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TECHNICAL EQUIPMENT USED BY CADETS IN SEARCH OF EXPLOSIVE DEVICES DISGUISED AS A SPORTS EQUIPMENT OR FAN'S ATTRIBUTE

The criminogenic situation in the world in recent years is characterized as rather unstable, the number of explosions committed on passenger air transport, terrorist acts and acts of hooliganism ("football" and other hooligans) is constantly rising.

In connection with this, the question arises about the introduction of measures for the effective counteraction to such types of crimes. One of such measures is the development and improvement of professional skills of the students for the organization and order of the inspection of passenger aircraft engaged in the transport of sports fans for the presence of explosive devices in them.

In addition, it is equally important to locate and dispose of additional explosive devices and explosive components of an explosive device that has already exploded at the site of the explosion. This technology provides for a protocol of action during practical exercises of cadets for the inspection of aircraft and aircraft facilities in the event of a threat of an explosion and the procedure for carrying out special inspections of aircraft during tactical training, as well as during the study of special educational disciplines

The purpose of conducting a special survey for cadets of aircraft and aviation objects is to: ensure the safety of sports fans and their personnel; detecting and disposing of threatened objects masked under the sport equipment or fan's attributes, possibly present in an aircraft, which may lead to an aviation event, as well as minimizing the consequences of such an event. The number of crimes committed with the use of explosive devices during sporting events has sharply increased in the world. By definition (Motorny I.D., 2015) "explosive devices - industrial, handcraft and homemade products of a single use, the construction of which provides for the creation of the damaging factors of work due to the use of energy explosion of explosives or explosive mixture".

Explosions in transport have become a widespread phenomenon. The intentions for the commission of criminal explosions are the most varied, and this may be the disruption of sporting events or terrorist acts aimed at destabilizing the situation in the state and "sowing panic" in society. The most violent crimes committed using explosive devices are acts of terrorism committed during a large crowd of people.

According to the disposition of Art. 258 of the Criminal Code of Ukraine, a terrorist act, that is, the use of weapons, the commission of an explosion, arson or other acts that created a danger to human life or health or causing significant property damage or other grave consequences if such actions were committed in order to violate the public security, intimidation of the population, provocation of a military conflict, international complication, or in order to influence decision-making or committing or not committing acts by state authorities or local self-government bodies, official We are these bodies, associations of citizens, legal entities, or attracting public attention to certain political, religious or other views of the perpetrator (terrorist), as well as the threat of committing these actions for the same purpose - are subject to criminal liability.

In order to effectively counteract this kind of crime, in the majority of countries of the world special explosive units are created in the structure of the police and security services. These units are equipped with the necessary equipment, including mobile robotic remotely controlled complexes (MRRCC), which provide effective and safe conduct of necessary work on the destruction and destruction of explosive devices.

The minimum list of equipment required to survey an airplane for an explosive device includes: an explosion suit with a manipulator - 1 unit; bulletproof vest 4th - level 6 protection - 2-3 units; protective helmet level of protection is not lower than "Sphere" - for each specialist; radio interference generator - 1 unit; Steel stiff hook (preferably a tee) - 1-2 units; Strong non-elastic rope with a length of not less than 100 m - 3 units; strong 100-meter long rope with "cat" - 1 unit; screwdriver - 1 unit; mold ribbon (tape); inspection mirror - 2-3 units. or a set of viewing mirrors - 2-3 sets; flashlight - for each specialist; a card of hard paper or plastic in the size of approximately 10x5 cm - 2 units; Optical means of approaching an image (a binocular, a video camera, etc.); hydrogarma - 1 hour; electrodetonator - 2-3 units; detonating cord - 5-6 m; sapper wire - 100 m; blasting machine - 1 unit. The most promising and safe use is the use of a special remote-controlled device (work) during the inspection of the aircraft, which must be equipped with appropriate equipment to look for and dispose of an explosive device disguised as a sports equipment or fan's attribute. What do robotic systems need? In the first place, in order to provide personal

security guarantees to the personnel of the explosive units from unauthorized explosions during the execution of work to dispose of explosive items disguised as a sports equipment or fan's attribute. Secondly, robotic complexes can remotely carry out operations for penetration into the premises, transportation of explosive items disguised as a sports equipment or a fan's attribute for safe distance.

Finally, the study of an explosive device disguised as a sports equipment or a fan's attribute before its destruction or destruction, in order to establish the structure and mechanism of commissioning.

To date, the leading countries manufacturing robot-technical systems for work with explosive devices are the United States of America, Great Britain, Germany, Canada, Japan and others. Works made in these countries consist of one or more mobile robots, a set of variable work equipment, delivery facilities, power supply and maintenance.

