ROBOTIC AND TECHNICAL COMPLEXES FOR HUMANITARIAN DEMINING CREATION

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A study of military, special or dual-use robotic complexes used in the humanitarian demining system was conducted.

It was determined that the system of humanitarian demining involves the following tasks: inspection of objects and terrain contaminated by explosive objects; their search, remote identification, neutralization and destruction; mapping and marking of dangerous territories, etc.

In this regard, it has been proven that for humanitarian demining, it will be appropriate to use robotic and technical complexes of special purpose, which should be equipped with manipulators and detectors (sensors, gauges), means of decision-making at all stages of the work.

A mathematical model and a control algorithm have been developed for the clearance of explosive objects from the territory of hostilities with the use of robotic complexes, which implement the principle of an integrated approach to solving the problem of clearing the territories of Ukraine [1].

The proposed mathematical model is a combination of interrelated models: estimates of the terms of solving the problem of clearing the territory of combat operations from explosive-safe objects, the total number of personnel and technical equipment of the units to perform the assigned tasks.

Based on the results of the study, recommendations are proposed for the use of modern robotic complexes in humanitarian demining, and it was established that to increase the efficiency of detecting explosive objects, it is advisable to use various search methods in one robotic complex.

One of the most promising methods is the use of a combination of electromagnetic, optical and mechanical methods, as well as the development of complexes capable of searching for, neutralizing and destroying explosive objects not only on the surface of the soil, but also at a certain depth [2, 3].

References:

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