Fruit/Vegetable Recognition

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Introduction

Recognition is one of the main areas in computer-vision, it yields high level understanding by computers, one of the most important areas in recognition is object recognition which is the process of finding a specific object in an image or video sequence. We present an application that employs a part of object recognition, this application is able to distinguish between different kinds of fruits/vegetables. This application is based on color and size through comparing image histograms to find the best matching image, and as a result the application shows an accuracy of 75% of identifying fruits.

Proposed project

A project tat aims for identify and recognizing a fruit or a vegetable from different kinds of fruits /vegetables based on color and size through comparing the histograms of the intended fruit to be recognized with the histograms of learnt and stored image.

Figure 1:
Fruit/Vegetable Recognition Idea

Project Objectives:

1. To enable the computer to distinguish between different kinds of fruits/ vegetables.
2. To facilitate learning process of fruit and vegetables for small children.

Results:

1.Find which fruit/vegetable stored image that best matches unknown image, and display it .

2. This application shows an accuracy of 75% of identifying fruits.

Project Block Diagram:

Figure 2 is the general block diagram for the project, as illustrated below, the program takes different fruit/vegetable images for the learning purpose, calculate their histograms, then, capture an image for Unknown fruit/vegetable, calculate its histogram, compare between histogram of unknown fruit image and histograms of learnt fruit images using Chi-square Method to find best matching image.

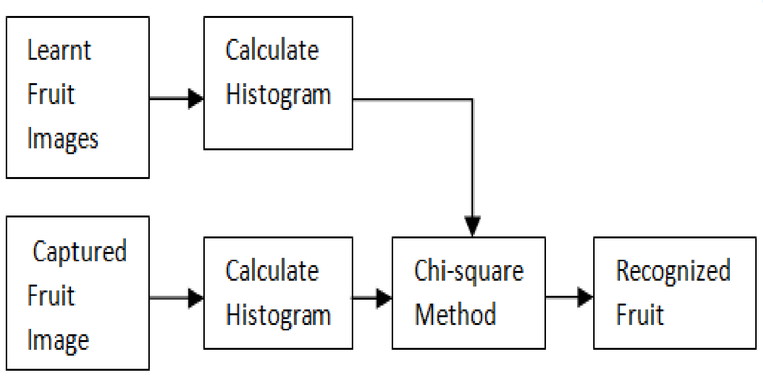

Figure 2 : System General Block Diagram.

Project Design and Implementation:

This project was implemented using C++ in conjunction with Open CV , it takes the images of fruits/ vegetables as input for the learning purpose , obtain histogram for each image , then compare between the histogram of intended image to be recognized with each of the histograms of learnt images , display the matching image as output.

The general flowchart diagram that controls the flow of processes in the application is shown in Figure 3.

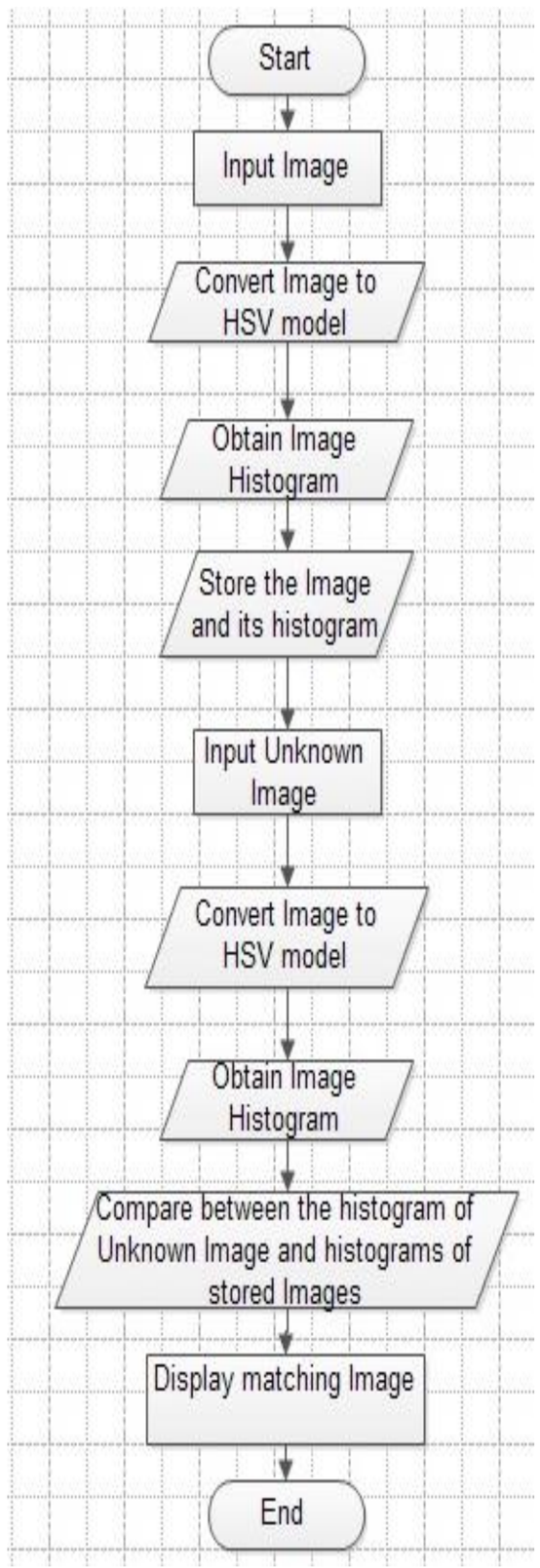

Figure 3: Flow Chart