ABSTRACT

Some automated robot that is quite popular nowadays is a mobile robot. Some intelligence built into the robot to be able to help human tasks and jobs. One of the world's development in the industry is a line follower robot. Robots of this type can be used to manage logistics in industrial warehouses and distribution of goods.

Line follower robot itself usually use light proximity sensor consists of a photodiode components. However, for detecting a broader line trajectory better if you use the camera. For that, use a webcam as a camera sensor because the price is affordable and easy to connect to a computer (a computer will be used to process the image data). On the computer the data processed using MATLAB software which is then connected to the microcontroller ATMega32. Microcontroller is used to control a DC motor as a wheel robot.

At every branching path the robot placed a landmark as robot positioning. The Landmark indicates the direction the robot to reach the desired position. Color filter method is used to detect the presence of the line and landmarks. While to recognize landmarks, PCA method was used.

In the end, the camera can acquire image data and then processed by a computer. Then, the computer provide command execution on both wheels so that the robot can follow a line right in the middle of the robot body. Robots have proven accuracy rate of 0.1333 % out of line when the robots follow the line. While following the line, the body of the robot has an error rate of 0.2464 %. Robot can recognize landmark with accuracy rate approximately 95 %.

***Keywords**: linefollowerrobot, cameras, sensors, landmark.*