

ABSTRACT

Visible Light Communication (VLC) or visible light communication is a communication system using visible light as an information carrier medium. At the sending side, VLC technology uses LED lighting lamps which are currently very popular to replace incandescent lamps and *fluorescent tube* lamps. Visible light communication has many advantages, including security, speed, and convenience to be applied to users to send various types of information including digital data such as text and images. Several studies have been conducted previously regarding the application of information delivery systems using VLC such as sending voice, digital data, images and video.

The research conducted was designing a text sending system using VLC with outdoor lighting. Conducted research related to the characteristics of some LED lighting lamps on the market to be used as a sending system for visible light communication outside the room. The types of LED lighting used are street lighting, yard lights and motorbike lights. From this research, the characteristics of each type of LED lighting used in actual conditions outside the room are explained by considering the influence of sunlight and other lighting sources that do not have VLC features.

The results of this final project have been implemented by the VLC sending system with outdoor lighting. When testing during the day with a sun canal, the data sent cannot be received using outdoor lighting. Caused by the influence of sunlight which is brighter than the light. When testing at night with other lighting source channels, the data sent can still be received by outdoor lighting. But the data received from each outdoor lighting is not 100% perfect, due to the specifications of the lamp. Yard lighting can only transmit data at a distance of 40 cm, with a light intensity of 1-20 lx and with an angle of 0-60. Street lighting lights can transmit data up to 240 cm, with a light intensity of 38-1204 lx and with an angle of 0-60. Motorcycle lights can transmit data up to a distance of 80cm. But the data itself can only be received at an angle of 0 because the motor vehicle lights use a reflector, so the lamp has a light intensity of 10,489 lx at a distance of 40 cm and 4,504 lx at a distance of 80cm.

Keywords: LED lighting, Outdoor VLC, environmental disturbances