."

The Partnership Yields Immediate Benefits

GoodVision's solution was connected with the existing city IP cameras (2.0 megapixels, 25FPS). Traffic video analytics are based on GoodVision's proprietary artificial intelligence, which performs real-time detection, classification, and tracking of traffic attendants based on their appearance and their full trajectories are retrieved for further analysis.



Video analytics run on off-the-shelf EDGE computing units equipped with NVIDIA Jetson Xavier processors. Each unit is capable of processing up to 8 live camera streams simultaneously. The edge unit was integrated with Telelink's traffic control system via API, providing alerts with a latency below 1 second.

For Telelink City, the outcomes of the partnership with GoodVision have been stellar:

- **Accuracy rates of traffic-event detection quickly jumped from 70-80% to a whopping 97% and beyond.**
- **Alerts are sent with latency periods of less than 1 second.**
- **More data and traffic events are captured, in higher resolution than ever before.**
- **New traffic-control algorithms could integrate new data.**

One of the biggest benefits for Telelink installations is the versatility of the solution, offering deployment on the off-the-shelf EDGE devices or on the servers in the data center, which covers pretty much all the various needs of Telelink customers.

	Initial Costs	Operational Costs	Accuracy	Speed	Classification
Inductive Loops	---	---	+++	+*	+*
Magnetic Sensors	---	---	+++	+*	+*
Video Detectors	+	+	+	-	-
Video Analytics (GoodVision)	+	+	+++	+++	+++

** Speed measurement and classification are possible with a specific setup that further increases the amount of installation work and costs.*

About GoodVision

GoodVision Ltd is a company from London, United Kingdom, established in 2017. GoodVision provides transport planners with everything they need for transport data analytics in one place. With GoodVision's products, transport surveyors and planners achieve incredible productivity on their transport planning and modelling projects.