MAJOR PROJECT - 2

Creating a live camera simulation using NumPy and OpenCV

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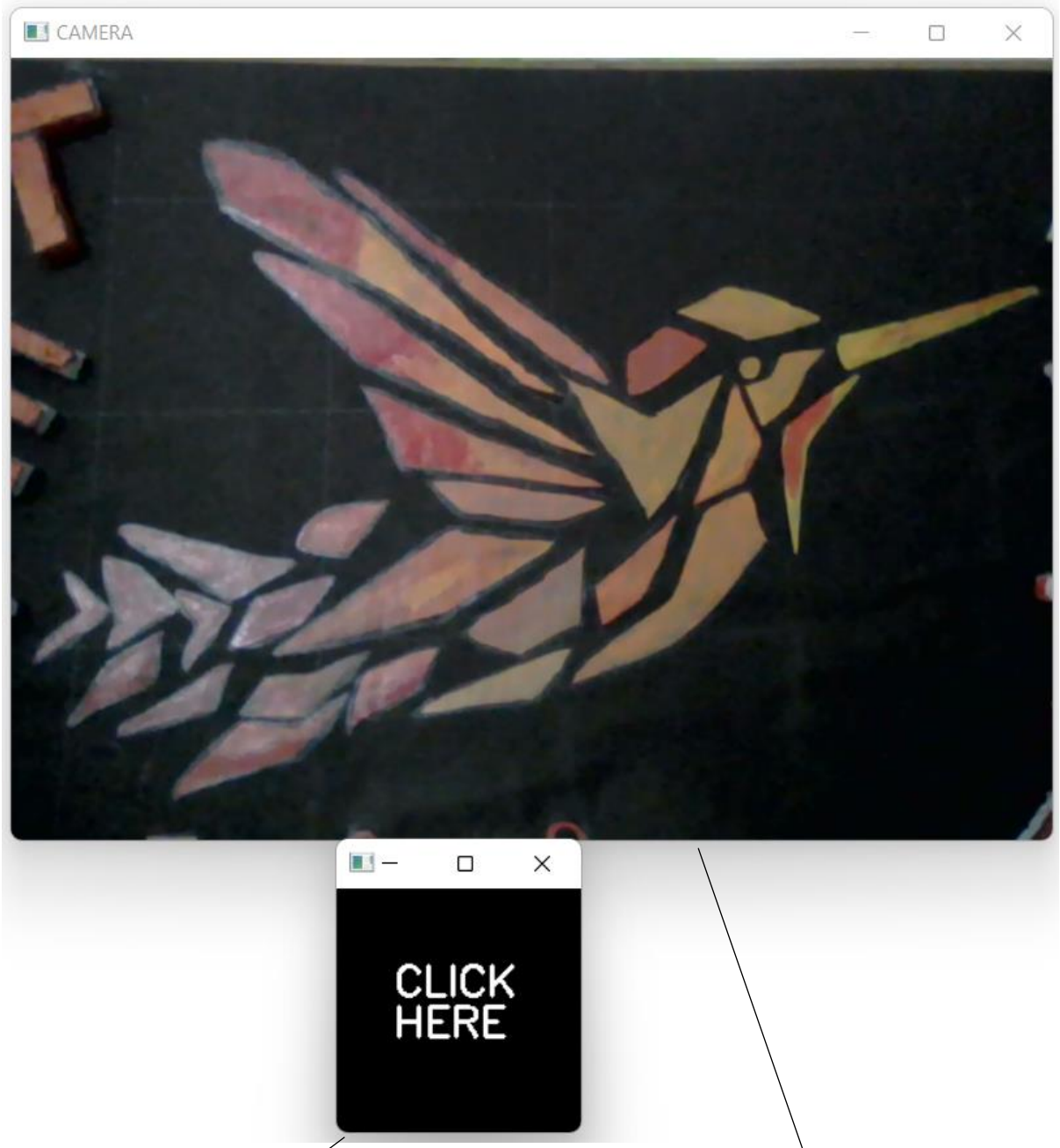
LIVE CAMERA SIMULATION

With the help of *NumPy* and *OpenCV* in Python a simulation of our camera application is created.

