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Ways and means of using eSIM technology in mobile networks for the use of IoT technologies in the security of robotic systems

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Abstract. This article discusses algorithms and tools for applying information security and eSIM* technologies in software applications with artificial intelligence. Intelligently created robots help people in different areas of life and they work for people.

eSIM - embedded sim card technology.

Keywords. intellect, eSIM, ML, artificial intelligence, IoT,Data

I. Introduction.

"Robotic systems cannot harm humans. Science fiction is already becoming a reality, and artificial intelligence (AI) is gradually expanding and gaining ground in various areas of human life. It is not yet sufficiently developed to fight humanity," he said. but it is clear that it will already help places that the human mind cannot tolerate.

The Origin of Artificial Intelligence

The idea of creating an artificial image of man has long been a concern of the human mind. In the Middle Ages, people talked about the possibility of building a mechanical human-like thinking machine, and chemists developed recipes for growing conscious, that is, artificial humans in some kind of capsule. After a while, a great scientific basis for the possibility of creating artificial intelligence emerged.1 In the 17th century, the French scientist Rene Descartes developed a mechanical theory and created a mechanism.

It was formed in the 19th century close to modern ideas about the functions of artificial intelligence. In 1830, the English mathematician Charles Babbage wrote the concept of an analytical machine that could calculate chess moves. Nearly a century later, in 1914, this concept was put into practice: Leonardo Torres de Quevedo, director of one of Spain's technical institutes, created an electromechanical device capable of playing the simplest chess games.

Using artificial innteligence in robots

Solving issues

A. *But the birthplace of the real, "artificial intelligence" concept is believed to be the 1930s, and its creator was the English mathematician Alan Turing. The abstract Turing computer proposed by him in 1936 could perform a series of algorithms correctly, a computer still used in many theoretical and practical works. Later, in 1950, Turing tested the machine and said that the computer was faster than a person's intellectual ability*

B. The term "artificial intelligence" itself originated after Turing's death. It appeared in 1956 during a conference at Dartmouth University in the United

States that brought together leading scientists working in this field, and its author is John McCarthy. John McCarthy is the founder of functional programming and the inventor of the Lisp language. Alternatively

C. In Russia in the mid-1950s with artificial intelligence was explained at a large seminar on "Automation and Thinking" at Moscow State University, led by Professor AA Lyapunov. One of the most important achievements of Russian scientists at that time was the development of the Bark algorithm based on artificial intelligence. In doing so, he simulated the activity of the brain in recognizing shapes.

D. *Optimal variant of solving problem with proper interface*

In 1965, Joseph Weisenbaum of the Massachusetts Institute of Technology created a computer program called Eliza that carried out simple dialogues. For information, Alice or the Sahiya program created in Uzbekistan is similar to her. This is the first modern chatbot. Developed by researchers at the University of Edinburgh in 1973, Freddie's robot used artificial intelligence to find and assemble models. And in 1979, another prototype of it appeared at Stanford. In the mid-1990s, a new interest in A.I. Perhaps the most famous achievement of this era can be considered the victory of the IBM Deep Blue supercomputer over the 1997 world chess champion Harry Kasparov.

However, no matter what the developers have achieved, even if the computer has always learned to solve some problems well, this does not mean that the machine is truly independent thinking, as many modern scientists according to him, artificial intelligence is considered to be a set of methods and tools for solving various complex practical problems using principles and approaches similar to human thinking about

their solution. Today, we're talking about programs that typically collect data and learn to classify it, recognize images, text, audio files, and more, and improve and perform a given task better and better each time. That is, about artificial intelligence.

