

IMPACT OF SMART TECHNOLOGIES ON ROAD TRAFFIC SAFETY: STUDY OF TECHNOLOGICAL INNOVATIONS

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This paper discusses the significance and influence of smart technologies on road safety. Research demonstrates how technological innovations such as collision avoidance systems and driver assistance systems contribute to enhancing road safety. Contemporary developments in smart transportation open new possibilities for preventing accidents and increasing the safety of all road users.

Road safety has always been one of the most critical global issues. With the help of modern smart technologies like IoT, autonomous vehicles, and collision avoidance systems, we have the opportunity to significantly improve the situation and reduce the number of road traffic accidents [1-2].

Collision avoidance systems employ modern sensors and cameras to monitor the vehicle's surrounding environment. These systems detect potential collisions, even if the driver doesn't see them. If a collision threat is detected, the system can alert the driver and even take automatic measures to prevent an accident.

Driver assistance systems encompass features such as adaptive cruise control, lane-keeping systems, and automatic braking. They aid drivers in vehicle control and respond to potential hazardous situations.

Research indicates that the implementation of smart technologies in transportation helps reduce the number of road traffic accidents and severe injuries. Collision avoidance systems and driver assistance systems significantly decrease risks and ensure safer road traffic.

Despite all the advantages of smart technologies, challenges related to privacy, cybersecurity, and infrastructure aspects exist. However, the growing interest and investments in this field create prospects for further development and improvement of smart technologies on the road.

The impact of smart technologies on road safety is undeniable. Collision avoidance systems and driver assistance systems contribute to reducing accidents and saving lives. With the continuous advancement of technology, we can expect further improvements in road safety through smart technologies.

Список використаних джерел

1. Lindov, O., & Omerhodžić, A. (2023, May). Implementation of Smart Road Technologies in the Function of Road Traffic Safety Management. In *International Conference "New Technologies, Development and Applications"* (pp. 621-627). Cham: Springer Nature Switzerland.
2. Vovk, Y. (2016). Resource-efficient intelligent transportation systems as a basis for sustainable development. Overview of initiatives and strategies. *Journal of Sustainable Development of Transport and Logistics*, 1(1), 6–10. <https://doi.org/10.14254/jsdtl.2016.1-1.1>