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A MANAGEMENT QUALITY SIGNAL DETECTION USING OPEN SIGNAL APPLICATION AT SEVERAL POINT LOCATIONS IN MEDAN CITY

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ABSTRACT

Technology is one thing that will continue to develop from time to time, one example of this technological development is found in telecommunications networks. Currently, we are enjoying 4G network technology. However, it turns out that the number of wireless mobile devices and services raises several challenges that cannot be solved by utilizing 4G technology, one of which is the use of spectrum. The presence of fifth-generation technology known as 5G answers challenges that cannot be solved with 4G networks. Its data capabilities are extraordinary and include all kinds of advanced features that make 5G the most powerful technology to serve large service demands.

1. INTRODUCTION

Entering a new chapter of digital data connection has a major impact on people's lives, not only in Indonesia but throughout the world. Communication developed using wireless networks starts from the third-generation (3G) and fourth-generation (2G) communication networks.4G). While people are currently enjoying the fourth (4G) technology network, simultaneously a new platform with the fifth technology has also begun to be introduced, 5G technology. will go beyond previous technology, giving birth to a term called networked society, which is a connection that can reach everything around us.(Vigilante & Reynaert, n.d.) [6].

With greater bandwidth capacity, higher data rates, and less delay, this technology can provide opportunities and advantages for operators by creating a new business model(Ericsson (2018), n.d.)[1]. Unlike previous cellular technologies, the main goal of 5G technology is to fulfill cellular communication services and provide technical support to the economic and industrial sectors. 5G technology will create an environment in which wireless connectivity transforms from something that provides added value to something that is a must-have in the industrial sector.

The application of 4G technology has developed in Indonesia, but improvements to 5G technology in Indonesia must be because of the development of the times growing so fast.(Sungkowo et al., 2022)[5]. This technology is a challenge for Indonesia itself because this technology requires Indonesia to build infrastructure and also various considerations, ready or not Indonesia must experience the development of 5G technology. (Mustakim, 2019) [4].

The telecommunications sector continues to create various innovation which presents the latest products to accelerate the exchange of information in various fields that can support the exchange of information very quickly by combining many devices in a systemized network, which can be used both in short and long distances(Estining et al., 2020)[2]. Therefore, researchers try to take samples in several locations in the city of Medan, to see the readiness and availability of 5G technology in the city of Medan using an application, namely Opensignal.

2. METHOD

Methodused in this study aremethod with a qualitative approach, where the location of the research was carried out in several locations in the cityMedan,based on recommendations from the sitehttps://www.telkomsel.com/5G[7] These points include:GraPARI Telkom Group Medan, Bukit Hijau Regency residential area (BHR Residence), Setia Budi Indah Park (Tasbih 1) and Government Service Housing on Jalan Jenderal Sudirman. Where the process of observing and collecting data uses the OpenSignal application. Observational data obtained will be processed using descriptive analysis, namely on the results of observations and measurements that have been made.

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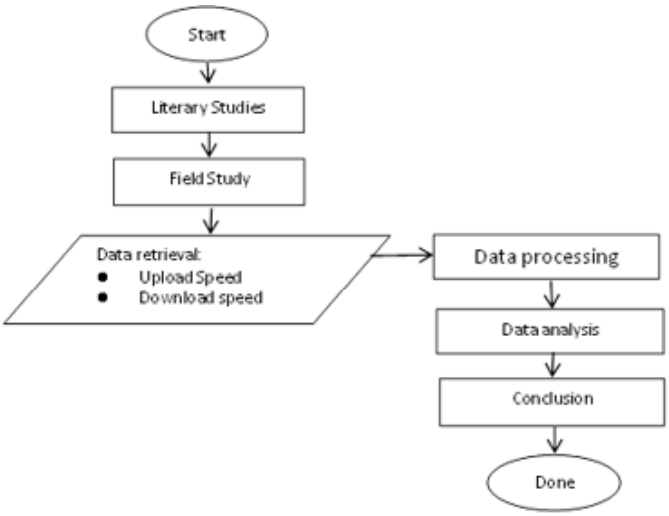

