

## ABSTRACT

Visible Light Communication (VLC) is a communication system for sending information signals by using light modulation in a visible spectrum (400-700 nm). By utilizing visible light as a communication system has many advantages, among others in terms of speed and security to be applied, so it can send various types of information such as sending voice, digital data, images and videos.

Underwater Visible Light Communication (UVLC) is a development of information delivery systems using VLC which is implemented under water. In this final project, designing and implementing bi-directional voice communication transmitters and receivers using the UVLC system. The tool on this system is designed using a blue and white High Power LED to transmit information signals with the specified UVLC transmitter circuit. Whereas on the receiving side using a photodetector PIN with the UVLC receiver circuit that has been determined to receive information signals. Through this implementation, it can be seen that voice signals transmitted through visible light using the UVLC system can be realized.

The tool in this system is designed to transmit voice signals bi-directionally through visible light under water. Based on the results of testing with variations in frequency and distance variations that have been made it is found that the higher the frequency of the information signal sent and the farther the distance of the transmitter from the receiver, resulting in the lower output voltage. This affects the sound produced. This tool is designed to make it easier for divers to conduct underwater communication in both directions.

**Keywords :** *Visible Light Communication, Underwater VLC, Voice Transmission, Bi-directional UVLC, LED, Photodiode*