Abstract

Thesis: 75 pages, 23 figures, 1 tab, 13 sources.

WSN, base station, sensor nodes, methods, energy saving

The aim of the study is to analyze the existing methods of energy saving of wireless sensor networks.

This goal involves solving the following tasks:

1. To analyze the protocols of the wireless sensor network

2. To analyze the existing methods of energy saving of the wireless sensor network

3. To analyze modern developments in the field of sensor networks

Relevance: Wireless sensor network - a distributed network that is self-organizing and consists of many sensors (sensors) and actuators, interconnected by a radio signal. The coverage area of such a network can be from several meters to several kilometers due to the ability to relay messages from one element to another. Sensors are an integral part of today:

- When turning on / off the light (sensors respond to sound waves, movement, touch);

- Smart home (performing certain actions at a distance, using a sensor network);

- Unlocking the door (reading with fingerprint sensors), etc.

The nodes of the sensor radio network have an autonomous source of electricity of limited capacity, so the characteristic requirements for them are to minimize the cost of energy resources of the nodes and maximize the operating time of the network. These problems are solved by methods of energy management in mobile radio networks, which can be implemented in the energy management subsystem of the control system of mobile radio nodes. For sensor radio networks, the task of

minimizing energy consumption is a priority, which requires the development of separate methods of energy saving nodes of the sensor radio network.

The subject of the study is wireless sensor networks.

The scientific novelty of the work is that various data acquisition and processing systems were analyzed, which were selected from among the most optimal in terms of energy efficiency, data processing speed, ease of setup and use.

The results of research conducted in the thesis can be used in any field of life.

The results of the research were published at scientific and technical conferences:

- Кучеренко А. А. Аналіз протоколів маршрутизації бездротових сенсорних мереж // Eurasian Scientific Congress, Abstracts of V Internetional Scientific and Practical Conference. - Барселона, Іспанія : Sci-conf.com.ua, 2020. - С. 285-289.
- Кучеренко А. А. Аналіз методів енергозбереження в сенсорних мережах // Scientific Achievements of Modern Society, Abstracts of X Internetional Scientific and Practical Conference. - Ліверпуль: Sci-conf.com.ua, 2020. - С. 629-633.
- Кучеренко А. А. Аналіз інтелектуальної енергозберігаючої системи // Science, Society, Education:Topical issues and development prospects of VI Internetional Scientific and Practical Conference. - Харків: Sci-conf.com.ua, 2020.