ABSTRACT

The rapid development of today's technology makes human need for more efficient technology has been needed. One of them wireless technology has developed very rapidly. Humans view the efficiency of wireless communication strongly supporting many types of activities, but at present wireless technology is still dominated by the use of radio frequency as a medium transmission of information. Looking at some of the world's health research on the effects of electromagnetic wave radiation on the human body is very dangerous or health experts call it a silent killer. Apart from that type of wireless communication that is currently more crowded to develop the visible light communication. wireless communication utilizing the visible light spectrum as an information transmission medium and free of electromagnetic wave radiation is predicted to replace the use of radio frequencies in certain places that must be free of radio frequency.

This final project, the design of visible light communication system has been done by sending digital signal with maximum frequency of 2 MHz. The design of the system block in the sender section using RGB LED, while the receiver section added optical filter optical with red, green and blue to change the tendency of light detector to respond an incoming wavelength. The combination of colors used on the sender and receiver influences the process of receiving information.

The test results, visible light communication system capable of sending digital signals with color RGB LED lights at a distance of measurement 150 cm. after a combination of the color of the sending LED and the color of the receiving optical filter, it can effectively send and receive signals only if the same color combination is used between the sender and receiver. Apart from the similarity of combinations, information can not be detected and processed further.

Key Word : Komunikasi Cahaya Tampak, LED RGB, *Optical filter,* VLC