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Android-based pick and place robotic arm with object recognition.

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Abstract

Object recognition is a process for identifying a specific object in a digital image or video. Object recognition algorithms rely on matching, learning, or pattern recognition algorithms using appearance-based or feature-based techniques which is mainly done by image processing. It is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. In this paper we have explored an automatic system that is capable of tracking moving objects and can pick moving objects based on its color and shape and put it in a specific position with a robot arm. The object recognition is programmed by java language on Android OS. Blob detection methodology is used for detecting objects and shape was detected by contour approximation method. The shape of object can be of various types and the experimented color was green, blue and yellow and the shape was circular, hexagonal and square. The system has 4 degree of freedom and is controlled by an Arduino connected to the Android device. This work will create a great impact on industrial automation.

Keywords: Image Processing, Robotic Arm, Android, Automation, Arduino.