Methods of connecting to the transmission medium in wireless networks

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Abstract

This thesis is aimed at forming students' knowledge in the field of modern mobile communication systems, where leading scientific concepts are presented: mobile communication and the principles of its construction, classification of mobile radio systems, mobile generations, LTE system architecture, requirements for the LTE system. functionality and main components of the system architecture. This course is aimed at forming students' understanding of the principles of organizing radio communications, professional radio communication systems, mobile communication standards and generations. In this thesis, you will acquire the skills of organizing mobile communications. Many communication technologies, duplex channel schemes, organization of handover, development of cellular communication systems. 2.5G generation mobile communication systems, 2.75G generation mobile communication systems, 3G third generation standards, 3.9G or 4G generation standards to instill knowledge and skills in the younger generation.

Keywords: LTE, communication , first generation, mobile, applications, medicine, education, IoT, Security, protocols,4G, professional.

Introduction

Mobile generation technologies play a significant role in global development. Their development contributes to the expansion of mobile Internet and communication networks, increasing speed and efficiency, as well as creating innovative opportunities in various fields. Each of the mobile generations, with its new capabilities, has brought significant changes to society and the economy.

Scientific Basis of the Topic

1G (first generation) technology was designed only for voice communication and was based on analog signal transmission. 2G (digital technology) made it possible to make

text messages and short video calls on mobile phones. 3G made it possible to transfer the Internet faster. 4G significantly increased the speed of mobile Internet, allowing video chat and high-quality video viewing.

The development of mobile internet has provided an increase in the speed and quality of internet connection on mobile devices. The expansion of mobile internet networks has also led to the development of mobile applications and services. Using the internet using mobile phones has created a unique convenience and expanded the possibilities of each user to access the internet. 4G and 5G networks have accelerated this process even further. Mobile technologies have transformed the way people and societies communicate around the world. Mobile generations have created new opportunities and have led to economic, social, and cultural transformations. With the advent of 5G, smart devices, IoT, automated systems, and other advanced technologies have entered our lives. These technologies have led to major changes in areas such as medicine, education, and transportation.

Mobile technologies have created new opportunities in the economy, increasing jobs and investment opportunities around the world. As the 5G network develops, it has enabled the creation of new products and services in the manufacturing and service sectors. At the same time, network infrastructure and investment in it contribute to economic development and increase global competitiveness.

Security issues in mobile networks have been a constant focus. With 5G technology, ensuring network security will become even more complex, as more devices will be connected to the network. Cybersecurity issues are of great importance in protecting the network. The implementation of security protocols and encryption technologies is necessary to protect user data.

The integration of artificial intelligence (AI) and mobile networks creates new opportunities for mobile devices. In 5G networks, artificial intelligence technologies allow for automatic network management and optimization. For example, AI can be used to manage the network in real time, and quickly identify and resolve network problems. Mobile technology is constantly innovating. New capabilities are being created in the 5G network, and new technologies such as virtual reality (VR) and augmented reality (AR) are being used in mobile devices. Foldable screens and new chips ensure that mobile devices work more efficiently. The development of mobile technology is making our lives more interactive and digital.

5G network will combine with other advanced technologies to create new opportunities. Edge computing technology will help to accelerate the network and ensure efficient use of resources. Through this technology, data is processed far from

the center of the network and processed in real time, which will make the industry more efficient.

Mobile technology is creating new opportunities in medicine. 5G will enable remote surgeries, telemedicine, and patient monitoring. The low latency and high speed of 5G networks will play a key role in providing remote care in medicine. Mobile networks will allow healthcare applications and medical data to be managed in real time.

Mobile technologies are transforming social relationships. They allow people to communicate from anywhere in the world. Mobile networks provide education, job opportunities, and interactive communication on social networks. 5G technology will further intensify social relationships and create new forms of work, such as remote work and online education. Mobile apps play a major role in making our lives more convenient and efficient. 5G networks will accelerate these apps and create new opportunities. Through mobile services, people will be able to solve their work and daily needs more quickly and efficiently. IoT applications also allow for remote control of smart devices.

Smart devices and their integration are developing with mobile technologies. With the help of 5G networks, homes and cities will be filled with smart technologies. Mobile devices will be able to control home appliances, transportation systems, and even city infrastructure. With this technology, our lives will become more interactive and efficient.

Conclusion

In a rapidly evolving digital-first business world, global organizations are highly influenced by next generation technologies. Future technological advancements, developments, and innovations enabled by the internet, software, and services are known as next generation technologies. These include advanced robotics, AI, IoT, RPA, quantum computing, 3-D printing, 5G wireless networks, virtual reality and augmented reality, and blockchain.Next generation technologies are paving a way for network-enabled, miniature, and fully automated machines. Although enterprise applications based on such technologies are still in the nascent stages of development, they are gradually beginning to drive innovation strategies of the business and the overall impact of these technologies is expected to multifold over the coming years.

Meticulous Research has been at the focus of tracking different use cases of next generation technologies and enabling global players to direct their innovation and product enhancement activities towards achieving stable revenue growth in this highly dynamic market environment.

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