

ABSTRACT

Visible Light Communication (VLC) is a wireless communications technology that uses visible light to modulate information. The use of LEDs that began to be used as the lighting of the room opens opportunities to develop Visible Light Communication. Activities in the room, especially in the industrial sheds much related to the determination of the location or the location of an item, thus requiring navigation technology.

The focus of this final project is to design transceiver on the lighting for the navigation system in the warehouse based-on Visible Light Communication. Lighting lamps that transmit light contains coordinates information of the lamp to the receiver for mobile robot navigation. Communication between the transmitter of LED lamp and receiver in the mobile robot called the downlink communication. Then, simultaneously the uplink communication which using the transmitter in the mobile robot and receiver in LED lamp that sends mobile robot position using infrared.

The realization of this system can communicate at 2.4 meters in the scenario test room. The maximum communication of transmitter to send coordinate navigation in downlink communications is up to 4,07 meters. While receivers in uplink communications can receive information signal up to 7,72 meters with an receive angle of 45,22°.

Keywords : *Visible Light Communication, Warehouse Navigation, Bi-directional, Lighting Room, Mobile Robot.*