

Abstract

Topicality. This research leverages artificial intelligence technology to tackle key challenges in airport maintenance tool recognition through innovative software engineering. Accurately recognizing and managing the need for maintenance tools is critical to airport safety and operational efficiency. Currently, airports mainly use manual registration, which is error-prone, inefficient and risky.

The goal of the study. The research aims to improve the process of accurately recognizing and managing various maintenance tools in an airport environment by developing robust software that integrates advanced artificial intelligence models and a comprehensive software framework.

The object of research: Airport maintenance tool recognition process.

The subject of research: Models, methods, software and techniques for recognizing maintenance tools.

To achieve this goal, the following objectives were set:

1. Analysis and maintenance tools recognize relevant subject areas, research, publications, and existing issues.
2. Evaluate current technology and its limitations in maintenance tool recognition.
3. Develop requirements for artificial intelligence recognition software.
4. Design the architecture and select appropriate software development technologies.
5. Develop software integrating artificial intelligence models for tool

recognition.

The scientific novelty of the research introduces innovative methods for the precise recognition of maintenance tools by integrating advanced AI models into a cohesive and flexible software architecture. By implementing a multi-layered system design, the study not only improves the accuracy of tool recognition but also optimizes the overall workflow and operational efficiency within airports.

The practical value of the obtained results lies in creating reliable software applications that, by accurately and efficiently recognizing various maintenance tools, significantly enhance the safety and operational efficiency of airport maintenance operations.

Relationship with scientific projects, programs, thematic work. This work was carried out within the framework of the initiative theme of the Department of Informatics and Software Engineering of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute".

My future paper will be about the development methods, frameworks, models, implementations of maintenance tool recognition software, and the relevant results will be presented at the International Scientific and Practical Conference of Young Scientists and Students in Kyiv.

Keywords: maintenance tools, recognition, artificial intelligence, software framework.