

STANDPOINT

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Field of Higher Education: 9. "Security and Defence", Professional field: 9.2.
"Military Affairs".

For the dissertation of Eng. Stefan Ivanov HRISTOZOV on the topic: "**Disaster risk assessment using remotely piloted aircraft systems**", submitted for the doctorate degree in the field of higher education 5. Technical Sciences, Professional field 5.2. Electrical Engineering, Electronics and Automation, Scientific specialty: Application of the principles and methods of cybernetics in different fields of science.

The opinion was developed on the basis of Order No 45 / 10.04.2023 for the appointment of a scientific jury of the Director of the Institute of Robotics "St. App. and Ev. Matthew."

Relevance and significance of the developed scientific problem

Many technologies over time have lost their critical importance and have long found their place in the museum. However, there is one direction that continues to develop and improve, becoming a symbol of automation and digitalization of activities and processes in social development is the ability to use autonomous systems and complexes in researching, coordinating and managing activities in complex and unfavorable for humans environment.

The use of remotely controlled systems significantly reduces the possibilities for investigating the consequences of disasters and assessing the risk when choosing different ways and options to eliminate the consequences.

That is why any research that is aimed at solving such questions for making reasoned decisions with reduced risk has an important topical and cognitive significance.

In this sense, the presented dissertation on the topic: "Assessment of disaster risk through the use of remote-controlled flight systems", developed by eng. Stefan Ivanov Hristozov is dedicated to a topical problem that is important in a practical and applied aspect.

Evaluation of the scientific results and contributions of the dissertation

Based on the research and analyses carried out in the dissertation, the doctoral student claims the following scientific and applied results with original contribution:

Scientific contributions:

- an analytical method for the assessment of the risk in the disaster-affected space by remotely managed aircraft is justified;
- simulation models are proposed for formalization of the derived capabilities for obtaining information from unmanned aerial vehicles in areas and spaces characterized by an unfavorable environment for humans.

The applied contributions from the dissertation work are as follows:

- models for qualitative risk assessment in unmanned aviation have been developed and algorithms for implementation in a future air traffic management system for UAS have been discussed in detail;
- a methodology for determining the tactical and technical feasibility of the use of remotely piloted aircraft systems in the investigation of disaster and accident results is proposed;

- the architecture of an information system type "Internet of Flying Things" (IoFT) for processing large databases is synthesized;

- functions, relations and responsibilities between stakeholders are proposed in a single air traffic management system for unmanned aircraft while maintaining high levels of safety.

The dissertation work is distinguished by its completeness and the aim of the study has been achieved.

The essence of the results obtained should be characterised as an enrichment of existing knowledge.

All of them are the personal work of the doctoral student and are brought to the general scientific community through the published reports at scientific forums in Bulgaria and abroad.

Critical remarks

The dissertation is the result of a thorough and hard research work by the doctoral student and possesses a number of strengths. This does not exclude some editorial errors, inaccuracies and unnecessary circumstantial exposition inherent in most scientific studies.

I believe that these shortcomings do not affect the importance of the contributions to the dissertation and do not diminish its scientific value.

Conclusion

The dissertation of the doctoral student is an independent and in-depth study on an actual and significant for the practice problem related to the effectiveness and operational opportunities for the use of RPAS in various areas of human activity to reduce the risk of resolving crises arising as a result of disasters and accidents. The study contains scientific and applied scientific contributions, expressed in real and up-to-date results for dealing with the challenges facing the crisis management

system and offers options for action in terms of its development.

The PhD student shows a very good knowledge of the main literature published in the country and abroad on the studied issues.

I believe that the dissertation works meet all the requirements and criteria for awarding the educational and scientific degree "Doctor".

With full conviction in the merits of the dissertation, I recommend to the honorable members of the scientific jury to award to eng. Stefan Ivanov Hristozov educational and scientific degree "Doctor".

Evaluation of the dissertation

I give a positive assessment of the dissertation on "Disaster risk assessment through the use of remotely piloted aircraft systems", developed by eng. Stefan Ivanov Hristozov for acquiring educational and scientific degree "Doctor" in the field of higher education:

5. Technical sciences, professional field 5.2. Electrical Engineering, Electronics and Automation, PhD program "Application of the principles and methods of cybernetics in different fields of science."

Prepared the standpoint:

17.05.2023

Professor PhD PETAR HRISTOV