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Research Article

PURPOSE AND PROCEDURE OF CERTIFICATION OF VIDEO SURVEILLANCE EQUIPMENT ON MOTORWAYS

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ABSTRACT

In the article, methods and stages of certification of the equipment used for ensuring road safety were thoroughly analyzed. Certification of monitoring services is carried out in five stages, in which it is controlled that the service and technical means comply with the requirements of standards and technical regulations. Considerations and recommendations necessary to carry out this process have been presented.

KEYWORDS

Video surveillance systems, surveillance cameras, traffic safety, road infrastructure, intelligent cameras, intelligent video cameras.

INTRODUCTION

In the area inside the intersection, vehicles with different approaches make turns, resulting in many conflicting points. Thus, drivers make more mistakes in this area, which leads to serious consequences of accidents. In the existing road system, cameras can be a cost-effective sensor to monitor the safety situation inside the intersection. Using the video data collected from these research cameras, it would be appropriate to implement a detection system for road safety diagnostics. This creates an algorithm for restoring the key points of vehicles in tracking systems. It is also necessary to use methods of changing closed key points, which are not

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observed by cameras due to turning movements inside the intersection. Studies have shown that modern surveillance cameras can capture more accurate vehicle trajectories, and better autocorrelation analyzes are needed to identify significant danger areas in intersections. It helps to identify traffic safety problems with the help of video surveillance cameras.

Many previous studies have been conducted to analyze intersection safety using common crashes in the intersection and intersection-related area. Traffic, geometric design, and surrounding land use impacts were determined for the entire cross-sectional area. The intersection area can be divided into three types, which are the intersection entrance area, the intersection area, and the intersection exit area. Some of the studies that have been conducted have focused on the study of traffic safety at the intersection entrance. For example, data from automated video surveillance systems was used to predict the risk of accidents in the entrance area in real time. Based on vehicle trajectory data from the camera, traffic models were developed to assess bicycle-level entrance safety. In the area inside the intersection, multiple crash points are created as a result of the turning of vehicles of different movements, and drivers are more prone to make mistakes, which can lead to serious accidents. However, due to the lack of detectors, limited safety research is being conducted in the intersection area. Models are developed to predict crash risk in the intersection area using data from automated surveillance systems in the entrance area, which may not capture traffic interactions within the intersection. This study will enable analysis of intersection safety using closed-circuit video surveillance cameras.

Unfortunately, in recent years, the number of road accidents and the number of people who died asaresult of these accidents has increased dramatically in our country. The reason for this is the increase in the number of cars in very fast photos, the drivers and passengers disregarding the traffic rules, the poor quality of the highways, and other factors. But no reason can justify the fact that it is happening because of people breaking the rules. For example, even though the number of cars in Brussels is ten times greater than in Tashkent, the number of car accidents is recorded several times less. The reason for this is that drivers and pedestrians follow the traffic rules at the same time. Everyone must feel the inevitability of punishment for breaking the rules. Only then will it be possible to move safely. Of course, violation detection equipment and highways must also meet the corresponding requirements.

To satisfactorily perform these tasks, the official organizations of our state have developed a plan of measures. For example, to ensure the implementation of the Decree of the President of the Republic of Uzbekistan No. PF-27 "On approval of the concept of public safety of the Republic of Uzbekistan and measures for its implementation", as well as the system of organizing road traffic determined a number of measures for further improvement, development of highway infrastructure, and creation of favorable conditions for road users.

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2022-2026, to drastically reduce the number of accidents and deaths on the roads by improving the road infrastructure and creating safe traffic conditions, including the full digitalization of the traffic management system and ensuring the broad participation of the public in the work in this area The national program "Safe and smooth road" intended to be implemented in the territory of the republic has been developed over the years. In the program, several tasks related to internal and highway roads of our country were assigned to relevant bodies and official organizations.

A special automated photo and video recording software-technical system (intelligent photo and video camera system) will be introduced to ensure that drivers are punished for violations.

To improve the infrastructure of highways, regulate the illegal parking of cars on the roadside, and encourage the use of public transport by the population, payment machines have been installed along the highways, and fees for the placement of motor vehicles a single system of roadside paid parking spaces with payment information systems (system of roadside paid parking spaces) will be established.