I. ELECTRICAL SYSTEMS

The concept of teaching artificial intelligence in a small case, rather than suddenly creating a "smart big robot," was born in the Turing era. Machine learning (ML) is designed to identify something else that is not included in the set of examples used for computer training, but has the same features. For example, one of the key technologies for the successful application of machine learning methods is artificial neural systems.
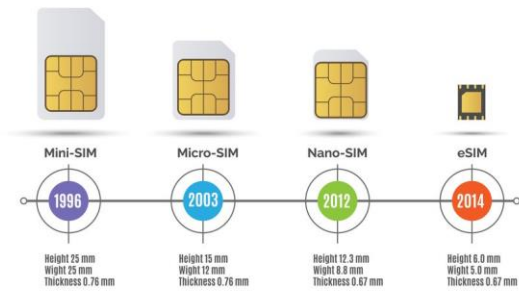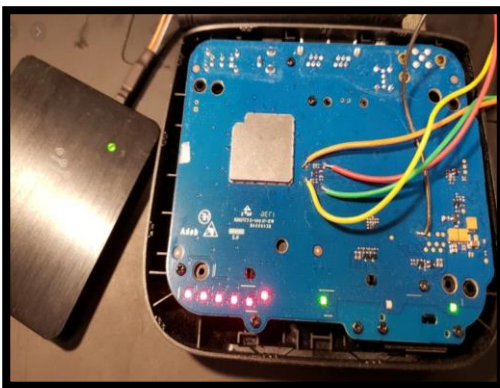
A. *Mathematic Model*

Input data. D (x) output data filter:

D2 (x) = D (x)/2 - a * D (x-1)/2

Here, D2 (x) – output
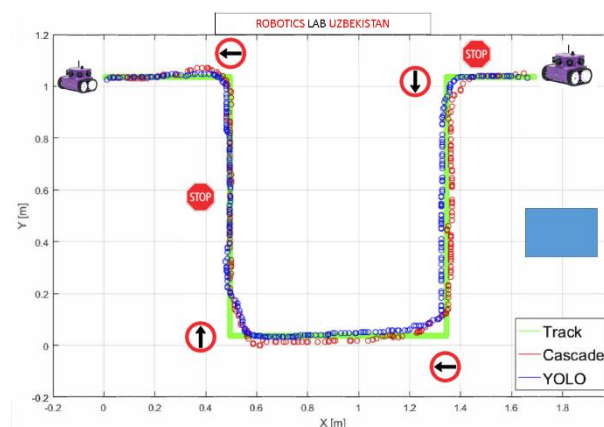
Methods and means of using eSIM technology in robotic systems

eSIM is a standard developed by GSMA, which allows you to store multiple carrier profiles on a single built-in electronic device (chip) and connect devices to a mobile connection without physical SIM cards. In this case, subscriber profiles of certain operators can be uploaded to eSIM via the network (Internet). eSIM is derived from the English word "embedded SIM", which in Uzbek means "embedded SIM". The introduction of the ESIM standard simplifies the process of connecting tablets, smartwatches, fitness bracelets, robotic systems, portable health systems and other devices to the mobile network. The first products with ESIM-support have entered the market and we can expect new applications this year. Currently, the eSIM standard works in the US and South Korea. A total of 20-25 million people use eSIM-devices.

Mini SIM card

These form factor cards were the next step in the development of the SIM module. The mini SIM card, which is smaller than previous types of cards, has not changed for many years. Dimensions - 25x15x0.76 mm. The mini-SIM card can be inserted into the body of the mobile phone, it can store up to 250 contacts, as well as information about the mobile operator and the subscriber. So far, some smartphones and most button phones use a mini SIM card.

Micro SIM card

Micro SIM cards are smaller than mini SIM cards. Such cards are also called 3FF. In this case, the number 3 indicates that this type of SIM-card belongs to the third generation modules. We have already mentioned the first and second types of SIM-cards. The micro SIM card measures 15x12x0.76 mm, and the inventors cut out the unnecessary space around the card, leaving only the contact chip that connects to the phone. Most mobile phones manufactured a year or two ago use this type of card.

Nano SIM card

The smallest and at the same time the most popular type of SIM-card available today. The 12.3 × 8.8 × 0.67 mm Nano SIM card (4FF) was approved by the European Telecommunications Institute in October 2012. Operators also offer MultiSim cards,

which combine mini, micro and nano SIM-cards for the convenience of subscribers.