Figure 1. Flow chart Research

3. RESULT AND DISCUSSION

The process of testing and data collection is carried out to determine the availability of the 5G network in the city of Medan and determine the speed level of internet data access in both download and upload conditions.(Febian & Admaja, 2018)[3]. Testing is carried out using the OpenSignal application that is already installed on the smartphone. Measurement of willingness and speed of internet data access at several location points, among others: Setia Budi Indah Park (Tasbih 1), Government Service Housing on Jalan Jenderal Sudirman and GraPARI Telkom Group Medan / Graha Merah Putih.

Figure 2. Setia Budi Indah Park Complex 1 (Tasbih 1)

Figure 2 (a) shows a map of the location for data collection, where the test was carried out at the Tasbih 1 Complex, Figure 2 (b) shows that the Tasbih 1 complex area has a good network, this is indicated by the condition of the test site being busy with a green indicator indicating that the location has a good network. Figure 2 (c) shows the results of the speed test where the speed test on the download side is 17.1 Mbps and on the upload side is 24.1 Mbps.

Latency, or better known as delay, is the amount of time it takes for a data packet to travel from one point to another. So from observational data, it is known that the latency in the download and upload process is 19ms. In network latency is a measure used to measure the delay that occurs, so that network performance can be known when carrying out the process of transmitting information data, how long it takes to reach its destination and when it returns.

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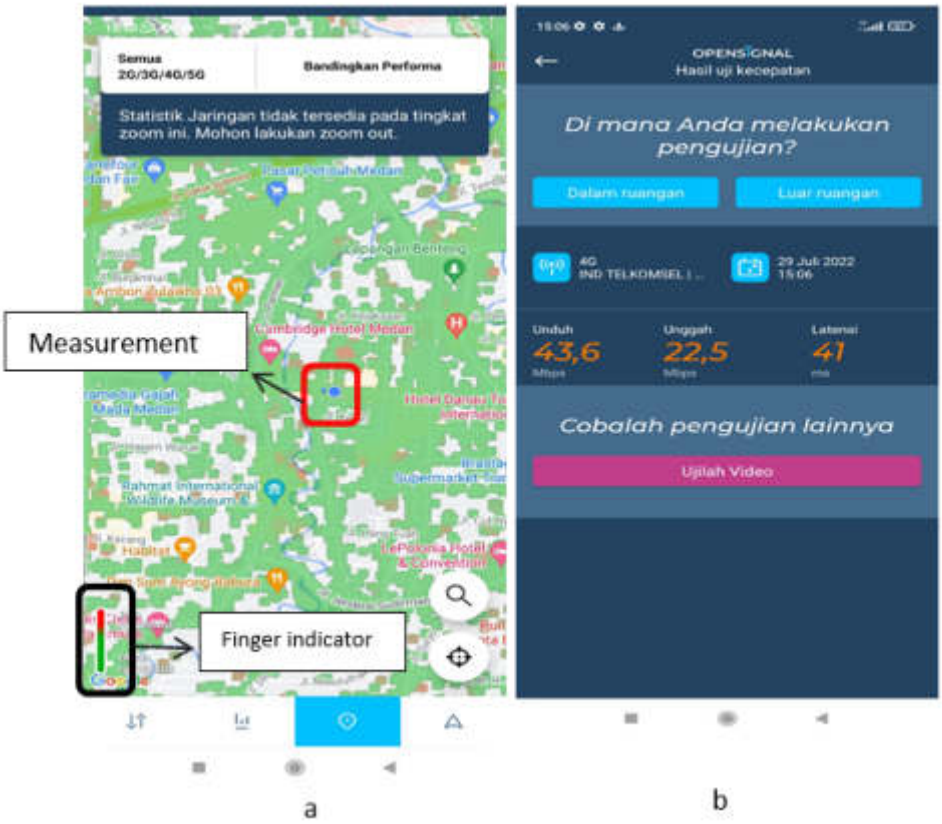

Figure 3. Government Service Housing, Jalan Jenderal Sudirman

Figure 3 (a) shows that the Government Service Housing area also has a good network, even better than the Tasbih 1 Complex, this is indicated by the condition of the test location being busy with a green indicator indicating that the location has many good networks. Figure 2 (b) shows the results of the speed test where the speed test on the download side is 43.6 Mbps and on the upload side is 22.5 Mbps. So from observational data, it is known that the latency in the download and upload processes is 41 ms, higher than the latency in Complex 1 Tasbih.