PROGRAM CODE

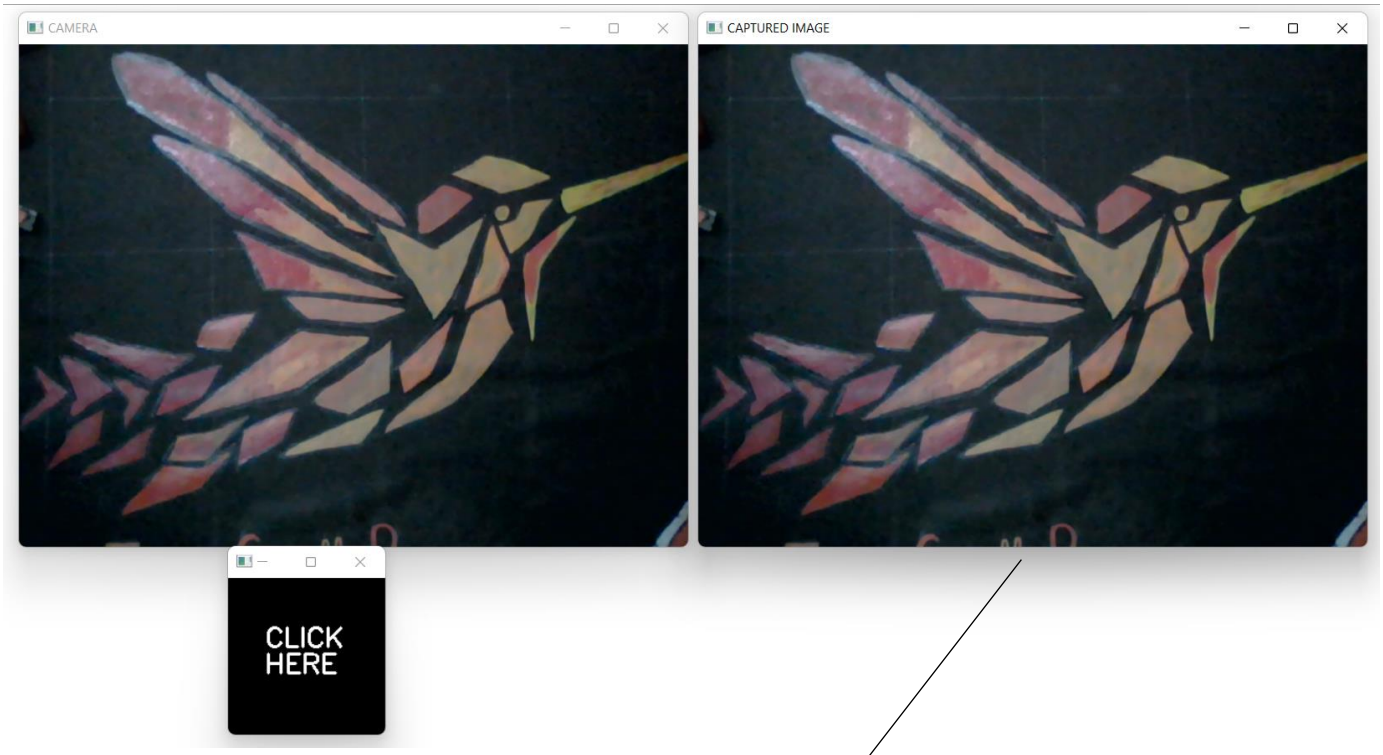
```
#PYTHON CAMERA MODEL
import cv2
import numpy as np
i=0
def capturing(event,x,y,flags,param):
    global i
    if event==cv2.EVENT_LBUTTONUP:
        name="photo_"+str(i)+".png"
        wname="CAPTURED IMAGE"
        cv2.imwrite(name,frame)
        h=cv2.imread(name)
        cv2.namedWindow(wname)
        cv2.imshow(wname,h)
        cv2.moveWindow(wname,700,50)
        i+=1
        cv2.waitKey(1000)
        cv2.destroyWindow(wname)


cap=cv2.VideoCapture(0)
while True:
    ret,frame = cap.read()
    win="CAPTURE"
    cv2.imshow("CAMERA",frame)
    cv2.moveWindow("CAMERA",50,50)
    cv2.namedWindow(win)
    img=np.zeros((150,150,3))
    cv2.putText(img,"CLICK",(35,65),cv2.FONT_HERSHEY_SIMPLEX,0.85,(255,
255,255),2,cv2.LINE_AA)
    cv2.putText(img,"HERE",(35,90),cv2.FONT_HERSHEY_SIMPLEX,0.85,(255,2
55,255),2,cv2.LINE_AA)
    cv2.imshow(win,img)
    cv2.moveWindow(win,250,560)
    cv2.setMouseCallback(win,capturing)
    if cv2.waitKey(1)==13:
        break
cap.release()
cv2.destroyAllWindows()
```

OUTPUT



When the user left click on the small box shown here, the image is captured and stored in the user default folder.

This is the window (CAMERA) which acts as the camera and captures the images when the window below it is clicked.



This window (CAPTURED IMAGE) displays the image which was captured or stored.

HOW IT WORKS

- When the given program code is run CAMERA window and CLICK HERE window is displayed.
- The CAMERA window accesses the webcam of the system.
- When the user left clicks the CLICK HERE window the image is captured from the camera.
- That captured image is stored in the location where this Python program code is saved and is also displayed in the CAPTURED IMAGE window for a few seconds.
- Then the CAPTURED IMAGE window will close and user can take another picture.
- User can take multiple images with this program.
- The program will terminate only when user presses the ENTER key

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