

ABSTRACT

Explanatory note size – 151 pages, contains 7 illustrations, 35 tables, 4 applications, 35 references.

Topicality. Testing plays an important role at every stage of software development, allowing you to find errors in the program code, on the graphical interface, and to track the correctness of the work of certain sequential actions. There are two testing methods: manual and automated testing. The difference between them lies in the execution time and expendable resources. The essence of automation is to minimize manual software testing. However, the methods of implementing automated testing in software are not convenient and universal, which leads to certain difficulties during implementation. Therefore, the development of software that will provide the opportunity to add universal functions of automated testing events is a relevant topic.

The aim of the study. Improve and ensure the security of the process of identification and authorization of persons trying to gain access to certain objects.

The object of research: software for access control systems in combination with facial recognition technology and blockchain.

The subject of research: methods and mechanisms of combining facial recognition technology and blockchain to ensure security in access control systems.

To achieve the set goal, the **following tasks** are defined in the work:

- analysis of existing solutions;
- designing a system architecture that combines facial recognition technology and blockchain to ensure security in access control systems;
- development of software with mechanisms for saving and protecting users' biometric data; researching the possibilities of scaling the system and its performance when processing a large number of identification requests;

- assessment of the effectiveness of the proposed solution;
- analysis of the obtained results, determination of advantages and limitations of the developed solution and making recommendations for further improvements.

The scientific novelty is the development and research of an access control system that uses facial recognition and blockchain technology to increase security and privacy, creating an identification system with increased reliability and protection of user data.

The practical value can be used in enterprises that require increased protection against the risks of illegal access with the condition of storing biometric data in a secure and encrypted form, ensuring the protection of user privacy.

Keywords: ACCESS CONTROL, FACIAL RECOGNITION, BLOCKCHAIN, CNN (CONVOLUTIONAL NEURAL NETWORKS), IDENTIFICATION TECHNOLOGIES, SYSTEM OPTIMIZATION, RELIABILITY, DIGITAL SECURITY.