Scientists create application for finding parking spaces

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Computer vision and image recognition could solve the problem of a shortage of parking spaces in Chelyabinsk. As part of the work on the Smart City program, scientists from South Ural State University proposed using the already installed CCTV cameras to identify vacant parking spaces with a specially developed program that will collect data and notify drivers about parking spaces in the nearest parking lot. This invention has already been patented.

Urban environment for both drivers and pedestrians

Igor Oleinik, a graduate of the School of Economics and Management of South Ural State University, proposed a new solution to the shortage of parking spaces. A special software application will quickly notify drivers about convenient parking spots using an existing network of CCTV cameras. This will significantly improve the urban environment for drivers and make parking much more efficient.

"This research was originally the goal of my graduate work in the specialty. I wanted to select and prepare a solution for a really urgent problem. One thing that I regularly encounter in my daily life is the difficulty of finding a parking space. This problem is urgent: According to statistics, the number of cars on the roads is only growing," Igor Oleinik says. "It is impossible to endlessly increase the number of parking spaces. Chelyabinsk is now improving the urban environment, making it more pedestrian-friendly. Thus, the number of cars is growing and the number of parking spaces is decreasing, which makes the problem even more urgent."

Cars parked along the roads significantly reduce the capacity of city roads, and the courtyards are so crowded with cars that it is difficult even to walk. The lack of parking spaces often leads to violations of traffic rules by drivers.

New smart city ideas

The new solution will allow drivers to search quickly and easily for free parking spaces, while significantly reducing the cost of sensors at each location.

"I applied the object recognition system to the problem of finding parking spaces, which made it possible to detect occupied and vacant parking spaces in the parking lot. And the application can tell the user where to park the car," Igor Oleinik explains.

Conventional high-definition CCTV cameras are already in use in parking lots. This technology can already be applied in many parking lots, and there is no need to re-equip them with any special cameras or install any sensors. All you need is to process the signal from CCTV cameras. Shopping and entertainment centers and complexes already use similar systems in covered parking lots (and a separate sensor is installed for each parking space). This system can also be applied in open parking

lots without using a large number of sensors.

More information: Parking monitor patent: patents.s3.yandex.net/RU2724043C1_20200618.pdf

Provided by South Ural State University