Mobile info-communication systems and wireless 5G and 6G technologies

Tresor M.A.

Kharkiv National University of Radio Electronics, 14 Nauky Ave, Kharkiv UA-61166, Ukraine, mtumbeabitresor560@gmail.com, oleksandr.martynchuk@nure.ua,

Abstract. *This work is about the Wireless communication technologies Generation which is grown, advanced significantly in the mobiles telecommunications systems and networks*

Keywords: *NGN, 5G, 6G*

I. INTRODUCTION

The system is the first generation 1G, transmits in analog mode. To improve the quality of transmission, bandwidth and coverage of the signal system, the second generation of mobile 2G networks in digital mode has appeared, which marks a break with the previous technology. 3G opens the Internet and new multimedia services, 4G allows us to spread faster. But we have to introduce the next generation 5G, this is the fifth generation technology that will allow us to develop unimaginable digital services, it will be launched in 2020; and 6G, which is being researched in the future, this will be one of the greatest innovations in 2030, which is the actuality of the article.

II. PROBLEM SOLUTION AND RESULTS

This next stage of telecommunications will go far beyond accelerating data transmission speeds up to 10 Gigabits per second, opening new opportunities in transportation, medicine, manufacturing, many other industries and other areas of life. This technology dramatically improves the speed and consistency of 4G connections, higher spectral efficiency, better signaling and coverage over 4G, less latency in a millisecond, hundreds of thousands of wireless detection connections, running simultaneously. In addition to faster and more consistent wireless connection to users, 5G technology will contribute a great technological innovation in the vehicle industries with the driverless car; in medicine, allowing medical robots to become more common and doctors to perform more complex or difficult operations remotely; improving the efficiency of robots in manufacturing industries for wider use and with fewer errors. 3GPP (3rd Generation Partnership Project) is the body that regulates cellular standards, announced the first official standard of 5G, called the 5G NR standard (new radio), in December 2017. The 3GPP includes three groups of technical specifications (TSG) including RAN (radio access networks), SA (services and system aspects) and CT (core network and terminals). Qualcomm has always been involved in the development of 5G products and its research can be useful to 3GPP in designing the right standards. 5GPPP is considered as one of the pioneers of the standardization of the 5G protocol. These two groups are the most important groups for the development of 5G technology.

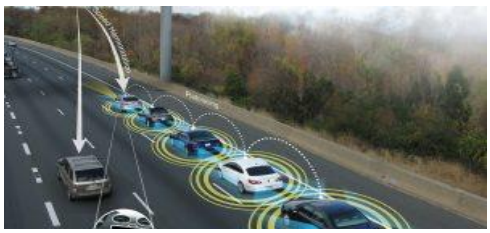

Figure 1. Driverless cars

Even if the 5G is not yet available, we can think about a future generation 6G, is proposed to integrate 5G with satellite networks for Global coverage, to resolve the needs of the user that the 5G will not be able to satisfy. In the next 10 years we will assist to a technological scandal, whose data transmission could go up to 1 Terabits per second. In 2018, the Center for Wireless Communications of the University of Oulu financed a project of the Academy of Finland "6 Genesis", research program that will be devoted to the conceptualization of 6G. In this program, new generations of mobiles will appear every 10 years, maybe around 2030 the 6G will be deployed. Another group of research from Terranova is working on a possibility of the 6G network connection that will be so fast and stable for 400 gigabits per second, transmission with a terahertz range.

III. CONCLUSIONS

In conclusion, we describing value of 5G performance in our daily life, with high data rate, reducing of latency, energy saving, cost reduction, higher system capacity, and massive device connectivity. The disadvantages of one this generation will be over by other which could be 6G. 5G will modernize the area of mobile telecommunication and wireless. This work demonstrates how it will be the types 5G applications. This initial design will allow us to experiment and look far as the result and how will be effective the 6G.

REFERENCES

[1] A. Banupriya,T Suba, K Rajalakshmi and S Rajasri, MILESTONE OF WIRELESS COMMUNICATION 1G TO 5G TECHNOLOGY March 2015.

[2] Rakesh Kumar Singh, Deepika Bisht and R.C. Prasad, Development of 5G Mobile Network Technology and Its Architecture, International Journal of Recent Trends in Engineering & Research,01 November 2017. 3. https://en.wikipedia.org/wiki/5G.