

5th Generation in Hyper-Connected World

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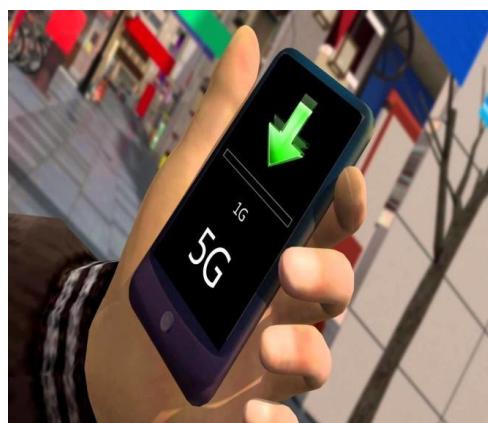
Abstract:- This paper is about the development in the research of 5th generation communication system. It is the intelligent embedded system and it is the latest trending mobile communication. 5G and embedded system are the core of many IOT applications. It is expected to be approved in many developed countries and developing countries (India). 5G utilizes 30GHz to 300GHz. 5G is not yet implemented because, the base station and transceivers installed in India doesn't have enough strength to carry high speed data. It plays a important role in the telecom industry. The development and researches are being updated and it is being expected to be used around 2020.

I. INTRODUCTION

For the past few years the most common technology used by most of the countries is 4G mobile communication. This technology was launched on 10th April 2012 by Airtel service in KOLKATA through modems using LTE technology. 3G was updated to 4G for higher speed and 4G is 10 times faster than 3G. The speed of 4G will be 5Mbps-12Mbps. 4G LTE means 'long term evolution' which is the advancement of 4G network. It is 10 times when compared to the older 3G network. The main drawback of 4G network is it paves the way for illegal and easy hacking. The capability of jamming frequencies privacy is increased. There is a great compulsion for the user to buy a 4G device particularly which will support 4G LTE network. Even if the coverage is not available for 4G, the phone switches to 3G automatically.

But the cost which we are paying would be same for 3G in the name of 4G. To overcome this downs an update is needed which came into existence as 5G mobile communication in some countries. So compared to the previous generation the speed of upcoming 5G is increased up to 10 Gbps and consumption of energy is reduced.

II. 5G HITS INDIA

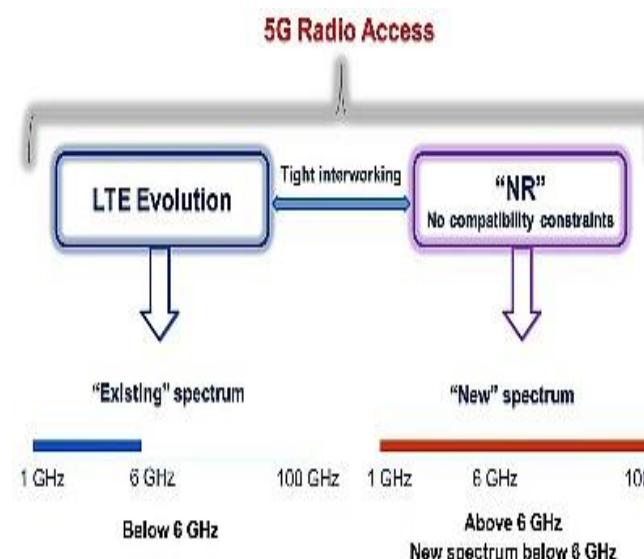


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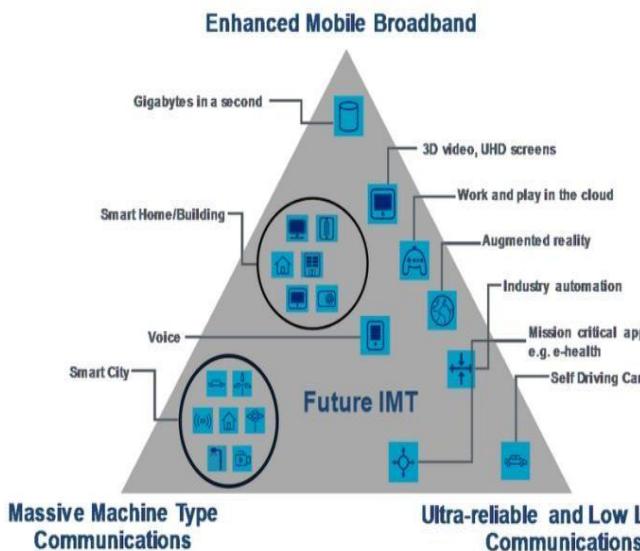
This is the latest update in communication technology over 4G. Many researches are being conducted all over the world of around 100 cities. Many researches and development are going on and as a user we are very eager to know about the advancement in new wireless technology. India will be soon connected to 5G networks through nokia around 2020. Smart devices using 5G would be 1000 times faster than 4G. More tasks are being performed and updated from the normal computer world to smart technological devices. Even though there is a update there would be some ups and downs in any technology. India has planned to deploy 5G around 2020. Airtel deployed India's first massive multiple input multiple output(MIMO) in Bangalore and Kolkata, which has been claimed to be India's first 5G capable network. the plan is to provide 10GBPS broadband speed in the urban areas. Areas of deliberation include issues of taxes, appropriate band, spectrum availability and spectrum pricing Ericsson, the world's largest telecom gear maker, is ready to offer its 5G -ready network network solutions to Indian as soon as the Compatible spectrum is available.