Universal mobile works are small-sized remotely controlled self-propelled vehicles equipped with the necessary set of equipment and alternating working equipment. The vehicle consists of a chassis, a body and a power plant. The case can be made of aluminum alloys or alloyed steel. The running gear may be wheel, crawler, variable or combined.

The robot management complex includes: the information management part, the post of the mobile robot operator and a set of receiving and transmitting equipment that provides the transfer of information from the robot to the post of the operator and the teams that control the operator's post on the mobile robot.

Remote control of the machine can be carried out from the control station by cable at a distance of 100-150 meters, through the fiber optic communication line - at a distance of 300 meters, by radio - at a distance of up to 1000 meters. The choice of the communication channel option is determined depending on the operational environment and the type of equipment used. It is also possible to connect with works on Wi-Fi channels and Bluetooth. When performing technological operations, the cadet operator, using information about the object and the progress of the work, obtained from cameras and displayed on the screens monitors, continuously manages manually by the executive mechanisms of the manipulator and vehicle.

In addition, the robot can be equipped with additional equipment that facilitates the conduct of individual operations: color television cameras with a controlled focus for detailed view of the object; stereoscopic television systems providing a three-dimensional image of the object; small-sized spotlights for illumination of an object under conditions of low illumination; laser targeting devices that provide an exact injection of a rifle

or a hydro-destroyer to a given point of the object disguised as a sports equipment or fan's attribute. The most commonly used devices used by cadets for explosive technicians are: Portable X-ray equipment for the investigation of suspicious objects for the purpose of detecting explosive devices masked under the sport equipment or fan's attributes; electronic stethoscopes for listening to the IP with the time-delayed mechanism of the delayed action; radio interference generators blocking the radio-controlled actuator of explosive devices disguised as a sports equipment or fan's attribute.

The main purpose of ultra light robots is to inspect hard-to-reach areas and details of objects (in tight spaces, in passages of aircraft vehicles, under the bottom of cars). The work of this type usually has a crawler chassis and is equipped with a lightweight manipulator, on which the camcorder and grip is mounted, or a light hydro destroyer. The camera is installed on a turntable platform and with the help of a telescopic terminal the manipulator can rise to a height of 2 meters.

Very well, according to the authors, gave the definition of artificial intelligence, (Lauger George F., 2003) "Artificial intelligence can be defined as a branch of computer science, which is engaged in the automation of intelligent behavior".

In computer sciences, the problematic issues of artificial intelligence are studied from the point of view of designing expert systems and knowledge bases. Knowledge bases mean a set of data and output rules that allow logical conclusion and meaningful processing of information. In general, the study of artificial intelligence in computer science is aimed at the creation, development and operation of intelligent information systems. To date, artificial intelligence and robotics are closely linked to one another. One of the important directions of artificial intelligence is the purposeful behavior of robots, the creation of intellectual robots capable of autonomously carrying out operations to fulfill the objectives of the goals set by man.

Operations that can perform work equipped with artificial intelligence is first of all: the definition of the system of the executive mechanism of actuating an explosive device (time, mobile phone, radio signal) with the subsequent blocking of the operation of the explosive device, using special equipment; in the presence of a gas analyzer, the type and type of explosives used; using portable X-ray installations, install a system for actuating an explosive device, provide possible variants for the disposal of an explosive device and determine the zone of possible damage.

Intellectual works, like machines-performers, take tasks in a general form and have the ability to make decisions or plan their actions in

recognition of their uncertain complex environment. Thus, the time will be reduced to decide on further work with the detected explosive device disguised as a sports equipment or fan's attribute, in order to eliminate it or destroy it. As for the modernization of the sabers' robots to equip their artificial intelligence, in our opinion, this is, in fact, having the practice and scientific achievements that exist in the world. However, it is necessary to start with a small, that is, to create a prototype robot-sapper that would meet those norms and requirements that exist in world practice, and then give them artificial intelligence.

Indeed, at present in Ukraine there are developments in robotics, which are used in various sectors of the national economy, including law enforcement agencies. However, these developments remained at the level of experimental designs that did not reach the serial production. But it is available in the form of questionnaires sampled at the National Academy of Internal Affairs and were used and applied to "Euro 2012".

For example, in Russia remotely controlled robots-sappers are serially produced by the Kovrovsky Electromechanical Plant, but Russian work on the external market is not supplied. When purchasing robots-sappers of foreign firms, their cost is quite substantial in order to equip them with all the educational institutions that they need in Ukraine.

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