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THE USE OF VIRTUAL REALITY IN THE TRAINING OF PYROTECHNICS DEPARTMENT HEADS OF THE STATE EMERGENCY SERVICE OF UKRAINE

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The use of virtual reality (VR) in the training of pyrotechnics department heads of the State Emergency Service of Ukraine is necessary because it allows trainees to practice skills and strategies in a safe environment, simulating real-world situations. This will help to improve their professional training and work efficiency.

The current war in Ukraine has led to a significant increase in the number of explosive devices on the territory of the country. This creates additional risks for the civilian population and requires the pyrotechnics departments of the State Emergency Service of Ukraine to be better prepared to carry out demining tasks. Modern ammunition often contains new innovative technologies that make the demining process more difficult. This requires pyrotechnics departments to have excellent skills, a high level of professionalism, and an understanding of the latest methods and means of detecting and destroying explosive devices.

The modern approach to the training of pyrotechnics department heads involves a combination of theoretical education with practical training. However, realistic practical scenarios using explosive materials can be extremely dangerous, and sometimes even impossible to implement in practice without risk to life and health. In this context, VR is a powerful tool for ensuring the safety and effectiveness of training. VR will allow you to prepare for possible situations by creating simulated scenarios without real threats [1].

The purpose of the study is to justify the need for the use of VR in the training of pyrotechnics department heads of the State Emergency Service of Ukraine.

- The tasks of the study are to:
- Learn about the experience of using VR in the training of military personnel in NATO countries;
- Consider the relevance of using VR in the training of pyrotechnics department heads of the State Emergency Service of Ukraine.

The use of virtual reality in military training

NATO member states are actively incorporating VR into their training programs, exercises, and military drills. This technology allows service members to acquire skills and perform tasks in virtual environments that are as close as possible to real combat situations. This allows them to practice strategies, coordination, and response to danger [2-3].

Here are some examples of the use of VR in military training: practicing shooting and combat shooting skills in a variety of conditions, including urban areas, forests, underground and underwater objects; practicing the skills of conducting combat operations in cities and mountainous areas where there is a high risk to the civilian population.

The introduction of virtual reality in the training of sappers

The war in Ukraine has led to a significant increase in the number of explosive devices on the territory of the country. According to the State Emergency Service of Ukraine, as of January 15, 2023, more than 500,000 explosive devices have been found and neutralized on the territory of Ukraine. Among the key challenges facing pyrotechnic units, one can distinguish the difficulty of detecting modern engineering mines. The occupying forces are mining a large area of territory using non-standard installation methods to make them more difficult to detect [4].

In Ukraine, the introduction of VR into the training of pyrotechnic units has also begun. Within the framework of a memorandum of cooperation between the Freedom 4.5.0 Charity Foundation and the National University of Civil Protection of Ukraine, the Department of Pyrotechnic and Special Training has begun the process of introducing VR into the training. Thanks to this, future specialists have the opportunity to practice the theoretical knowledge they have acquired in practice, a photo of their training is shown in Pic. 1.

Pic. 1. Practicing the skills of searching for explosive devicesв

The use of VR in the training of pyrotechnics department heads of the State Emergency Service of Ukraine includes the following scenarios: 1) training in the detection of objects in various conditions, such as urban, forest, underground, and water; 2) practicing the skills of defusing and destroying various types of explosive devices, such as engineering mines, artillery shells, and mortar mines; 3) using VR

trainers to practice the skills of commanding demining robots, which are used to detect and defuse explosive devices in difficult-to-reach places.

The use of VR in the training of pyrotechnics department heads of the State Emergency Service of Ukraine is an effective way to improve their professional training and efficiency. VR allows trainees to practice skills and strategies in a safe environment, simulating real-world situations. This will help to improve the level of safety and reduce the risks to the civilian population during the demining of the territory of Ukraine.

List of references

1. Makarov Ye.O., Andronov V.A., Basmanov O.E. Mathematical model of the sludge deposition process in wastewater after electrocoagulation treatment. Problems of Emergency Situations: Proceedings of the International Scientific and Practical Conference, Kharkiv, NUCDU, May 19, 2023, pp. 260-263.
2. Jack, D., Boian, R., Merians, A., Tremaine, M., Burdea, G., Adamovich, S. & Poizner H. (2001). Virtual Reality-Enhanced Stroke Rehabilitation. IEEE transactions on neural systems and rehabilitation engineering, vol. 9, 3. DOI: 10.1109/7333.948460
3. «Virtual Reality: State of Military Research and Applications in Member Countries» Report of the RTO Human Factors and Medicine Panel (HFM). ISBN 92-837-0030-9.
4. Guide to Virtual Reality Art: What It Is and How to Make VR Art Yourself: веб-сайт. URL: https://www.skillshare.com/blog/guide-to-virtual-reality-art-what-it-is-and-how-to-make-vr-art-yourself.

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