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THE LATEST TECHNOLOGY FOR CONVENIENT PARKING IN CITIES USING ARTIFICIAL INTELLIGENCE.

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Increasing urban population lead to increased traffic management on the roads, particularly in the provision of parking spaces. The transport system is large and requires rigorous control and timely modernization and expansion. Organizing control of such a complex system is very difficult without the use of modern technology, intelligent systems. The problem of finding parking spaces arises, and a lot of time is spent on parking. The relevance of this topic is due to the need to determine the number of available parking spaces and provide real-time information to users. [1]

A technical system that collects and preprocesses low-level information, identifies patterns and characteristics, and presents a summarized report and visualizations to humans is called an Intelligent Monitoring System. Intelligent parking occupancy monitoring involves detecting and tracking the movement of vehicles through a car park. There are different types of sensors available to collect information about traffic: video detectors, microwave radars, infrared sensors, ultrasonic sensors, passive acoustic sensors, loop induction sensors. Improving the convenience of using automotive transportation involves a wide range of tasks that can be addressed using intelligent monitoring methods, including:

- Vehicle navigation

- Adaptive traffic management

- Checking the status of parking lots.

Intelligent monitoring of parking occupancy involves identifying and tracking the movement of vehicles in the parking lot.

The creation of dedicated parking spaces began almost simultaneously with the emergence of the first automobiles. As the number of cars rapidly increases, modern technologies are being implemented to address the problem of limited parking spaces.

The main direction of development is "smart" parking sensors. Such sensors are embedded in the road surface of parking spaces and track whether the space is occupied or free, transmitting data to a central system. By using a network of such sensors, a parking map is created, and its status is communicated to users on the streets through special screens or a mobile application.

Real-time information on available parking spaces will significantly save time for drivers searching for a parking space and increase the convenience of using a parking lot. The system will significantly improve the lives of drivers and indirectly impact carbon emissions by reducing traffic congestion and the time it takes to find a parking space. The main goal of this work is to develop a system for counting the number of free parking spaces based on streaming video from surveillance cameras.

Smart parking is a specialized parking space for cars created using sensors and modern technologies for quick and easy search of parking spaces, ensuring safety and automation of the car parking process. The system allows for optimal management of parking spaces at any given time, which leaves some parking spaces completely free, significantly saving on costs for lighting and cleaning.

The system is an information technology platform designed to improve urban mobility and reduce the negative impact on the environment by providing users with real-time information about available parking spaces. Information about the number of free spaces is displayed on an internet portal, mobile applications, and street information boards.

The system determines the occupancy status of each individual parking space and forms a database of occupancy status of parking spaces. Therefore, the system

provides the opportunity to control the utilization and turnover of any parking space, being a source of information for reporting and analytics for the development of parking space management policies.

Visual tracking consists in consistently determining the location of the target object on each frame of the video stream. The main purpose of tracking algorithms is to build the trajectory of an object, but it should also provide information about the area of the image occupied by the object at each moment of time (i.e., at each frame of the video).

One of the components of smart parking is a smart payment system. This system is actively used in many countries and consists of contact, contactless payment methods using bank cards, and mobile devices.

The system aims to solve problems such as increasing customer loyalty and satisfaction, constant monitoring of the situation through convenient graphic plans, information storage for analysis and the development of an optimal management strategy, optimization of parking space search and minimization of time and route which will also lead to lower pollution levels. Additionally, on large parking lots, up to 20% of parking spaces remain unfilled because of drivers' carelessness.

The system works as follows:

A sensor detects a free parking space, then transmits the data to a central server, where a smartphone application requests available parking spaces, and parking payment is made through the same app.

There are numerous opportunities to enhance the potential of smart parking sensors. One of the new concepts for enclosed parking lots is the use of overhead sensors that also serve as car security and monitoring devices.

Another direction in smart parking is the development and integration of automated parking systems, often in the form of multi-level parking structures, where driver actions are minimized. The driver enters a designated platform and exits the vehicle. The platform then automatically moves the car to a specifically assigned, reserved, or available parking space, and notifies the driver of the space number. To retrieve their vehicle, the driver needs to authenticate and enter the given number on a

special display or control panel, after which the platform autonomously lowers the car back to the platform.

In conclusion, the smart parking system will reduce the time spent searching for parking spaces and make the parking space more practical, convenient and efficient.

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FORMATION OF A RATIONAL TECHNOLOGY FOR DELIVERY OF GRAIN LOADS IN CONTAINERS IN THE DIRECTION OF EUROPE

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In the modern conditions, in the market of transportation of grain cargoes in the containers, there is a perspective of their development because every year the number of such orders is increasing to the address of transport and freight forwarding companies. The authors [1] focus on the development of multimodal transportation involving railway transport, road and marine type of transport in the scientific works in the sphere of cargo shipping in the containers, thus it is determined that railroad transport carries out the transportation of the grain cargoes in the conditions of critical depreciation of the main means and increasing competition from the side of other types of transport. The analysis of the practical experience in ~~of~~ the organization of grain cargoes delivery in the containers in international traffic has shown that many companies offer services on this type of activity, using different technical means to simplify the process of loading and unloading and transportation of grain cargoes. The analysis of the current state of the matter of shipment grain cargoes from Ukraine has shown that our country has a powerful export port capacity. In addition, two leaders in storage and transshipment of grain cargoes have been specified, Odessa and