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- Creation of basis for innovation and new scientific approaches as well as discoveries in unknown domains

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SOFTWARE ANALYSIS OF ENVIRONMENTAL MONITORING RESULTS
ПРОГРАМНІ ЗАСОБИ АНАЛІЗУ РЕЗУЛЬТАТІВ ЕКОЛОГІЧНОГО МОНІТОРИНГУ

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Abstract. *The paper deals with the development of a computer monitoring system. Computer monitoring is increasingly used today to control the hygienic performance of water, air and soil. Not only does modern computer technology not only measure and store data, but also analyze, collate them against certain criteria. Creating any modern system requires the transfer of a certain amount of data, so the modern system can not be imagined without the network. The most common network to date is the global Internet. The Internet provides fast, remote access to the necessary data for users from all over the world, making it very flexible to use.*

Key words: *ecology, environmental monitoring, environmental monitoring software, web-technology of environmental monitoring, programming.*

Introduction

Goal: Improvement of software and hardware for collecting and processing environmental monitoring data.

One of the components of the system of measures for improving the ecological status is information technologies, which allow to evaluate the situation effectively and objectively and to propose new methods aimed at assessing and forecasting the level of environmental pollution [1,2].

Every year, public institutions solve a number of problems related to the use and processing of environmental information. The Law of Ukraine “On the Concept of the National Informatization Program” sets out the tasks of creating information and software complexes in institutions of various levels, the use of which should have a significant impact on the organization of activities to stabilize the ecological state in the country.

In medicine, the number of new methods of environmental analysis based on the use of computer technologies has increased significantly.

With the help of modern information technologies, it has become possible not only to store and organize the obtained data, but also to process it using mathematical methods. A large number of industrial enterprises polluting the environment operate throughout Ukraine.

In this regard, there is a need for continuous environmental monitoring of the environment based on the introduction of modern information technologies. Environmental monitoring is a system for monitoring the state of the environment.

The environmental data processing application is designed to save environmental indicators collected for a specific region, edit them, and process them using mathematical statistics methods. Interaction with other environmental monitoring researchers in the world. This application allows users to create interest groups and share their observations in real time [3].

Methodologies

This application uses a client-server architecture. Logic application (Back) is

implemented using the Node.js framework, specially designed to create the logic of a client-server application. The visual (Front) part is written in HTML5 using CSS styles. The user interacting with the visual part sends requests to the server (Back). The server processes the information and displays the results to the client on the visual part.

The environmental monitoring application is written using web technologies, which ensures its availability around the world. The application does not need to be installed as well as software updates. The application, as well as data is stored on the server, which prevents their destruction or disappearance from the user's hard drive [4].

Using this application, you can significantly save time when analyzing and processing environmental data.

The application developed as part of scientific work can help researchers of the ecological state of the environment gain access:

• Construction of information technology assessment estimates of the labor market;

• Consciousness of software and technology concerns and the selection of environmental monitoring of the problem of the mid-range environment;

• Searches for information technology assessment of Wikipedia information on environmental monitoring of poor navigation tools.

• In the process of information technology assessment of the labor rate;

• Simplification of environmental processing information;

• Simplification of monitoring for environmental data;

• Obtained participants and prior environmental problems.

The following mathematical statistics formulas are implemented:

• calculation of the average value;

• sampling of the maximum value;

• sampling of the minimum value;

• amount for the selected data.

Data is stored as tables on the server. When creating a table, the user is prompted to fill out the fields of the table which will contain environmental monitoring data. Users will be able to fill out data on any environmental data (water, atmosphere, soil.)

Fields in the tables are divided into the following groups:

• tangible (smell, color, hardness, etc.);

• chemical elements;

• bacteria;

• radiation.

Before adding information to the service, you must register by entering the username and password. Next, the user will just have to go through authorization. When generating an account and saving customer data, the Advanced Encryption Standard (AES) algorithm was used. The product supports multisession up to 500 users online, in the future it is planned to increase this number.

Users can:

• create groups to which participants can join;

- add and remove members of your group;
- apply for group membership;
- delete groups;
- post data on the service;
- edit data on the service;
- delete data from the service;
- view data of other users if it is in the public domain;
- view your data.

Conclusions

An advanced model of software and hardware was developed to collect and provide environmental monitoring data.

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