Figure 1. Monitoring of vehicle movement through video surveillance systems

Centralized intelligent management, monitoring, and analysis of smart traffic lights, intelligent photo, and video camera complexes, stationary stations for controlling the weight and dimensions of vehicles, and roadside paid parking systems at busy intersections of the city and proposals for further improvement of the traffic system will be developed.

One of the important factors is that the intelligent photo and video camera systems are compatible with the standard requirements for such activities. Failure to guarantee their quality performance can have many negative consequences.

Surveillance cameras, especially those installed on highways and intersections, must be certified. The principle of operation of the equipment, that is, the availability of power from the electric current, indicates that it is necessary to obtain a permit, i.e., a certificate, by the requirements of

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the technical regulations of safety requirements during the implementation period.

Video surveillance systems are a set consisting of several devices, that allow monitoring in certain areas of the territory, roadsides, or intersections when installed on special devices. The received information is recorded in the form of an image (with or without sound) on a storage medium and can be viewed later. The possibility of using automatic settings allows you to set the time for which the traffic rules are warned, stored, and then deleted.

The video surveillance system consists of the following elements:

- DVR is one of the most important elements of this system. Its presence allows recording from surveillance cameras. DVR can be started while moving. The operation of the device may stop working for hours or from time to time, that is when it has been working for a certain period;
- Uninterruptible power supplies - devices designed to ensure the operation of the camera without turning off in the event of a power failure;
- Separate parts of the video surveillance system, including tools for fixing surveillance cameras;
- Monitors for viewing images;
- A sensor for automatically detecting and giving a signal if the speed of vehicles exceeds the set standards;
- Cables.

Certification for video surveillance cameras is carried out taking into account the provisions of technical regulations on the safety of low-voltage equipment and electromagnetic compatibility of technical equipment:

Mandatory forms of compliance are certification or declaration of surveillance cameras. Which one to choose depends on factors such as the purpose of using the camera and its features. For this, it is necessary to apply to the accreditation and certification bodies for the certification of these products or services.

Figure 2. Video surveillance cameras

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During declaration or certification procedures, the product is tested in laboratory conditions for several indicators, for example:

- availability of a sufficient level of protection against electric shock;
- the absence of risks associated with an increase in the permissible temperature parameters;
- resistance to external factors;
- availability of insulation protection;
- the presence or absence of various risks during the installation of the equipment;
- compliance with the standards in terms of the magnitude of various vibrations.

The permit document can be issued for a batch of goods or mass-produced products. For implementation, it is necessary to register a declaration of conformity for video surveillance cameras. According to our legislation, the maximum period of validity of a certificate or declaration is 5 years.

The absence of a certificate or declaration in the sale of products is a violation of the applicable legal provisions. Registration of such violations shall cause administrative liability in one of the following forms:

- pay a fine;
- suspension of business or company.

In addition to the mandatory documents, the manufacturer or the entrepreneur engaged in its pre-sale can also obtain a certificate for cameras and other types of equipment voluntarily. The document is valid throughout Uzbekistan. Its presence helps in the following processes:

- increase the confidence of product consumers;
- opportunities to enter new markets;
- opportunity to participate in tenders and public procurement.
- An applicant for a certificate for video surveillance cameras must provide the following:
- certificate of registration of a legal entity;
- information about devices - their characteristics, purpose;
- relevant regulatory document;
- user manual, product passport;
- information about the manufacturer.

Steps for certification of video surveillance cameras:

The certification process is carried out in stages, as with other products.

First, the applicant applies for certification.

Attached to the application is a set of necessary documents and samples related to the product being certified and the manufacturer.

The certification office will decide to start certification work if there is an office authorized to certify this type of product if no defects are found after analyzing the documents.

Samples are tested according to the requirements of standard or technical regulations. The test report will be issued. If any indicator of the product does not meet the requirements of the

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regulatory documents, the certification process will be suspended. The entrepreneur will be informed about the reasons why the application was rejected. If the product meets the requirements specified in the regulatory documents, the certification process will be continued. The process goes to the next stage.

The decision to issue a product certificate is made by the body.

The certificate is entered into the state register of certification and the certification process is completed. The original copy of the certificate will be given to the applicant. This certificate guarantees the quality service of the equipment for 5 years and confirms the authority to use the equipment.

High-quality service will certainly prevent disputes between road users and inspectors. Most importantly, it ensures safe movement. Prevents car accidents and bad consequences.

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