9.Use of open source computer vision programming tool opencv

AIM: To use of open-source computer vision programming tool opencv

Procedure:

image and video processing functions, such as image filtering, edge detection, and object detection. These functions can be used to perform various image and video processing tasks, such as image enhancement, motion detection, and face recognition.

Robotics: OpenCV can be used to develop computer vision algorithms for robots, such as object detection, tracking, and recognition. These algorithms can be used to help robots navigate in a complex environment, identify objects, and interact with the world around them.

Augmented reality: OpenCV can be used to create augmented reality applications that superimpose digital content over real-world images or videos. This can be used for a variety of applications, such as games, advertising, and education.

Machine learning: OpenCV provides support for machine learning algorithms, such as support vector machines (SVMs), neural networks, and decision trees. These algorithms can be used to develop computer vision applications that can learn and improve over time.

Medical imaging: OpenCV can be used to develop medical imaging applications, such as X-ray image analysis and medical diagnosis. It provides developers with a range of image processing functions that can be used to enhance medical images and extract useful information from them.

Overall, OpenCV is a versatile and powerful computer vision programming tool that can be used for a wide range of applications. Its open-source nature makes it accessible to developers all over the world, and its extensive documentation and community support make it easy to learn and use.

Result:

Successfully studied the use of open-source computer vision programming tool opencv

10:Image processing using Opencv

AIM:

To process image using OpenCV

Algorithm:

Step1: Import the libraries which we required

Step2: Import CV2 and Import numpy

Step3:from google collab import the libraries

Step4:Upload the image to google collab which we need to be processed

Step5:Read the Image

Step6:By Cv2 we use color that gray and process the image in gray,blur,edges,kernel,dilated

Step7:Image is processed using OpenCv

Step8:stop

Program code:

```
import cv2

import numpy as np

from google.colab.patches import cv2_imshow

img = cv2.imread('jawlines.jpg')

gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)

blur = cv2.GaussianBlur(gray, (5, 5), 0)

edges = cv2.Canny(blur, 50, 150)

kernel = np.ones((5,5),np.uint8)

dilated = cv2.dilate(edges, kernel, iterations = 1)

cv2_imshow(img)

cv2_imshow(gray)

cv2_imshow(blur)

cv2_imshow(edges)

cv2_imshow(dilated)

cv2.waitKey(0)

cv2.destroyAllWindows()
```

Result:

Image processing using Opencv executed successfully