LDRP Institute of
Technology and Research

Information Technology

Subject: Artificial Intelligence(CT601-N)

AI Based Mini Project on

Air Painting In

Python Programming

Guided By:

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PATEL VASHISHTH(19BEIT30067)

LDRP Institute of
Technology and Research

○

Certificate

Mr. PARMAR HAPPY B. of IT Enrollment No.19BEIT30019 has satisfactorily completed his mini project on "Air Panting" based on Artificial Intelligence using Python language.

Duration : Dec 2021 to March 2022 Date:

Signature of faculty

LDRP Institute of
Technology and Research

○Certificate

Mr. PATEL JAYDIP A. of IT Enrollment No.19BEIT30029 has satisfactorily completed his mini project on "Air Painting" based on Artificial Intelligence using Python language.

Duration : Dec 2021 to March 2022 Date:

Signature of faculty

LDRP Institute of
Technology and Research

○Certificate

Mr. BARI MANOJ A. of IT Enrollment No.19BEIT30040 has satisfactorily completed his mini project on "Air Painting" based on Artificial Intelligence using Python language.

Duration : Dec 2021 to March 2022 Date:

Signature of faculty

LDRP Institute of
Technology and Research

○Certificate

Mr. PATEL VASHISHTH S. of IT Enrollment No.19BEIT30067 has satisfactorily completed his mini project on "Air Painting" based on Artificial Intelligence using Python language.

Duration : Dec 2021 to March 2022 Date:

Signature of faculty

AIR PAINTING

❖ Abstract Of Air Painting

1. we will do hands-on implementation on how to create a virtual painting app without touching the keyboard, and just by drawing on-air that will be displayed on the screen.
2. In modern technologies video tracking and processing the feed has been very essential. This processed data can be used for many research purposes or to express a particular output on a particular system.
3. There are various methods for processing and manipulation of data to get the required output.
4. This paint application is created using OpenCV module and python programming language which is an apex machine learning tool to create an application like this. Given the real time webcam data, this paint-like python application uses OpenCV library to track an objectof-interest (a bottle cap in this case) and allows the user to draw by moving the object, which makes it both awesome and challenging to draw simple things.

❖ Introduction Of Project

- This is build an OpenCV application that can track an Air paint colour , using which a user can draw on the screen by moving the hand around draw virtual paint the color.
- Given the real time, this paint-like python application uses OpenCV library to track an object-of-interest and allows the user to draw by moving the object, which makes it both awesome and challenging to draw simple things.
- This application is written in Python 3.10 and it uses the very famous OpenCV library. OpenCV is a computer vision and machine learning software library that includes many common image analysis algorithms that will help us build custom, intelligent computer vision applications.

❖ Tools and Technology:

