IMPR Project Report

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Title: Gesture Pattern Detection Model

Description: Simple Python code to track the gesture of movement in front of camera and display the movement pattern.

On execution the camera captures a picture and the user needs to select a Reference Object and then the program tracks that in a live video feed mode.

At the end of the execution the program also plots the tracked movements in a graph.

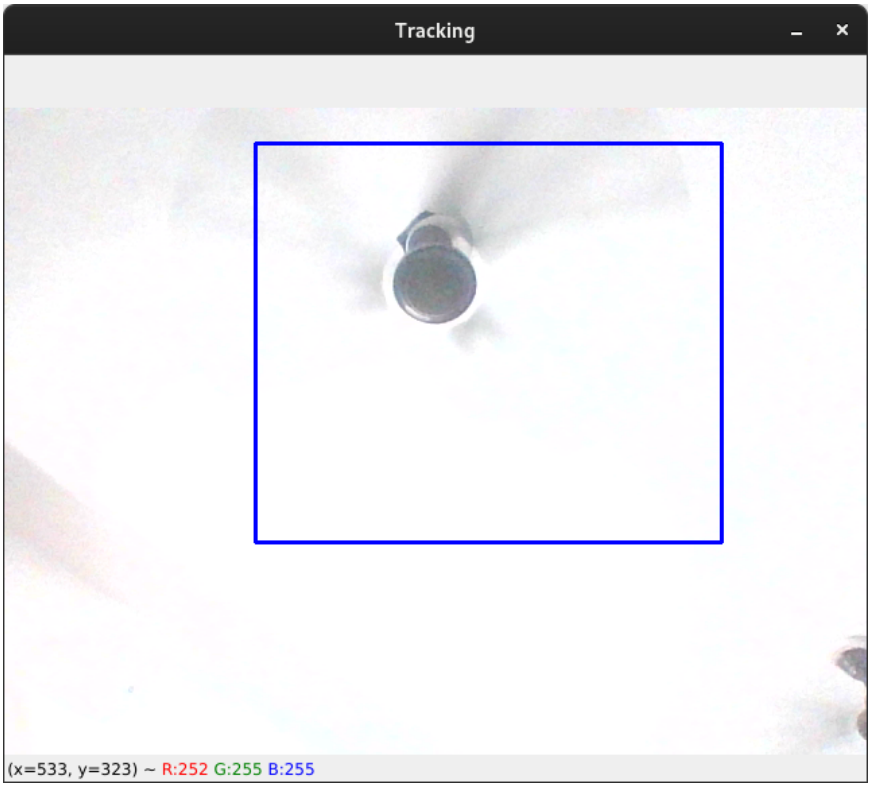
Code:

```
import cv2

import matplotlib.pyplot as plt

cap = cv2.VideoCapture(0)


#tracker = cv2.TrackerMOSSE_create()
tracker = cv2.legacy_TrackerMOSSE.create()
success, img = cap.read()
bbox = cv2.selectROI("Tracking", img, False)
tracker.init(img, bbox)


x_coord = []
y_coord = []

def drawbox(img, bbox):
  x, y, w, h = int(bbox[0]), int(bbox[1]), int(bbox[2]), int(bbox[3])
  cv2.rectangle(img, (x,y), ((x+w), (y+h)), (255,0,255), 3, 1)
  #Format cv2.rectangle(image, start_coord, end_coord, colour, thickness)
  cv2.putText(img, "Tracking", (50,130), cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0,225,0), 1)

  x_coord.append(x)
  y_coord.append(y)


def graph_plot():
  plt.plot(x_coord, y_coord, 'ro') #ro means red circle
```

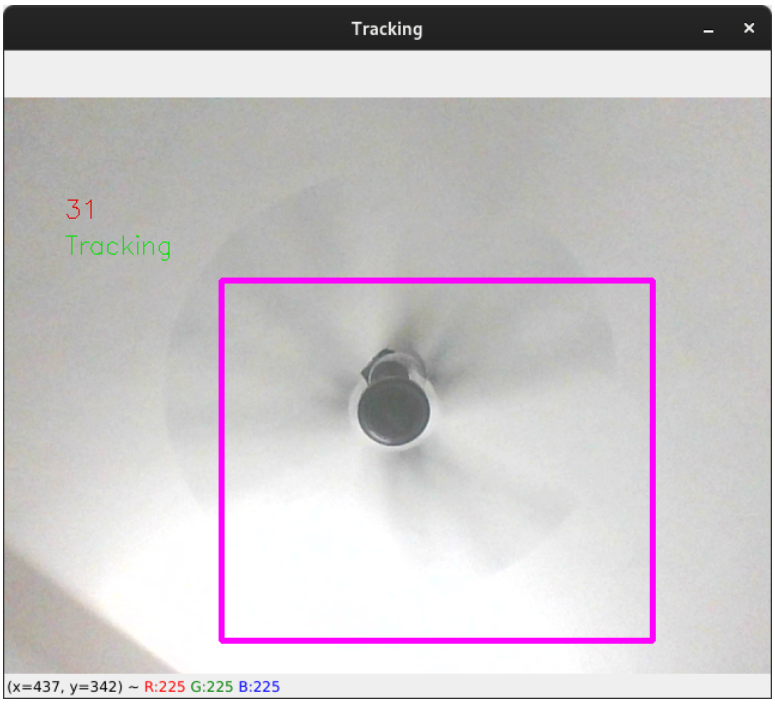
```
  plt.gca().invert_yaxis()
  plt.axis('equal')
  plt.show()

while True:
  timer = cv2.getTickCount()
  success, img = cap.read()
  print(bbox) #it is a tuple FORMAT(x coord, y coord, width, height)

  success, bbox = tracker.update(img)

  if success is True:
    drawbox(img, bbox)

  else:
    cv2.putText(img, "Lost", (50,130), cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0,0,225), 1)


  fps = cv2.getTickFrequency()/(cv2.getTickCount() - timer)
  cv2.putText(img, str(int(fps)), (50,100), cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0,0,225),
 1)
  #FORMAT IS (window_name, what to display, coordinates, font, scale, colour, thicknes
s)
  cv2.imshow("Tracking", img)

  if cv2.waitKey(1) & 0xff == ord('q'): #key to stop camera / tracking
    graph_plot()
    break
```

