ABSTRACT

Educational robots are robots that are made as a first step for those who want to pursue the world of robotics, educational robots in circulation generally only have one function and the sensors used cannot be used for others. It is also found that robots that are generally sold have a selling price that can be considered expensive, therefore the main problem is a cheap but multifunctional educational robot.

Multifunctional robots allow those who want to learn to explore the various uses that can be applied to sensors, such as camera sensors that can be used to detect line following trajectories, as FPV cameras for control of moving robots, and classify colors. All of this can be done with one sensor whose data is processed on a PC using the OpenCV module in Python programming.

Data processing performed on the PC occurs very quickly compared to the programmed microcontroller, a response time of 10-50ms is obtained for the PC for detection and calculation of data from line following trajectories and execution of movements on the robot as well as color classification. Manual control through the PC also allows the educational robot to be like an RC Car that has an FPV camera.

Keywords: OpenCV, FPV, Color Classification