

Abstract

Image processing focuses on attempting to transform an image or image into another image using a particular technique. In this research, the development of image processing system to detect the color with blobs detection. The use of this image processing system can be implemented in a variety of systems that suit its application, such as traffic monitoring, navigation systems of a vehicle, and so forth.

In this final project using image processing system implemented in mobile robot to detect, color recognition and tracking the color. A mobile robot is created in order to follow the movement of a human object based on color using a webcam. Mobile robot created to make the image processing of the color of objects captured by the webcam, so it can recognize the color of the object that followed. Image processing will be processed inside Beaglebone Black and Arduino Nano as the control center that will drive the motor on the mobile robot.

The method used is Blob detection to detect the color level based on HSV value. A blob is a collection of pixels that have neighboring relationships. The system on Blob detection will know the pattern of each color seen from the x-axis of the x and y, of the three colors of the Red, Yellow, and Blue colors will be patterned so that the total pattern to be detected is six types of patterns. The Pattern will be assigned Centroid (midpoint) based on the x axis. and the y-axis is used to determine the difference of each color, so that if the pattern in the sloping position the pattern will remain legible system. then the value of the centroid on the pattern will be sent serial to arduino as a reference of mobile robot movement.

Keywords : *image processing, beaglebone black, arduino nano, HSV, Blob detection, Centroid.*