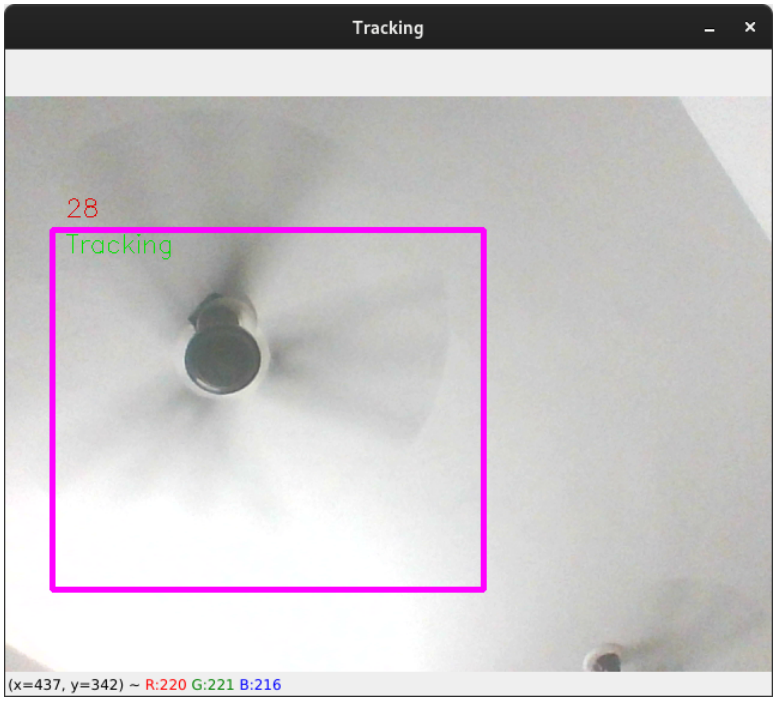
Output Screens:

1. Setting up the ROI

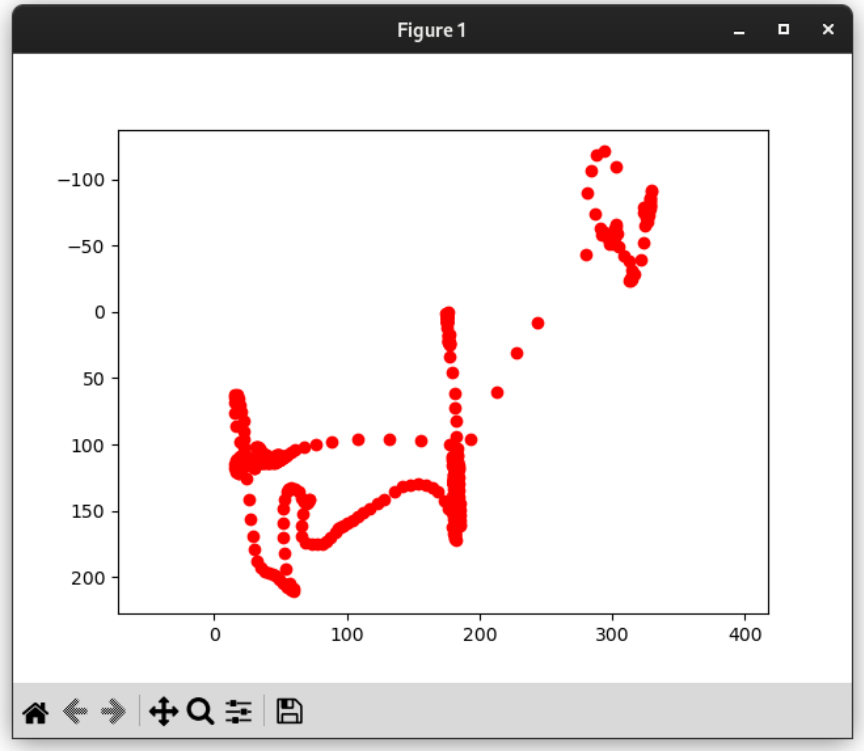


2. Tracking Starts





3. The tracking positions are plotted



[Note: Live Demo of the project is attached in the zip]