ABSTRACT

Telecommunication is a very important need in the era of this digital era and one of the influential figures in the development of technology. An example of technology development is the Automatic Packet Reporting System (APRS) communication system. APRS is a communication system that uses radio frequency to communicate.

In this research, the APRS communication system consists of 3 main components namely Terminal Node Controller (TNC), Radio and Raspberry Pi. Data or text messages are sent automatically and real time according to the AX.25 protocol format. Raspberry Pi is used to start and end communication and convert the package to UI frame format via the AX.25 protocol. TNC is used to modulate and demodulate the Audio Frequency Shift Keying (AFSK) messages sent and received. The radio used is the HT iCom V80 and the SA818 radio module with a frequency of 144,39 MHz.

In this research, testing was done with different distances and environmental conditions. Text messages are received in real time by the receiver with the format: <callsign transmitter> <message lenght> <time receive> <message>. The result of the test can be seen that there is a delay of 1 second to perform data processing. Based on the results of the test, the value of packet loss was 50% at the time of the third test with the first scenario.

Keywords : APRS, AX.25, TNC, Raspberry Pi, SA818, HT iCom V80