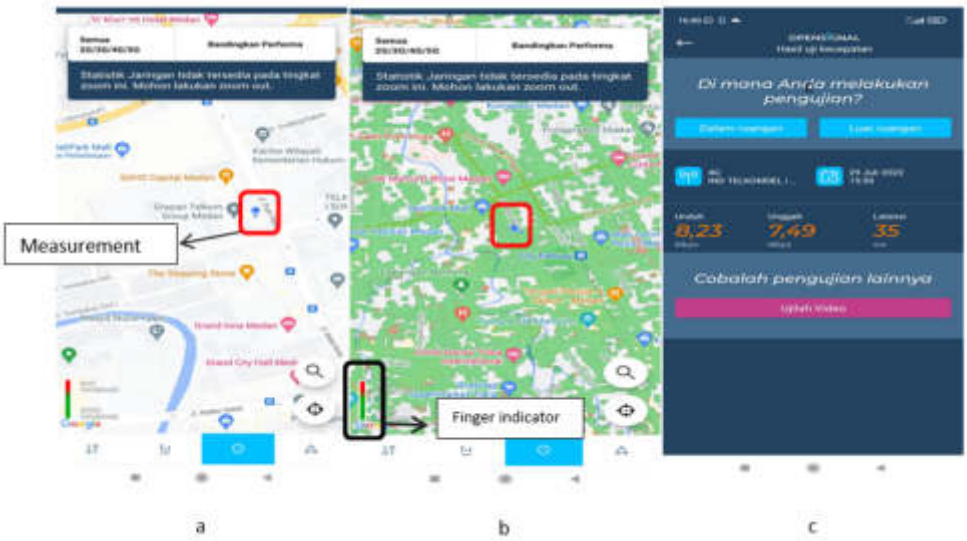

Figure 4. GraPARI Telkom Group Medan / Graha Merah Putih

Figure 4(a) showsmap of data collection locations, where the test was carried out at GraPARI Telkom Group Medan/Graha Merah Putih, figure 4 (b) shows that the area of GraPARI Komplek Telkom Medan Group/Graha Merah Putih has a good network, this is shown by the condition of the test site which is busy with indicators green indicating that the location has a good network. Figure 2 (c) shows the results of the speed test where the speed test on the download side is 8.23 Mbps and on the upload side is 7.49 Mbps. And from the observed data it is known that the latency in the download and upload process is 35ms. The Ministry of Communication and Informatics explained that there are several requirementsso that 5G . Network technology can be used, among others:

a. SIM Using Universal Subscriber Identity Mobile (USIM) Type, whereUSIM is the type of card used for 4G LTE networks. If you are already using a 4G LTE network, you can be sure you are already using USIM.The way to see this is to look at the physical SIM card for each operator and then check if there is a 4G logo or writing on the SIM card.
b. Required Smartphone Device Specifications, where not all smartphones in Indonesia support the 5G network
c. 5G Affordable Area, where currently only a few areas are covered by the 5G network such as Jakarta, Surabaya, Kalimantan.

Figure 5. 4G+ Network Detection

4. CONCLUSION

From the test results and data analysis, it can be concluded that the city of Medan has not yet fully obtained the 5G network, this can be seen from several locations that have been tested. It is known that the detected network is still a4G and 4G+ networks. The speed of internet access in the city of Medan is very good at covering 4G technology networks, this is the initial capital to increase performance to the 5G network. In a telecommunications network, it is known that if the length of time in sending data is smaller, the better it will be, in the sense that if the latency is smaller, the performance in gathering information data will be better.

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