a single database, where the irises of family members, company employees or citizens of the country are stored. However, the disadvantage of this technology is its price [1].

**Conclusion**. So, as we have seen there are several devices for storing data, but there are ways to cheat them. You cannot be sure of them, just like of any other security means.

## **References:**

- 1. Розпізнавання райдужної оболонки ока [Electronic resource]. Access mode: http://www.miui.ua/novosti/rozpiznavannya-rayduzhnoyi-obolonki-oka-yak-tse-bude-pratsyuvati-na-smartfonah/
- 2.Сканер отпечатков пальцев [Electronic resource]. Access mode: https://hi-news.ru/eto-interesno/kak-eto-rabotaet-skaner-otpechatkov-palcev.html.

# **Dmytro Fil**

Research supervisor: Mykhailo Kasianchuk Candidate of Sciences in Physics and Mathematics, Associate Professor Language tutor: Lilia Shtokhman Candidate of Philological Sciences, Associate Professor Ternopil National Economic University

## AUGMENTED REALITY

Augmented reality is the blending of interactive digital elements like dazzling visual overlays, buzzy haptic feedback, or other sensory projections into our real-world environments.

The basic idea of augmented reality is to superimpose graphics, audio and other sensory enhancements over a real-world environment in real time. But these systems display graphics from only one point of view. So, the aim of our article is to present one of the newest technologies of augmented reality.

Next-generation augmented-reality systems as researchers state, will display graphics for each viewer's perspective [1]. Some of the most exciting augmented-reality work began taking place in research labs at universities around the world. In February 2009, technophiles at the TED conference were all atwitter because Pattie Maes and Pranav Mistry presented a groundbreaking augmented-reality system, which they developed as a part of MIT Media Lab's Fluid Interfaces Group [2]. They

called it SixthSense, and although the project is stalled, it's a good overview of how you'll find basic components that are found in many augmented reality systems:

- Camera
- Small projector
- Smartphone
- Mirror

These components were strung together in a lanyard-like apparatus that the user wore around his neck. The user also wore four colored caps on the fingers, and these caps were used to manipulate the images that the projector emitted.

SixthSense was remarkable because it used these simple, off-the-shelf components that cost around \$350. It was also notable because the projector essentially turned any surface into an interactive screen. Essentially, the device worked by using the camera and mirror to examine the surrounding world, feeding that image to the phone (which processed the image, gathered GPS coordinates and pulled data from the Internet), and then projected information from the projector onto the surface in front of the user, whether a wrist, a wall, or even a person. Because the user was wearing the camera on his chest, SixthSense augmented whatever he looked at; for example, if he picked up a can of soup in a grocery store, SixthSense found and projected onto the soup information about its ingredients, price, nutritional value and even customer reviews.

By using his capped fingers Pattie Maes said even fingers with different colors of nail polish would work, a user could perform actions on the projected information, which were then picked up by the camera and processed by the phone. If he wanted to know more about that can of soup that was projected on it, he could use his fingers to interact with the projected image and learn about, say, competing brands [2]. Sadly, the SixthSense project went into a years-long hiatus and will probably never reach markets. But there are many other products stepping into the AR fray.

Google SkyMap is another well-known AR app. It overlays information about constellations, planets and even more as you point the camera of your smartphone or tablet toward the heavens. So, augmented reality is more than just smartphone fun. It's a technology that finds uses in different areas from business to warfare and medicine.

### **References:**

### Vladyslav Ivanyna

Research supervisor: Yevheniia Martsenyuk Candidate of Technical Sciences, Associate Professor Language tutor: Inna Shylinska Candidate of Pedagogical Sciences, Associate Professor Ternopil National Economic University

#### THE IMPORTANCE OF THE INTERNET OF THINGS

The internet of things (IoT) is a technology that has the capacity to revolutionize the way that we live in sectors ranging from transport to health, from entertainment to our interactions with the government. This fantastic opportunity also presents a number of significant challenges. The growth in the number of devices and the speed of that growth presents challenges to our security and freedom. This paper discusses the evolution of the IoT, its various definitions, and some of its key application areas.

What is meant by "Internet of things"?

The Internet of things (IoT) is heralded as a development that can cause dramatic changes in the way we live. It is recognized as an enabler that will increase efficiency in a number of areas, including transport and logistics, health, and manufacturing. The IoT will assist in the optimization of processes through advanced data analytics, and can be the catalyst for new market segments by capitalizing on its cyber-physical characteristics, giving rise to cross-cutting applications and services.

#### The evolution of the IoT

The idea of connecting 'things' to the internet extends much further back than the use of the term 'Internet of Things'. In the early 1980s students at Carnegie Melon University fitted internet-connected

<sup>1.</sup> Bonsor K., Chandler N. How augmented reality works [Electronic resource]. – Access mode: https://computer.howstuffworks.com/augmented-reality.htm

<sup>2.</sup> Maes P. Meet the sixth sense interaction [Electronic resource]. – Access mode: https://www.ted.com/talks/pattie maes demos the sixth sense.