III. BLOCK DIAGRAM



The block diagram indicates the completion of the first 5G NR standard has set the stage for the global mobile industry to start full-scale development of 5G NR for large-scale trials and commercial deployments in 2019.

IV. APPLICATIONS

5G Usage scenarios

5G will revolutionize the mobile experience with supercharged wireless network, which can support up to 10 to 20 GBPS of data download speed. It is equivalent to a fiber optic Internet connection accessed wirelessly. Compared to conventional mobile transmission technologies, voice and high- speed data can be simultaneously transferred efficiently in 5G.

Low latency is one of the most important features of 5G technology which is significant for autonomous driving and mission critical applications. 5G networks are capable of latency less than a millisecond.

The Mobile downloads will be much faster, always on, always connected and responsive mobile Internet offer power mobile experience. 5G networks will enable secure access to cloud storage; access of enterprise applications, run powerful tasks with greater processing power virtually.

5G wireless technology will open greater opportunity for new device manufacturers and application developers. New VoIP devices and smart devices will be introduced in the market and thus more job opportunities as well.

It will be using new radio millimeter waves for transmission. It has much higher bandwidth compared to lower LTE bands and capable of huge data rate.

Analysts found that 55 percentage of mobile Internet traffic has been used for video downloads globally in 2015. This trend will increase in future and high definition video streaming will be common in future. 5G will offer a high definition virtual world on your mobile phone. High speed streaming of 4K videos only takes few seconds and it can support crystal clear audio clarity. 5G will offer a high definition virtual world on your mobile phone. High speed streaming of 4K videos only takes few seconds and it can support crystal clear audio clarity. Live

events can be streamed via wireless network with high definition. HD TV channels can be accessed on mobile devices without any interruptions. Entertainment industry will hugely benefit from 5G wireless networks.

5G can provide 120 frames per second, high resolution and higher dynamic range video streaming without interruption. Audiovisual experience will be rewritten after the implementation of latest technologies powered by 5G wireless. Augmented reality and virtual reality requires HD video with low latency. 5G network is powerful enough to power AR and VR with amazing virtual experience. Augmented reality and virtual reality requires HD video with low latency. 5G network is powerful enough to power AR and VR with amazing virtual experience.

Based gaming. High speed 5G network can offer better gaming experience with high speed Internet.

V. CONCLUSION

Thus from this paper we have presented a review about the level of development in 5G and up to where it is reached. The level of implementation is bit closer to us though some drawbacks are present it is believed that it would be rectified and will bring the new revolution in the communication of wireless technology. The special permission would be obtained for India to carry such high speed data of 5th generation. And a way to smart city is expected to be paved by this update in generation of the network in the upcoming years.

REFERENCES

- [1] Huntley, D. (2008). Britain's history in a new national museum. British Heritage, 29 (2), 12-15.
- [2] Retrieved from History Reference Center database <http://search.ebscohost.com/Huntley, 2008, p. 13>
- [3] Mather, A.S. (2009). Scotland. In World book encyclopedia. Chicago:World Book Inc.(Mather, 2009)
- [4] Levy, P. & Rather, S.H. (2005). Scotland. New York: Marshall Cavendish. (Levy& Rather, 2005)
- [5] Lonely Planet Publications. (2008). Scotland overview. Retrieved from <http://www.lonelyplanet.com/worldguide/scotland/> (Lonely Planet Publications,2008)
- [6] Pounds, N.J.G. (2008). Scotland. In Grolier multimedia encyclopedia.
- [7] Retrieved from Grolier Online <http://go.grolier.com/Pounds, 2008>
- [8] Stoddart, P., Johnson, K., Sominen, R., Maitland, W.T., Randall, P.R.,
- [9] Duhamel, T ... Grantham, E. (2009, Fall- Winter).Scottish nationalism before 1890: A cultural framework. International
- [10] Social Science Review Volume 81.3-4. Retrieved from <http://find.galegroup.com/gtx/> (Stoddart et al., 2009)