ABSTRACT

Type of robot that has been developed at this time is a robo-mobile. Robo-mobile that capable of following a black line trajectory object is one of them. In this final project the author makes robo-mobile that can follow a special line of red, orange and green automatically. Robo-mobile designed by the authors is enabled through the instruction of the Android Operating System.

Color sensors on a robo-mobile in the form of LED and phototransistor provide color information detected to the microcontroller, and then control the DC motor. If the sensor detects red, then the robo-mobile will stop, if the robo-mobile detects the orange color, then robo-mobile will reduce the speed. The Last, if it detects the green color, the robo-mobile will accelerate with optimum speed. Integration between hardware and software produce a robo-mobile, and capable to perform serial communication with the Android mobile phone using bluetooth. Users can give instructions to the robo-mobile to do the movement manually or automatically through a Graphical User Interface (GUI) on the Android apps that have been created.

From the test results obtained by the system that the failure rate of communication between Android mobile phones with a robo-mobile using bluetooth at a distance of ± 1 meter and ± 3 meter, that is equal to 0%. Automatic function of the robo-mobile works fine, Shown from the changes in the value of the output voltage of the motor driver when confronted with objects of different colors have the accuracy rate of 100%.

Keywords*: Android Operating System (Android OS), serial communication, Graphical User Interface (GUI)*