ABSTRACT

At present the development of telecommunications technology is growing rapidly and leads to technology based on Internet Protocol, one of the technologies is Voice over Internet Protocol (VoIP). There is another way, namely through the Mobile AdHoc Network (MANET) network. MANET characteristics that have dynamic topologies can be free to move anywhere and anytime, resulting in network topologies changing randomly and quickly at unpredictable times.

In this final project, the design of an Ad Hoc network is formed by smartphones and laptops. In ad hoc networks, each node does not only function as the sender and recipient of information, but also functions as a support network such as routers. The smartphone can make calls to one of the smartphone. In the experiments made, call scenarios between certain smartphones and with certain distance observations are then monitored for quality parameters by servers that use Raspberry Pi.

The results obtained in this final project are an adhoc rasberry pi trial that functions as a voip server by making indoor and outdoor calls, OOS results are obtained, for GSM paratmeter average indoor delay voice (0.0162636 s), outdoor voice (0.0134519 s) , on average indoor and outdoor voice loss (0%), average indoor voice throughput (70116 kbps), outdoor voice (73754 kbps), average indoor voice jitter (0.05909 s), outdoor jitter voice (0.022350 s), then for H264 parameters, the average indoor video packet loss (0.0297866%), outdoor (0%), average indoor video throughput (810201 kbps), outdoor video (1079618 kbps), indoor video jitter average (0.010250 s), outdoor jitter video (0.008551 s), thus from the QoS results it can be concluded that voip can be applied to MANET using Raspberry Pi.

Keywords: Manet, VoIP, Raspberry Pi, QoS