

INTERNET OF THINGS IN EDUCATION

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Abstract

The article discusses the introduction of the Internet of things in the educational sphere, which will help in the development of future professional activities. In this article, we saw the many applications of IoT in the education sector and discussed the various benefits that students and educators receive from the built-in IoT ecosystem. By integrating sensors and mobile devices into a building, IoT can transform classrooms.

Keywords: Internet of Things, IoT, education, security, e-learning, science and research.

Introduction

The development of the digital society is inextricably linked with the level of introduction of the latest technologies into the educational process. The synergy of innovative solutions and new philosophy in the field of education forms the basis of "smart" education. Using the concept of the Internet of Things makes the educational process more interactive, which is one of the most advanced trends in IT technologies in recent years, and IoT is now a part of it, following the development of the Internet of Things. means that they don't treat smart devices as new toys. An army of networked smartphones, sensors, web cameras, GPS navigators and other technologies are able to solve problems in various fields - from manufacturing and agriculture to medicine and everyday life.

Although the use of well-known "smart" devices such as Smart TVs, fitness trackers or "drones" (unmanned aerial vehicle) is not being used in schools or universities, there are a number of other specialized IoT devices. They make the learning process more flexible and lively, allowing the teacher or coach to receive feedback from each student, unlike traditional two-way communication. At the same time, "smart" devices do not reduce their role at all, but serve as a kind of intelligent assistant.

With the advent of wireless communication and the concept of IoT, it is possible to turn the usual attributes of the educational process, such as desks, blackboards, even classrooms or auditoriums, into virtual assistants for teachers and students. With built-in IoT devices, they will be able to focus more on the educational process without being distracted by various and interesting distractions.

The capabilities of the Internet of Things concept allow for the programming of various devices and applications included in the IoT educational platform for specific tasks. In doing so, they free teachers and coaches from many functions that are unusual for them, especially administrative functions, which allows them to spend more time directly on the educational process.



Of course, there is still a long time to mass use of IoT-devices in the field of education, even developed countries cannot boast about the complete digitization of educational institutions. However, the increase in the number of devices connected to the Internet, their variety, as well as the improvement of wireless communication, will undoubtedly help to gradually change the concept of both higher and primary education. And this process is actively carried out today. Many VET teachers, like school teachers, complain that they spend considerable time on various organizational issues, such as recording absences, checking homework, distributing new ones, etc. Automation of individual procedures allows to reduce recorded losses. Among the "intelligent assistants" that have already taken root in the field of education, we highlight the following:

- an electronic wristband that allows you to monitor attendance and transfer individual assignments of students;
- "smart" desks equipped with a touch screen, electronic board
- web cameras and virtual classrooms for online broadcasting of lectures.

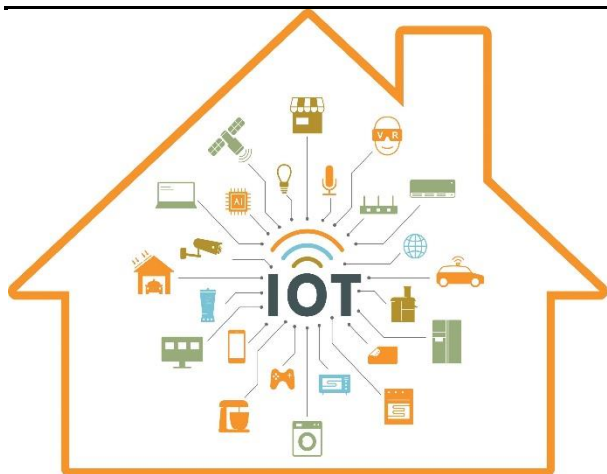
In addition, various recommendation services and decision support systems (DSS) have performed well. For example, enrollment of students or learners can be done using a "smart" device, such as a wristband that uses ECG templates for authentication. Brain activity can be analyzed using a special gadget that works according to EEG technology and determines the consumption of the student's cognitive energy. The data is transmitted to the teacher's device, which determines whether the student is actually working on the assignment or pretending to be.

Behavioral problems can also be addressed with specific applications. We've all studied somewhere at one point or another, and even if it's fair, we remember well how much it doesn't like hearing a 'duck' from a 'teacher' in front of everyone. This will be noticed by others, and apart from losing your reputation, you will also lose the academic time allotted for studying a particular subject. The way out of this situation is "silent messages|" mode can be used, i.e. the ability to vibrate on a personal wristband or send messages to a tablet regarding student behavior, thereby reducing public outrage and eliminating potential outright hostility.

