Color Detection

Using computer vision with python.

By

Saikumar

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Abstract

With the advancement of modern technologies areas related to robotics and computer vision, real time image processing has become a major technology under consideration. So we tried a novel approach for capturing images from the computer web cam in real time environment and process them as we are required. By using open source computer vision library (OpenCV for short), an image can be captured on the basis of its hue, saturation and color value (HSV) range.Basic library functions are used for loading an image, creating windows to hold image at run time, and to differentiate images based on their color values. We have also applied function to threshold the output image in order to decrease the distortion in it. While processing, the images are converted from their basic scheme Red, Green, and Blue (RGB) to a more suitable one that is HSV.

Introduction

The purpose of computer vision aims to simulate the manner of human eyes directly by using computer. Computer vision is such kind of research field which tries to percept and represent the 3D information for world objects.

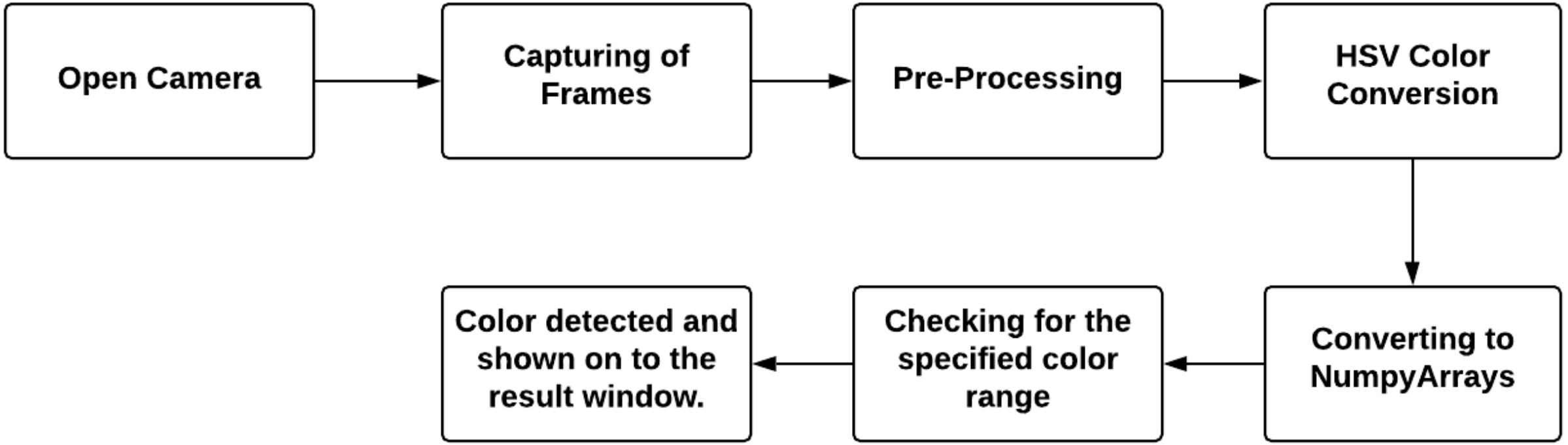
Its essence is to reconstruct the visual aspects of 3D object by analyzing the 2D information extracted accordingly.Real life 3D objects are represented by 2D images.

Introduction to OpenCV

OpenCV is an open source computer vision library.The library is written in C and C++and runs under Linux, Windows and provides interfaces forPython, Ruby, Matlab and other languages.

OpenCV library contains abundant advanced math functions,image processing functions, and computer vision functions that span many areas in vision.

Context Diagram



Advantages

- Better accuracy in segmentation under various illuminations.
- Less time consuming process.
- It is less sensitive to background noise.

Applications

- People counting.
- Vehicle detection.
- Manufacturing industry applications.
- Tracking objects.

Software Requirements

- Python.
- OpenCV.
- Numpy.

Result

Thus the color based object is detected by this proposed system and in future the object can be tracked by the same method.

Thank You.