

## ABSTRACT

Ad Hoc network is a wireless network consisting of mobile nodes that do not have the infrastructure network. In areas that do not have the infrastructure, it is possible to build the network to achieve the exchange of information. One of the information that can be passed on an ad hoc network is VoIP (Voice over Internet Protocol). To provide VoIP service based on an ad hoc network there are several factors to be considered, such as trade off delay, jitter, packet loss, throughput, and MOS.

This final project was made to design and implementation an Ad Hoc network between rooms within a building using a desktop and an analysis of the voice that was passed. The building that was chosen to build the network is E Buliding of IT Telkom Bandung. The specification of the building are multiwall and multifloor. The software which was used in the configuration were SJPhone, Vistumbler, OLSRD (*Optimized Link State Routing Daemon*), and Wireshark.

Based on measurement which had been done, obtained the maximum distance for Free Space Loss (FSL) of Ad Hoc network in indoor is 83.5 meters but in outdoor is 80 meters. There are two scenarios in this final project. The first one is measurement of VoIP between two nodes without repeater (1 hop). And the second one is measurement between nodes that passed through repeaters ( $\geq 2$  hops). From the results of measurements voice performance, the nodes which have the highest value of R Factor are between nodes in CaTV and GSM Laboratory, CaTV and CnC1 Laboratory, and the last one is nodes between GSM and CnC2 Laboratory. Where the value of R Factor for each node at 86.73 ( good MOS). The nodes that have the lowest value of R Factor that is between CATV and Elkomb Laboratory about 61.73 (MOS less good).