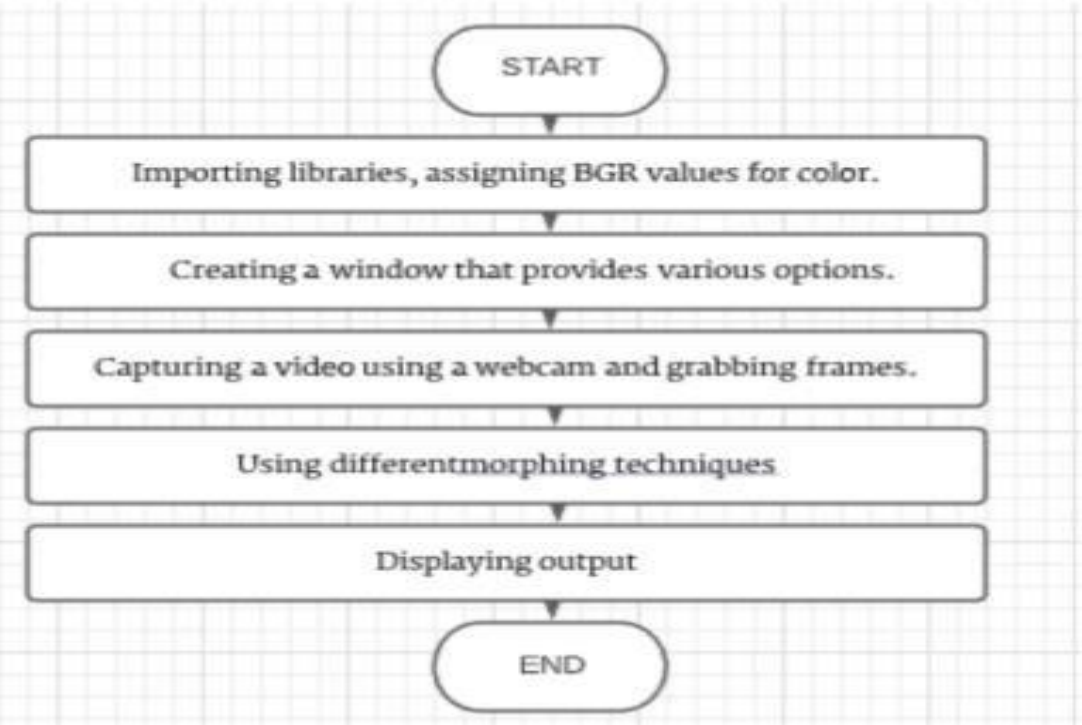
Tools : VS Code

Technology : Python

: library : (numpy,openCV,)

: XML (data of front-face)

Air painting Algorithm:



- **Step 1 – Import necessary packages and pre-define some settings:**

```
 # Import necessary packages.
import cv2
import numpy as np
```

❖Step 2 – Read frames from a webcam:

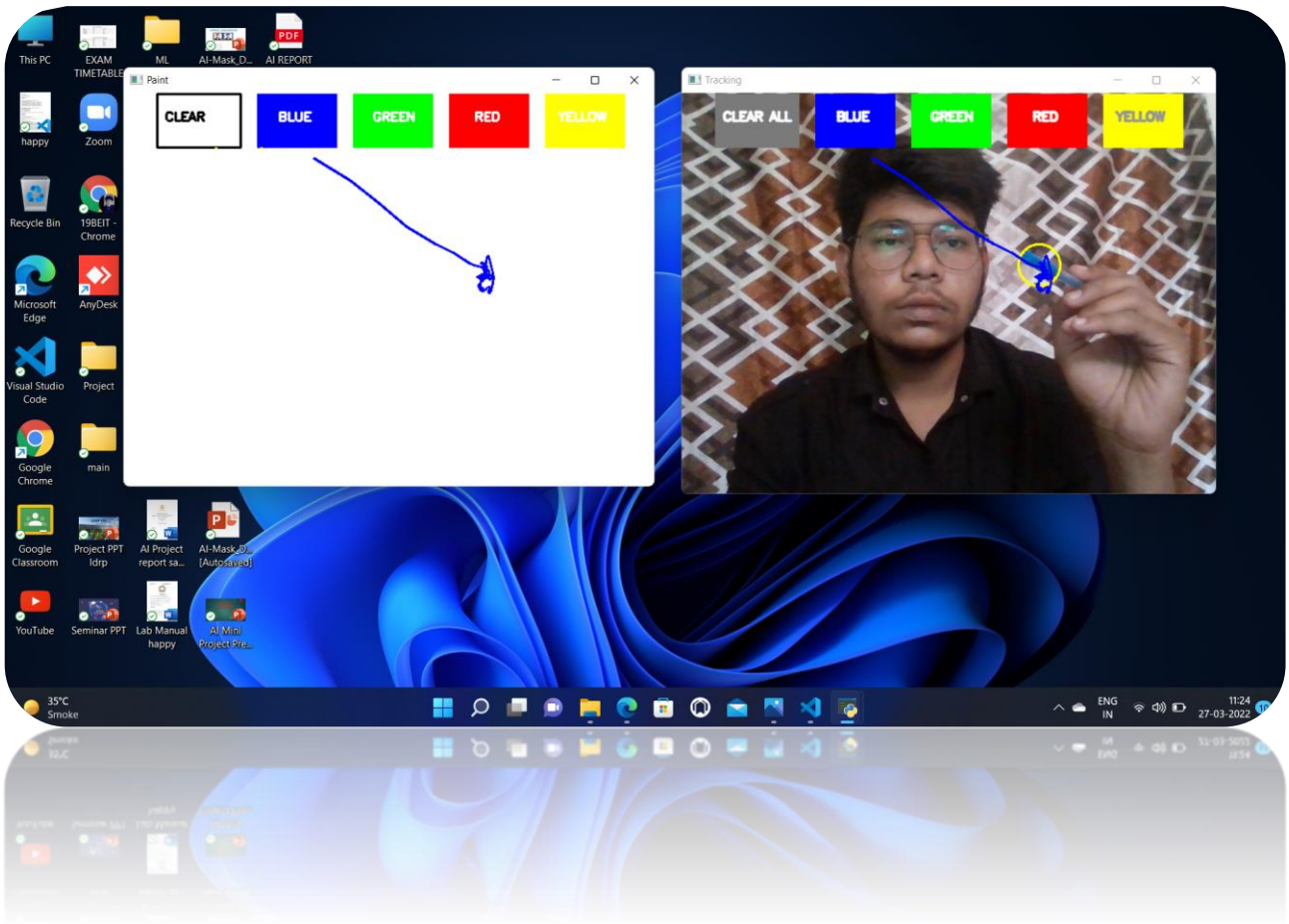
```
 # Create videocapture object
cap = cv2.VideoCapture(0)

while True:
    # Read each frame from webcam
    success, frame = cap.read()

    # Flip the frame
    frame = cv2.flip(frame, 1)

    cv2.imshow("Frame", frame)

    # Open the OpenCV window until 'q' is pressed
    if cv2.waitKey(1) == ord('q'):
        break

cap.release()
cv2.destroyAllWindows()
```

