



USE OF TECHNOLOGY OF REMOTE CHECK OF STATUS IN CONTAINERS FOR CARGO TRANSPORTATION.

OYBEK KHOLMATOV

Assistant,

Andijan machine-building institute,

Uzbekistan, Andijan

BEGZODBEK NEGMATOV

Student,

Andijan machine-building institute,

Uzbekistan, Andijan

E-mail: holmatov.oybek@bk.ru

ABSTRACT. *The article is devoted to technical means of customs control. The author considers the most promising foreign technologies for remote status check-in containers for cargo transportation.*

KEYWORDS: Remote control, container, cargo transportation, cargo transportation, information technology.

INTRODUCTION. The non-stop and safe movement of goods is an important principle of international trade. However, the system of customs transit is not ideal, so there is still a high probability of counterfeiting or illegal transportation of cargo in containers [1, 2]. Consider the technologies offered by the leading domestic and world carriers in order to improve the safety of cargo movement. It is known that in Uzbekistan for a long time Uzbekistan Railways has been using the GLONASS system to check the location of trains. Fixing the location of the wagons takes place at service points, but mainly it is carried out by reading information from the transmitter, located directly on the train, online. Also, an interesting technology is the system for collecting tolls on the roads of a multi-ton vehicle (weighing over 12 tons), launched in 2019. [1].

The system uses an on-board unit (BU). The CU includes a communication module, a navigation module. On the basis of the received data, a route map is formed, the movement of the vehicle is tracked on the route map, it is the basis for calculating the fee for



compensation for harm when driving on public roads of federal significance. It should be noted that the Platon system is mandatory for installation on all vehicles over 12 tons in weight. The Code of Administrative Offenses of the Republic of Uzbekistan establishes liability for movement without payment[2].

Choice of structure model and boundary conditions.

As of March 2019, Uzbekistan plans to introduce a new, innovative technology for controlling the movement of goods as part of the customs transit procedure by combining the technologies used by Russian Railways and the Platon system into a single digital platform. In fact, this platform will be implemented in the form of electronic seals used in cargo transportation. The system will operate using GLONASS technology and ensure the transfer of information to a single system. Both the customs authorities and the consignors will be able to track the cargo transportation. The technology will help eliminate possible violations of customs legislation, in particular smuggling [3,4].



Figure 1. Technological scheme.

Next, we will consider the technology of electronic GPS locks used in the port of EsmeOne (Asia) Ltd. In this case, a system of intelligent cargo / container locks Over-The-Air-Keyless (gaining access “by air”) for containers, trailers and wagons is proposed. With this system, you can lock or unlock a container wirelessly (GPRS / 3G / NFC / RFID), and allows the owner of the cargo to get full control over the cargo during transit or temporary storage.



This technology allows you to search, monitor and manage shipping containers online. The blocking mechanism itself is quite powerful, which allows the owner to play it safe against theft or counterfeiting of cargo, to reach a new level of control over transportation [5,6]. Intelligent Cargo Locking System EsmeOne (Asia) Ltd. allows you to monitor the status of the container in real time through a desktop computer, laptop or smartphone from anywhere in the world [7].

The use of an electronic lock will simplify the procedure of customs transit as a whole, by reducing the documents required for the application of the procedure, which contributes [8]:

- 1) Increase in the flow of goods;
- 2) Reducing the time of application of customs procedures;
- 3) Increasing the attractiveness and relevance of road transit through the country.

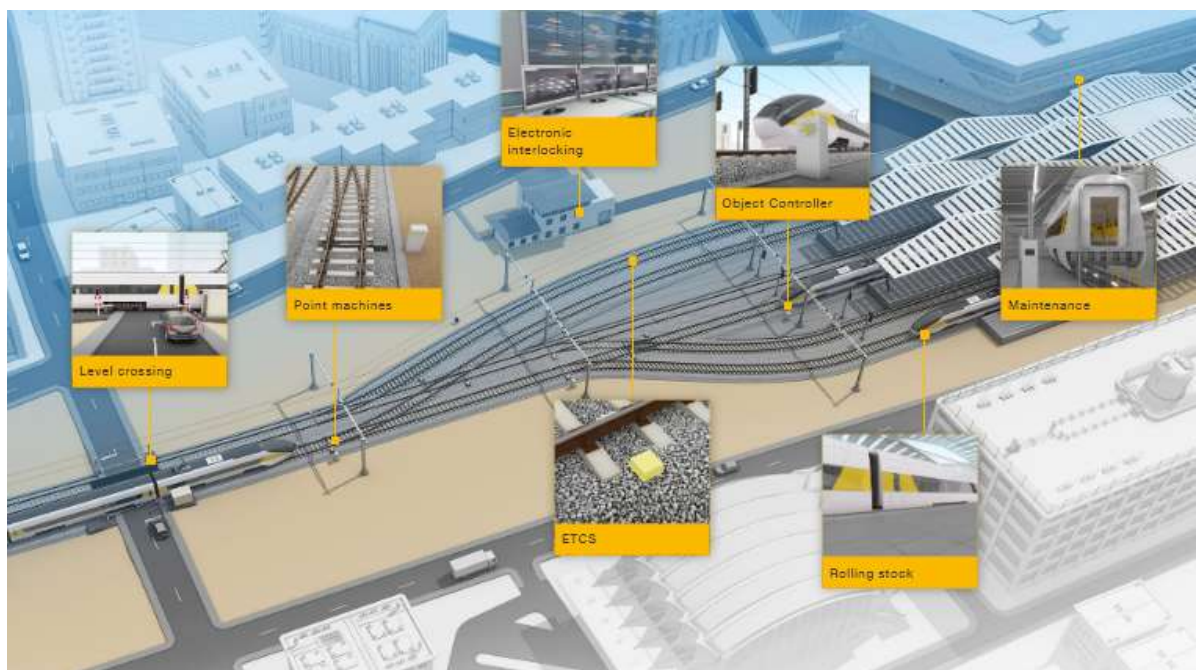


Figure 2. Solutions for railway technology.

It allows remote control of the container. The technology includes - modem, GPS, wireless SIM card and satellite connection. Temperature sensors, overloads, an accelerometer are also additionally installed [9].

This technology allows you to get:

1. Full control over the transported cargo;
2. The ability to quickly identify a malfunction.



3. Save millions in operating costs, costs associated with physical preparation, processing and monitoring of transit.

4. Allows you to eliminate the human factor during the physical inspection of containers [10].

The installed GPS module in containers performs global positioning, the modem and SIM card collect, store and transmit readings from installed internal sensors. The satellite transmitter installed on the ship receives data from the modem and sends it in real time at a certain frequency to the satellite, which forwards it to the RCM operator. Ship sensors are also an example of smart technologies in cargo transportation [11].

CONCLUSIONS. This technology is currently used exclusively in maritime transportation, but the very specifics of the technology makes it universal, which also allows it to be used in road, rail, and air transportation. Such a remote control has several advantages. Allows you to control and manage where, how, and how long shipments go to customers.

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