ABSTRACT

Today's the rapid development of technology makes human needs for more efficient technology very possible. One of them is cable technology that is used with light transmission. At present wireless technology is still dominated by the use of radio frequency as a medium for sending information. Seeing some of the world's health studies on the effects of electromagnetic wave radiation on the human body is very dangerous or health experts call it the silent killer. Currently being developed wireless communication using visible light or called VLC (Visible Light Communication) that utilizes the light spectrum as a medium for sending information, free from electromagnetic wave radiation and is predicted to replace radio frequency use in certain places that must be free of radio frequency.

In this final project, the design of visible light communication systems has been carried out by sending digital signals assisted by an Arduino UNO microcontroller so that the digital data can be transmitted and received. The design of the block diagram in the sender section uses a 10 Watt LED light, while the receiver uses a light sensor, the photodetector. Tests are carried out at a distance of 5cm, 15cm, 25cm, 30cm, 90cm.

Obtained from the results of testing, the light communication system appears capable of sending digital signals and can be received by the receiver with readings of data sent by the transmitter, visible on the LCD screen issuing the character as it should be with a maximum distance of 90cm more than that cannot be read. The distance between the transmitter and receiver has an effect on the current value that occurs during data transmission, the farther the distance the smaller the current value even though it is not too significant.

Keywords : *Visible Light Communication, LED, Arduino UNO, Photodetector*