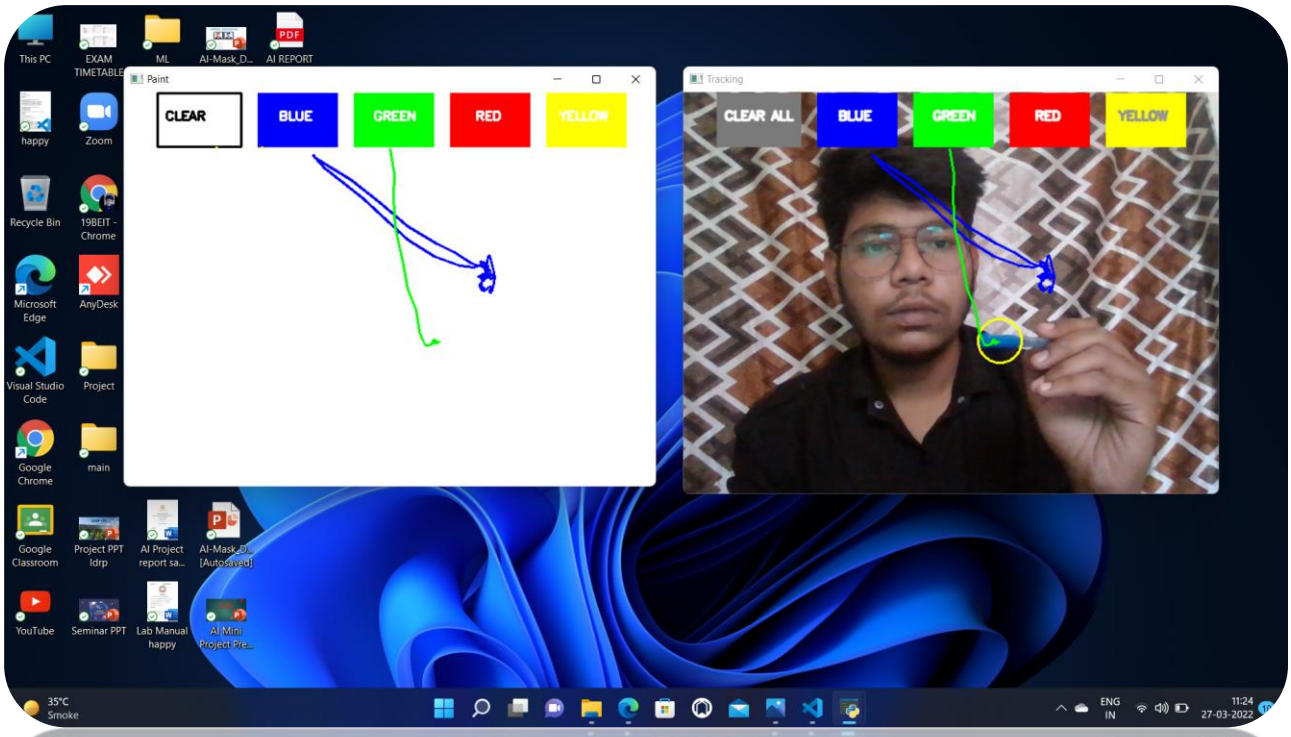
❖ Step 3 – Create the canvas window:

