

Virtual Sketch using Open CV

Pranavi Srungavarapu, Eswar Pavan Maganti, Srilekha Sakhamuri, Sai Pavan Kalyan Veerada, Anuradha Chinta

Abstract: Virtual Sketch is in where we can draw by just capturing the motion of a colored marker with a camera. One colored object at the tip of the finger is mainly used as the marker. We are here now, using the techniques of computer vision in open cv to build this project. The required language for this project is python due to its more exhaustive libraries and easy to make use of the syntax and but understanding the basics as well as it can be implemented in any open cv supported languages The colour tracking and detection processes are used to achieve the goal of this project. The color marker here used is detected and mask is produced. The next steps of morphological operations on the mask produced those are Erosion and Dilation. Erosion makes the impurities present in the mask to get reduced and Dilation further regains the eroded main mask.

Key Words: Open CV, Python, Erosion, Dilation, Color Tracking, Color Detection, Mask.

I. INTRODUCTION

Sketching On Air is possible through our trending technology namely open cv ,python. Open cv is mainly known as an open source computer vision and machine learning software . The library has more than 2400 best algorithms, which includes comprehensive set of classic and state-of-the-art computer vision and machine learning algorithms. Most of these algorithms are used to detect and recognize faces, identify objects, classify human activities in videos track camera movements, track moving objects, extract 3D one's.

Python is one of the high-level-general-purpose programming language. Object-oriented approach mainly to help programmers to write clear, logical code for small as well as large – scale projects. In this project we are performing the morphological operations are a set of

operations that process images based on shapes. These apply a structuring element to an input image and generate an output image. The very basic morphological operations are two: Erosion and Dilation.

Erosion:-

- Eliminates away the boundaries of foreground object.
- Mainly used to diminish the features of an image.

Dilation:-

- Mostly increases the object area.
- Used to make the features get elevated.

II. MOTIVATION

Drawing or Sketching using hand is everyone's wish. Some or the other time we imagine writing in air using our hand. So, here came the project from this concept where we create a canvas and pick the colours required using our hand and draw the required design or write anything you wish.

III. PROBLEM STATEMENT

Developing an interface between human hand and the system using open cv techniques and python language to pick the colour and draw using hand on the developed drawing area.

IV. OBJECTIVE

- To create a virtual canvas to sketch.
- To detect the human finger as a colour marker.
- To do the morphological operations.
- To create an interface between user and the system.

V. SCOPE

- To ensure that, the interface is very simple and easily understandable by the user.
- The user should be able to draw what he wishes to draw without any interruptions.
- In future, this is useful for making kids to learn drawing in schools in an interactive way.

VI. ARCHITECTURE

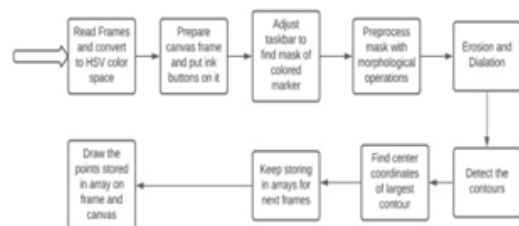


Fig.1. Architecture Diagram

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Here the above fig.1 shows the internal flow of the project and its working in detail.

VII. METHODOLOGY

- The frames are read and convert the captured frames to HSV color space (Easy for color detection).
- Make the canvas frame and put the respective link buttons on it.
- Now, Set the track bar values for finding the mask of the colored marker.
- Preprocessing of the mask is done with morphological operations (Eroding & Dilation).
- The next step goes on like this by, Detecting the contours, finding the center coordinates of large contour and keep storing them in the array for next frames (Arrays for drawing points on the canvass).
- Finally, draw the points stored in an array on the frames and canvas.

VIII. RESULT

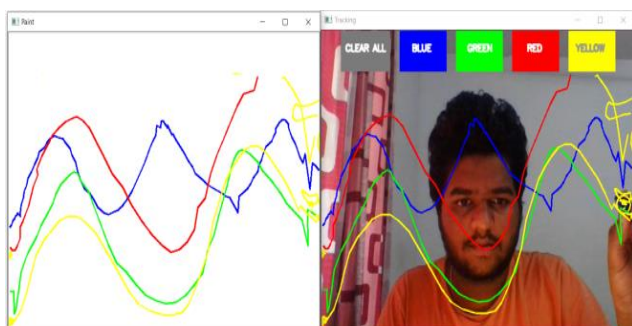


Fig .2. Result Screen

In the above fig.2 we see the implementation of the project where a colored marker is used by holding it in the hand and four colors are shown respectively as blue, green, red and yellow as well as we have a clear button which is used to erase the drawing done .

IX. CONCLUSION

This project makes the user to have an interactive environment where the user can draw whatever he wants by choosing his required colors from the displayed ones. So, we conclude that Virtual Sketch is developed using the library NumPy and in Open CV where we have many libraries and algorithm in built which makes the interfaces more active while using .

We used python as, it have many inbuilt libraries and many modules which represent the imagination virtually when used along with OpenCV as well as its morphological processes.

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