Special software allows you to analyze the dynamics of the behavior of a particular student or pupil during the study period and create a personal image of him, which is very useful for teachers who have just started their work, as well as for those who are not familiar with a certain audience. Of course, in today's concept of education, such methods of "student-teacher" relationship may not seem very useful, but when our life becomes "digital", they will be completely appropriate and applicable.

As a result, with the help of IoT-technologies, putting secondary issues in the background, the teacher stops performing the functions of the administrator and can spend more time working directly with students.



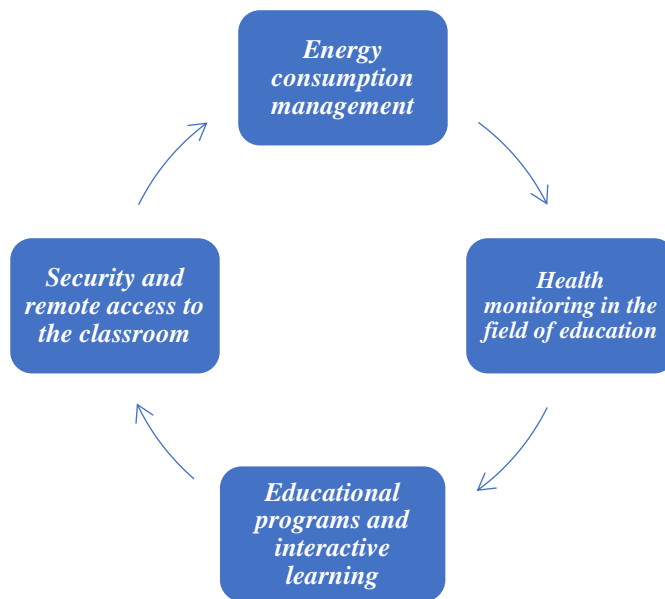


Of course, educational institutions in countries with modern wireless infrastructure and adequate funding can take full advantage of IoT today. But gradually, this tendency begins to prevail and determines the demand for a new philosophy of education.

Economic processes in developed industrial countries show that there is always a high demand for new knowledge and ways of acquiring it. Today, business can be created by people with high creative abilities, who can make quick decisions, who are able to

work in a team and, of course, who have technical training. At the same time, they need to study continuously according to the changing scope of tasks. Thus, investment in modern education is considered as an asset, its formation and capitalization should be managed.

IoT plays an important role in changing the traditional education system. There is a wide range of IoT applications in education. Let's take a look at a few areas where IoT can be used in education.



1. Energy consumption management

The Internet of Things can be used to manage energy consumption by installing IoT sensors in lights and water taps. Using the IoT ecosystem, energy and water usage is monitored, creating a healthy learning environment.

2. Security and remote access to the classroom

Creating a safe and reliable environment for students, which is one of the main challenges of the education system, can be achieved by choosing an IoT ecosystem. Built-in technologies such as NFC (Near Field Communication) can be used to manage students and access different parts of student campuses, such as laboratories and other places in the educational institution.



In addition, student attendance can be recorded using RFID tags embedded in each student's ID card.

3. Health monitoring in the field of education

Wearable devices can regularly monitor a student's health and detect physiological signals over time. With the help of the Internet of Things, students can detect signs of depression and suicide, giving them enough time to prevent any tragedy. In addition, the system takes into account individual health information such as medical history, blood pressure and prescriptions of a particular student to detect any signs of poor health, and sends mobile alerts to students and their parents when they are at risk. informs about the application.

4. Educational programs and interactive teaching

Curricula facilitate adaptation and allow students to determine their own course of action based on how subject knowledge is presented. From home computers to televisions, students can access live educational content through multiple channels while on sick leave. Certain applications can be used to create a three-dimensional (3D) graphic tutorial that includes video content and notes. There is no need to write down notes on paper anymore, thanks to the advancements in the IoT, students can read aloud, and a voice app converts speech to text and saves them in a digital notebook.

Conclusion

- In this article, we reviewed the many uses of IoT in education and discussed the various benefits that an established IoT ecosystem provides to students and educators. By integrating sensors and mobile devices into the building, IoT has the potential to transform classrooms.
- The Internet of Things has created a unique opportunity to increase student engagement, teaching and learning. In the near future, the Internet of Things will permeate most of the education system.

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