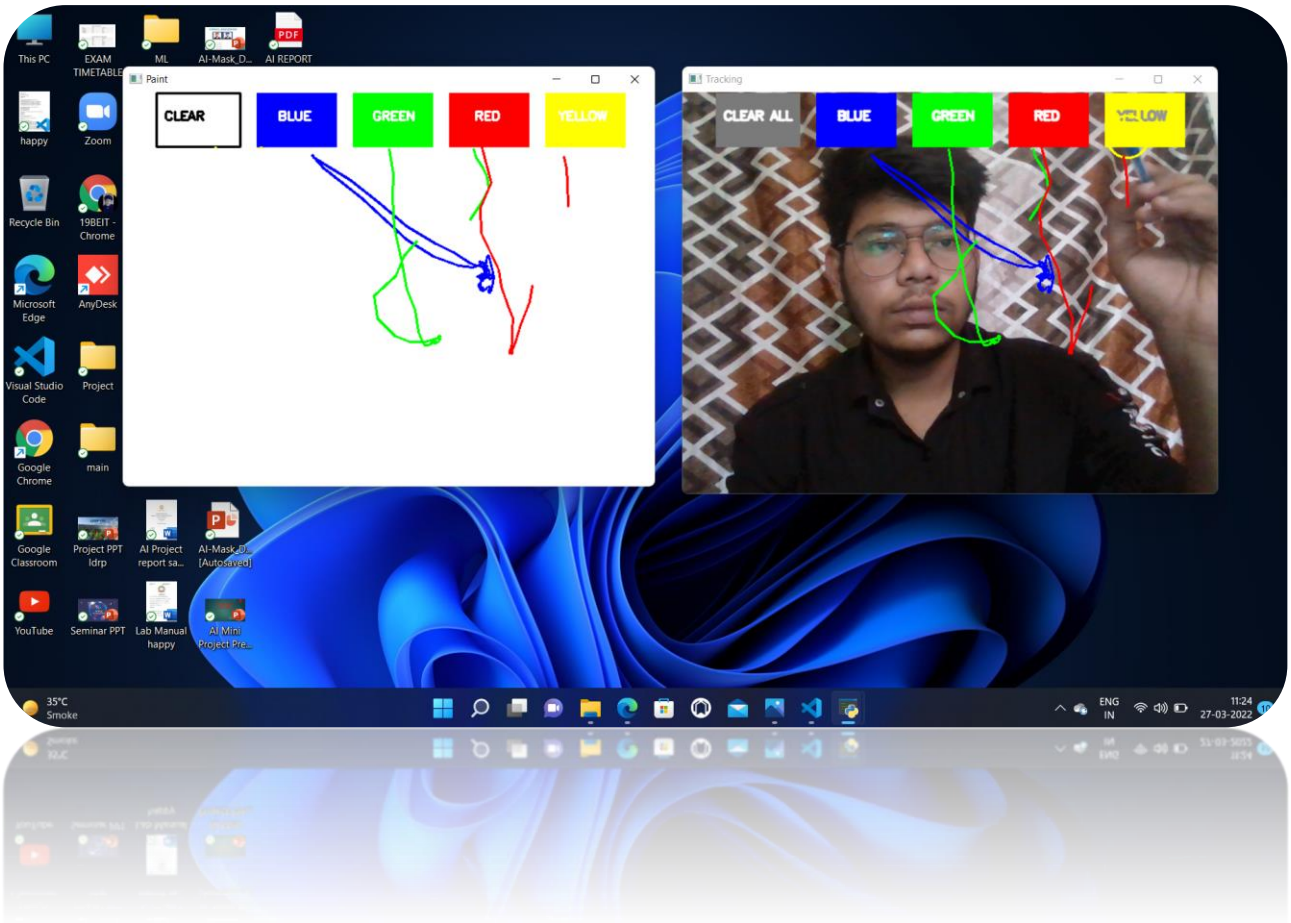
```
# Define various colors
colors = [(255, 0, 0), (255, 0, 255), (0, 255, 0), (0, 0, 255), (0, 255, 255)]
color = colors[0]
width = int(cap.get(3))
height = int(cap.get(4))

# Create a blank canvas
canvas = np.zeros((height, width, 3), np.uint8)
# Adding the colour buttons to the live frame for colour access
```

```
    cv2.rectangle(frame, (20,1), (120,65), (122,122,122), -1)
    cv2.rectangle(frame, (140,1), (220,65), colors[0], -1)
    cv2.rectangle(frame, (240,1), (320,65), colors[1], -1)
    cv2.rectangle(frame, (340,1), (420,65), colors[2], -1)
    cv2.rectangle(frame, (440,1), (520,65), colors[3], -1)
    cv2.rectangle(frame, (540,1), (620,65), colors[4], -1)
    cv2.putText(frame, "CLEAR ALL", (30, 33),
cv2.FONT_HERSHEY_SIMPLEX, 0.5,
(255, 255, 255), 2, cv2.LINE_AA)
    cv2.putText(frame, "BLUE", (155, 33),
cv2.FONT_HERSHEY_SIMPLEX, 0.5,
 (255, 255, 255), 2, cv2.LINE_AA)
    cv2.putText(frame, "VIOLET", (255, 33),
cv2.FONT_HERSHEY_SIMPLEX, 0.5,
 (255,255, 255), 2, cv2.LINE_AA)
    cv2.putText(frame, "GREEN", (355, 33),
cv2.FONT_HERSHEY_SIMPLEX, 0.5,
(255, 255, 255), 2, cv2.LINE_AA)
    cv2.putText(frame, "RED", (465, 33),
cv2.FONT_HERSHEY_SIMPLEX, 0.5,
            (255, 255, 255), 2, cv2.LINE_AA)
    cv2.putText(frame, "YELLOW", (555, 33),
cv2.FONT_HERSHEY_SIMPLEX, 0.5,
(255,255,255), 2, cv2.LINE_AA)
```

❖Screen shots




Paint
CLEAR
BLUE
GREEN
RED
YELLOW
Tracking
CLEAR ALL
BLUE
GREEN
RED
YELLOW
This PC
EXAM TIMETABLE
ML
AI-Mask_D...
AI REPORT
happy
Zoom
Recycle Bin
19BEIT - Chrome
Microsoft Edge
AnyDesk
Visual Studio Code
Project
Google Chrome
main
Google Classroom
Project PPT ldrp
AI Project report sa...
AI-Mask_D... [Autosaved]
YouTube
Seminar PPT
Lab Manual happy
AI Mini Project Pre...
35°C
Smoke
ENG
IN
11:24
27-03-2022


This PC
EXAM TIMETABLE
ML
AI-Mask_D...
AI REPORT
happy
Zoom
Recycle Bin
19BEIT - Chrome
Microsoft Edge
AnyDesk
Visual Studio Code
Project
Google Chrome
main
Google Classroom
Project PPT ldrp
AI Project report sa...
AI-Mask_D... [Autosaved]
YouTube
Seminar PPT
Lab Manual happy
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27-03-2022