## PARKING ASSISTANCE SYSTEM FOR TPARK

### Goal of the project

The objective of the "Parking Assistance System for TPark" project was to extend the services offered to the clients of Piconet company, which is the national leader of city surface parking management systems. The aim was to develop a robust method for monitoring the parking occupancy based on processing of images captured by surveillance cameras. This method has to adapt to harsh weather conditions and to changing in illumination due to some natural causes as clouds or artificial as night lighting.

### Short description of the project

The project work result was a working prototype implementing the proposed method able to process the information provided by parking surveillance cameras. The method combines image processing algorithms with statistical information collected by the company, and with learned data.

### Project implemented by

Universitatea Politehnica din Timisoara
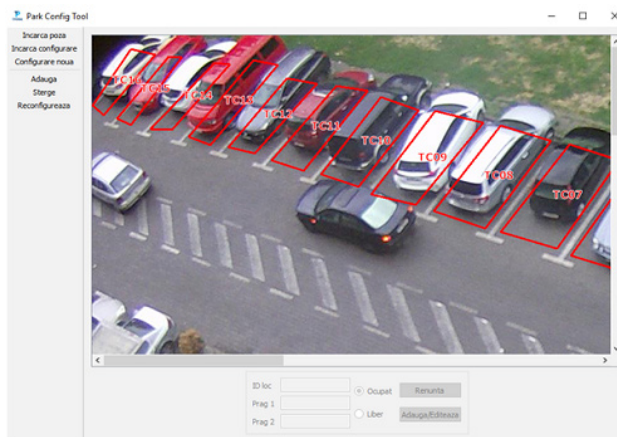
### Implementation period

25/07/2017 – 31/12/2017

### Main activities

Activity 1. Developing a robust method to monitor the state of parking places in public car parks by processing information from surveillance cameras.
Activity 2. Implementing a prototype of the monitoring system to validate the method in a real use case on Timisoara Central parking.
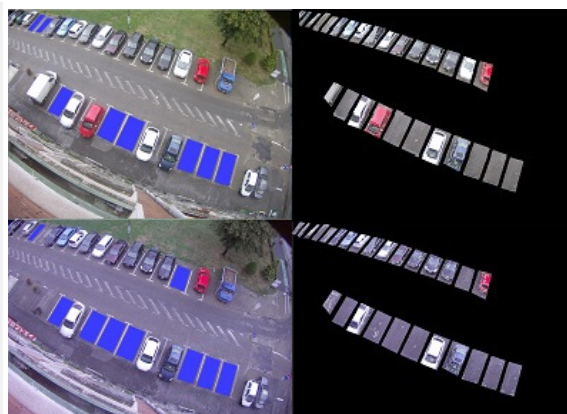


Activity 3. Developing a method for estimating the time of parking space occupancy.
Activity 4. Extending the prototype of the monitoring system to allow validation of it.
Activity 5. Developing and documenting a methodology for installing and configuring the prototype of the monitoring system.

### Results

- A method to monitor the status of parking occupancy for a surface parking lot.
- A prototype to validate the method implemented in C++ using the OpenCV open source library.
- A method for estimating the time of parking space occupancy.
- An extension of the first prototype in order to validate this method.
- Research report describing the proposed approach and a Web page to document the project and the obtained results.

## Applicability and transferability of the results

The results will be used to extend the services offered by Piconet company for its clients represented by the drivers searching for a public parking space. It will be integrated in the company monitoring system and will be offered to new clients interested in extended services. The company also planned to implement a mobile application capable to offer online information on free parking places based on this monitoring system.

## Financed through/by

Budget: Unitatea Executiva pentru Finantarea Invatamantului Superior, a Cercetarii, Dezvoltarii si Inovarii (UEFISCDI) - Directia de Finantare a Dezvoltarii si Inovarii
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## Research centre

Research Center in Computers and Information Technology (CCCTI), UPT

## Research team

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