

## “Smart traffic cop” in St. Petersburg.

Citilog solutions for adaptive traffic light control.



### Organization:

Traffic management  
directorates of St.  
Petersburg

### Location:

St. Petersburg, Russia

### Industry segment:

Transportation

### Application:

Traffic management

### Axis partner:

InDorSystems, LTD.

### Mission

St. Petersburg is the fourth largest city in Europe in terms of population (5.4 million people) and the third in terms of area (almost 1.5 thousand square kilometers). Its great number of places of interest, cultural and historical heritage sites makes this city the most popular destination in Russia for domestic and international tourism. A growing population coupled with the increasing flow of tourists creates conditions for traffic and mobility issues. The introduction of Automated Traffic Management System and other intelligent transport subsystem tools seems to be the most effective and economically sound solution for this city alongside the capital-intensive urban planning costs. The executive authorities have long been involved in such projects and have a successful track record in developing smart traffic systems in St. Petersburg.

### Solution

The real-time adaptive traffic control was introduced in St. Petersburg in 2012. With the traffic flow detection system, it is possible to keep records of the daily and

hourly traffic patterns and use the adaptive control to reduce traffic jams at intersections. Citilog software and hardware equipment is one of the solutions used in St. Petersburg for adaptive traffic light control. In 2020, the traffic light detector system at approximately 100 intersections automatically assess the presence of vehicles in the controlled area and set the traffic priority using special sensors and the Citilog software functionality. The traffic controller receives signals from these sensors in real time and extends the traffic light phase as needed. The sensor data is also used in the Road Traffic Control Center of St. Petersburg.

### Result

More and more intersections in the city are fitted with such software and hardware solutions each year. The Citilog solution offers the following advantages – high reliability and accessibility, data accuracy as well as cross-functional web interface used to integrate the solution with various types of controllers.

**“The traffic flow in St. Petersburg is fairly intensive and diverse. The congestion of the roads and intersections varies depending on the time of day, accidents and other factors. Therefore, we carefully follow the development of the smart traffic systems and are willing to introduce the best international practices. The Citilog solution for traffic assessment at intersections takes into account the constant changes in the traffic patterns and even unexpected events.”**

». **Sergey Zaichenkov, First Deputy Director of State Public Institution Traffic management directorate of St. Petersburg.**

At the same time, today video analytics are directly embedded into the camera - making this solution even more flexible, powerful and complying with the spirit of the "smart city".

### **Citilog at crossroads: introduction practice**

Software and hardware solutions for adaptive traffic light control introduced at intersections by the Traffic Management Directorate of St. Petersburg have already proven very useful. Normally, the traffic prioritization at the road areas with uneven traffic flow or the areas that require a dedicated lane for public transport is based not on a given schedule, but on the current traffic situation. The Citilog sensor-based solution informs the traffic light controller and the centralized traffic control system about the vehicles detected at the intersections – and thus allows the optimal load distribution in all traffic directions at any time.

One of the distinctive features of the Citilog solution is its flexible interface and support of the various road controller models that can be connected using dry contact or Ethernet protocol. Since 2012, the number of intersections equipped with such software and hardware solutions has been gradually increasing and their number currently reaches about one hundred. Reliable fail-free operation, as well as the possibility for remote sensor monitoring and controller management is also important for daily operation and maintenance over the years.

### **Edge computing – even more efficient solution**

Modern technologies make it possible to replace the existing sensors and the so-called inductive loops, which trigger when a vehicle hits them, with solutions based on video analytics that comprise the camera functionality. The updated adaptive traffic light control solution consists of an Axis network camera located above the intersection with the installed Citilog Traffic Efficiency software. To configure the system, the operator simply selects the specific area in the camera field of view, where they want to use the vehicle detection algorithms. The Citilog analytical module monitors the situation at the intersection and sends the control signal to the controller and in case of an incident, informs the operator.

Since Axis cameras are developed based on open protocols, they are easy to integrate with video management systems, other "Safe City" systems and automated traffic control systems. By using the Citilog and Axis package, the control center operator is provided with an opportunity to react to the sensor signal, view real-time images from the scene of event and has more options to configure the control of a given situation.



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