

**STUDY OF TRAFFIC SAFETY RULES ON HIGHWAYS AND THEIR IMPACT ON  
THE ENVIRONMENT.**

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**Annotation:** This article examines the importance of traffic safety rules on highways and their impact on the environment. The study analyzes the technical condition of vehicles, traffic rules, driver qualifications, and the effectiveness of safety systems. The role of modern technologies, including automated control systems and monitoring tools, in preventing road accidents on highways will be considered.

**Keywords:** highways, safety, environment, traffic rules, driver qualifications, accidents.

**Introduction**

Traffic safety rules on highways are of great importance in our lives. Traffic intensity, vehicle speed, and road conditions on these roads require special attention in ensuring safety. Highways, as a rule, serve long distances and are intended for the movement of various types of vehicles. Therefore, observing safety regulations on these roads is crucial for life and health. Firstly, before driving on highways, it is necessary to check the condition of the vehicle. The proper operation of the car, tire pressure, proper release onto the road, and the condition of other mechanical parts ensure the driver's safety[1]. If the vehicle is technically faulty, it poses a danger not only to the driver, but also to other road users. Therefore, before each trip, it is necessary to thoroughly inspect the car and carry out the necessary repair work. Secondly, speed control is also very important when driving on highways. Speed limits are established for each road, and their violation can pose serious risks to drivers. Moving at high speed can lead to loss of control, accidents, and even death. Therefore, each driver must set their speed in accordance with road conditions and comply with speed limits. Thirdly, communication with other road users is also important when driving on highways. Drivers must be careful with each other, give signals, and plan their maneuvers in advance. Road signs and lights also play an important role; they help drivers understand traffic rules. Every driver must understand the meaning of road signs and headlights and comply with them. Fourthly, maintaining distance when driving on highways is also important. Maintaining distance with the vehicle in front of you during movement will protect you from sudden stops or accidents[2]. Maintaining distance also allows other drivers to perform their maneuvers. By following this rule, you ensure not only your own safety, but also the safety of other participants.

Fifthly, it is necessary to exercise caution and concentration when driving on highways. Drivers face the risk of fatigue or loss of concentration at long distances. Therefore, on long journeys, it is important to regularly stop, rest, and regain energy. Driving in extreme fatigue can be dangerous, so drivers should act when they feel good.

The technical condition of vehicles, traffic rules, driver qualifications, and the effectiveness of safety systems are important factors for every road user. Together, these elements ensure a safe and efficient transport system. The technical condition of vehicles is one of the main factors of

any movement. Good technical condition of the car ensures the safety of the driver and other road users. Every vehicle must regularly undergo technical inspection, checking tires, proper operation, braking systems, and other mechanical components.

Malfunctioning vehicles can cause serious accidents on the road. For example, a malfunction of the brake system or faulty tires can lead to a sudden stop, which poses a danger not only to the driver, but also to pedestrians and other drivers [3]. Therefore, every driver must constantly monitor the condition of their vehicle and carry out necessary repair work in a timely manner. Traffic rules are also an important component of transport safety. Traffic rules dictate to drivers how to act on the road. They are based on road signs, lights, and other instructions. Compliance with traffic rules regulates drivers' behavior and helps reduce accidents[4]. Every driver must know and follow the rules. Violations of the rules, such as speeding or deviating from the right lane, can lead to serious accidents and human injuries. Therefore, it is the duty of every driver to know and observe traffic rules. Driver qualifications also play an important role in transport safety. The driver's experience, knowledge, and qualifications are key factors in ensuring road safety. Qualified drivers are more successful in making quick decisions, assessing the situation, and preventing risks.

Therefore, it is necessary to conduct special courses, trainings, and practical exercises in the process of driver training. This process, along with strengthening the theoretical knowledge of drivers, also contributes to the development of practical skills. Safety systems are of great importance in vehicles. Modern cars have various safety systems aimed at reducing accidents and protecting drivers. For example, ABS (anti-lock braking system) helps prevent brake system blockage, while ESP (electronic stability program) is used to maintain vehicle stability. Such systems reduce the likelihood of injuries in accidents and give drivers greater confidence in driving their vehicles[5].

### **Results and Discussion**

Modern technologies, especially automated control systems and monitoring tools, play an important role in preventing road accidents on highways. These technologies are aimed at increasing road safety, reducing accidents, and improving the efficiency of transport systems.

Automated Control Systems (ACS) are designed to facilitate the work of drivers and increase safety. These systems allow monitoring vehicle movement, automatic speed adjustment, selecting the right path, and even complete automatic driving. For example, an adaptive cruise control system, while maintaining the driver's set speed, automatically changes the speed in accordance with the speed of the vehicle in front. This increases the driver's attention and reduces the likelihood of accidents. In addition, there are automatic collision protection systems (ACS) that help identify obstacles in front or behind vehicles. If the system detects the risk of a collision, it will automatically brake or warn the driver. This technology can be very useful, especially in urban conditions and on highways, since many accidents occur due to speeding or distraction. Monitoring tools also play an important role in improving safety on highways. They allow real-time traffic monitoring and provide prompt information about accidents or other emergencies. For example, Traffic Monitoring Systems (TRMS) monitor traffic using cameras and sensors. These systems collect information about accidents, traffic jams, or road conditions and send this information to central control points. Based on this information, traffic controllers can make operational decisions. For example, if an accident occurs somewhere, the system can automatically warn other drivers and

Also, with the help of monitoring systems, it is possible to accelerate the processes of identifying and punishing drivers who have violated traffic rules.

Modern technologies, including GPS navigation systems, also play an important role in preventing road accidents on highways. These systems help drivers choose the most convenient and safe routes. Real-time data transmitted via GPS allows drivers to avoid traffic jams, assess road conditions, and avoid dangerous areas. Also, systems based on artificial intelligence (AI) have great potential in preventing car accidents. AI algorithms can develop strategies to identify and prevent accidents by analyzing big data. For example, a model developed using artificial intelligence can predict possible accident locations and warn drivers about them.

### **Conclusion**

In conclusion, modern technologies, automated control systems, and monitoring tools play an important role in preventing road accidents on highways. They contribute to ensuring the safety of drivers, reducing accidents, and increasing the efficiency of transport systems. By implementing these technologies, it will be possible to further improve road safety. The use of such technologies allows each transport participant to protect not only their own life, but also the

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