B. The Algorithm of Software.
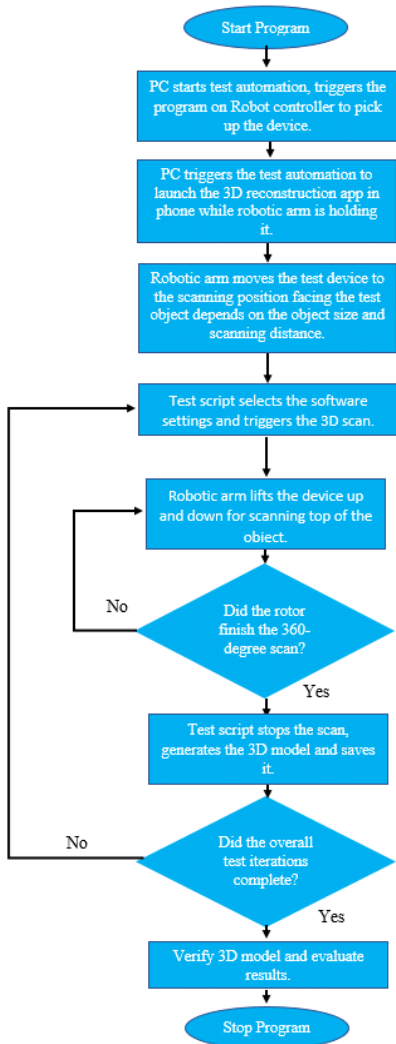
Programming tools used to create a program

Conclusions

The software is developed in Visual Studio 2019 C # WinForms environment. We used eSIM technology and raspberry in our program. We used ESP8266 WiFi Transceiver ESO32 GPIOs for IoT technologies in control systemsLibrary Collection:

- o For consideration in the treatment of ESP32 problems
- o How to implement ESP32 access point (AP) for web server
- o ESP32 Static / Fixed IP Address
- o Get and change ESP32 / ESP8266 MAC address (Arduino IDE)
- o ESP32 (OTA) programming - Arduino IDE web update
- o Working with solar panels ESP32 / ESP8266 (includes battery management)
- o Alexa (Echo) with ESP32 and ESP8266 - Voice-controlled training
- o An ESP32 file system boot device on an Arduino IDE
- o ESP32 NTP client server: Get date and time (Arduino IDE)
- o Publish ESP32 Sensor Readings on Google Sheets (ESP8266 compatible)
- o ESP32 Temperature Limit Email (Web server costs)
- o Ensuring the operation of All-in-One ESP32 weather stations

ESP32 IoT Shield PCB with instrument panel for output and sensors

REFERENCES

1. Aldrich FK (2003) Smarthomes: past, present and future. In: Harper R (ed) Inside the smart home. Springer, London, pp 17–39

2. Alley R (2013) The drone debate. Sudden bullet or slow boomerang (discussion paper nr. 14/13). Centre for Strategic Studies, Wellington

3. Akrich M (1992) The description of technical objects. In: Bijker W, Law J (eds) Shaping technology/building society: studies in sociotechnical change. MIT Press, Cambridge, pp 205–224

4. Archer J, Fotheringham N, Symmons M, Corben B (2008) The impact of lowered speed limits in urban and metropolitan areas (Report #276). Monash University Accident Research Centre (www.monash.edu.au/miri/research/reports/muarc276.pdf)

5. Arkin RC (2009) Governing lethal behavior in autonomous robots. Taylor and Francis, Boca Raton

6. Arkin RC (2010) The case of ethical autonomy in unmanned systems. J Mil Ethics 9(4):332–341

7. Arth M (2010) Democracy and the common wealth: breaking the stranglehold of the special interests. Golden Apples Media, DeLand

8. Asaro PM (2008) How just could a robot war be? In: Briggle A, Waelbers K, Brey Ph (eds) Current issues in computing and philosophy. IOS Press, Amsterdam, pp 50–64

9. Bacevich AJ, Cohen EA (2001) War over Kosovo: politics and strategy in a global age. Columbia University Press, Columbia

10. Birk A, Kenn H (2002) RoboGuard, a teleoperated mobile security robot. Control Eng Pract 10(11):1259–1264

11. Borenstein J, Pearson Y (2010) Robot caregivers: harbingers of expanded freedom for all? Ethics Inf Technol 12(3):277– 288

12.Breazeal C (2003) Toward sociable robots. Robot Auton Syst 42(3–4):167–175

13. Breazeal C, Takanski A, Kobayashi T (2008) Social robots that interact with people. In: Siciliano B, Khatib O (eds) Springer handbook of robotics. Springer, Berlin, pp 1349–1369

14. Broggi A, Zelinsky A, Parent M, Thorpe CE (2008) Intelligent vehicles. In: Siciliano B, Khatib O (eds) Springer handbook of robotics. Springer, Berlin, pp 1175–1198