



## ISKIP - Intelligent Comprehensive Vehicle Identification System

**ISKIP** - The Intelligent Comprehensive Vehicle Identification System is a universal, development-oriented system for automatic identification of vehicles, based on parallel recognition of vehicle features such as category (car, van, truck, bus, etc.), colour, make, type and registration number.

The recognition of all the above-mentioned vehicle features is made only on the basis of an analysis of the vehicle's photo, with no need for physical interference with the structure and environment of the road or other point of system operation.

The proposed concept is a solution unique in Europe and globally. There is currently no other effectively operating system in place to enable vehicle make, model, type and colour to be recognised.

The system is based on a complex algorithm of neural networks, analytical software and a database of about 500,000 vehicle photos.

The Intelligent Comprehensive Vehicle Identification System - **ISKIP**, can be installed both in a fixed version (e.g. at border crossings, major road junctions) and in a mobile version (e.g. on vehicles of the Police, the Border Guard, the Road Transport Inspection Service – ITD, and special services). The system can also be integrated with other components of Intelligent Transport Systems, i.e. with weigh-in-motion systems, average speed control systems, red light violation detection systems, etc.

In Poland, the results of the project are currently being implemented at the Internal Security Agency, the Police, the Central Bureau of Investigation and the Board Guard.

### **Functional description of the project**

The objective of the Intelligent Comprehensive Vehicle Identification System - **ISKIP** project was to create a development-oriented system for the identification of vehicle features (make, model, colour, registration plate). The main research objective of the project was to prepare and implement a new type of self-learning algorithm as well as technological and programming solutions related to data capture and processing.

#### System operation basis

The operation of the system can be presented schematically in 4 stages (Fig. 1.).

#### **Stage 1** – Image capture

Each Autonomous Measurement Station is equipped with a camera for continuous monitoring of passing vehicles.

### **Stage 2 – Image analysis**

The software installed in the terminals ensures real-time analysis of all features necessary for the identification of the image recorded by the camera (vehicle registration plate number, category/make and colour).

### **Stage 3 – Data transfer**

The data collected are transferred from Automatic Measurement Stations to the Central Statistical System. The transfer is effected via an Internet link or the GPRS.

### **Stage 4 – Data verification**

The Central Statistical System calculates and compares data from individual measurement stations and then automatically transmits requested data (e.g. information on detection of a wanted vehicle, excess speed, incompatibility of vehicle data (make, model, colour) with the data attributed to a registration number in the Central Record of Vehicles and Collisions – CEPIK) to the recipients.

[www.iskip.edu.pl](http://www.iskip.edu.pl)

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