

ABSTRACT

Based on the population growth in urban areas causes population explosion. This causes agricultural land and green land to become increasingly narrow. These lands were also converted into residential buildings to meet human needs for shelter. Therefore, it is very important to create a system that can optimize the available land by utilizing a smart indoor farming system that makes it easier to cultivate plants and is able to make efficient use of water discharge and time efficiency.

In this final project, a smart indoor farming system will be designed y utilizing Visible Light Communication technology and IP gateways for monitoring hydroponic plants Using a microcontroller in the receiver system and requires a LDR module sensor as a data receiver from the LED lights. The output issued is a ip address to view sensor data using a Local Area Network (LAN), LCD to display sensor data results, and firebase which is connected to the website to monitor hydroponic plants.

From the test results, it is known that the receiver system circuit is capable of receiving data sent by the transmitter circuit with a distance of 5 cm to 30 cm with an angle of 15° to 45°. Therefore, it can be concluded that the Visible Light Communication technology dan Gateway IP has been successfully implemented on Receiver system for monitoring the Smart Indoor Farming system. In addition, the water pump can be activated through a webservice and website that is connected to firebase.

Keywords: *Smart Indoor Farming, Receiver, Visible Light Communication*