

## **IMPROVING COMPUTER SECURITY**

With the wide spreading of personal computers, networking and further digitalization of most aspects of modern human life, the issue of computer security has become the one of the top priority.

Computer security activities are targeted on prevention, detection and neutralization of virtual threats, as well as minimization of threats and recovery from the damage. An ordinary everyday user pays little attention to the issues of computer security, although the consequences of a successful attack may not be fatal (just a mass dispatch of spam emails from the hacked account, for example), it may also result in acquiring personal banking information by an unauthorized person and real-life robbery. At the same time, private and governmental enterprises usually relate more responsibly, as the terms in question are commercial success and national safety.

Means of computer security varies greatly, starting with obvious limitation of physical access, ending with special hardware and software combined with particular ways of network organization, resulting in highly reliable computer system, sustainable to the wide series of possible digital threats.

However, a real life shows that the impenetrable defense has yet to be designed. World news often raise to public attention events caused by successful hacking attacks, that resulted in leakages of government's top secret documents being published on well-known easily publically accessible resources.

On the other hand, widely spread technologies and approaches can effectively protect an ordinary user from everyday digital threats. Special software – antiviruses, supplied with actual virus data signatures are able to maintain security not only in file system of local device, but also keep an eye on the email client, monitor connections, application and even prevent a user from accessing the sites caught on or suspected in performing potentially dangerous activities.

A more advanced approaches used in enterprises and facilities that operate with closed networks, maintain private servers and work under strict organization. In such cases, vital data needs to be protected from both internal and external threats. Special hardware devices – firewalls serve a purpose of a filter that processes all traffic incoming from an unprotected external environment to a protected internal network, thus shielding a system from potentially overwhelming amount of data, that may cause the system become unavailable for an authorized usage. Protection from the treats originating from inside the company, is assured by distribution of access between several groups of employees on need-to-know basis. In addition to regular password updates, it significantly shortens the list of people that can access and thus abuse information meant to be kept in secret.

Online service providers, such as social networks, hostings and email servers, etc., face a difficult challenge of ensuring that their customers' data is kept safe, not only in their storage, but also during the way it is delivered to it and from it. The path of such information is often lays through public routers, where data can be easily intercepted. Although, it is almost impossible to prevent such situation on the Internet, one can

ensure that only a limited number of determined users will be able to use the data. For such purposes, the data, to be transferred over unsafe network areas, is the subject of encryption. Modern algorithms ensure that the encoding requires an incredible computation power over a lifetime long period to be hacked. However, continuous advances in increasing calculating capacities put traditional encryption techniques under threat of rapid obsolescence.

In conclusion, the importance of computer security concerns should not be underestimated under any circumstances, as they play vital role from a single individual to the human society as a whole in the modern world of computerization.

*Scientific supervisor: Murkina N.I.,  
Senior Lecturer*

UDC 004.4:004.738.5 (043.2)

**Polynkevych H.A.**  
*National Aviation University, Kyiv*

## **THE INFLUENCE OF FITNESS TRACKERS ON HEALTH**

Healthy lifestyle trends lead on youth becoming popular even in other age categories. Fitness trackers and smartwatches often can be found as synonyms to modern healthcare. These small wearable devices can track your steps per day, sleep hours and measure your heart rate. Usually, they send received data to the smartphone or show them on small built-in display. However, healthy gadgets have more advances to a user. Most of the trackers provide an alarm clock and can send notifications from your phone in case you could miss a message or call.

In 2015 Fitbit (one of the popular fitness trackers) helped Connecticut Police to arrest a man who killed his wife. Police officers analyzed data from the tracker that showed woman activity. It revealed woman was walking for some time after she was killed. Her husband told that she was shot by a home invader almost hour earlier that day. Police also used data from computers and smartphones to discover more inconsistency in man words.

This story has become widely publicized, raising a wave of questions regarding the privacy policy information and the benefits of fitness trackers.

The study by The Lancet Diabetes & Endocrinology conducted in Singapore took random 800 people, aged 21-65 with full-time job divided into 4 groups. Researchers measured their physical activity and weight, blood pressure, the body's ability to use oxygen (called cardiorespiratory fitness) and their quality of life, based on their own perception. All stimulus than test subjects had at the beginning were dropped and around 40% of people stopped wearing the bracelet. Control group was paid in cash for extra exercising and at first, it seemed to work, but when money bonuses stopped so did the improvements. By the end of research, 10% of people were wearing trackers. The only smart gear group had small improvements. Nevertheless, there was not identified evidence of any real advances in health.

The study of American Journal of Preventive Medicine among older woman did not prove that fitness trackers did not cause subjects to work out more, as well as the