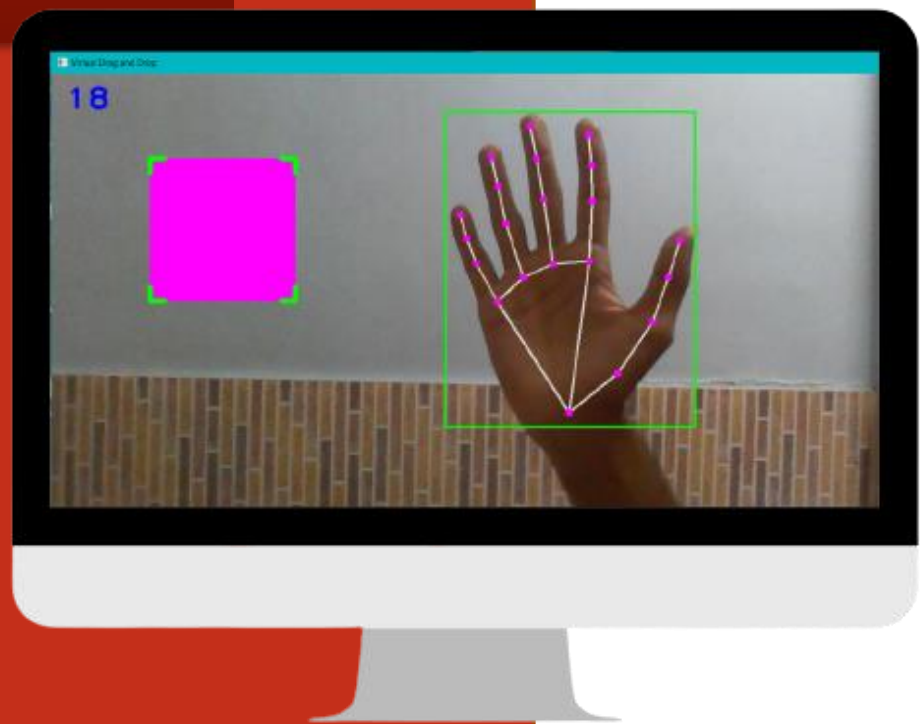


Artificial Intelligence PROJECT

VIRTUAL
DRAG & DROP
USING
PYTHON



PROJECT DETAILS

Topic of Project:

Virtual Object Drag and Drop

Language used:

Python

Libraries used:

Cv2(opencv),cvzone,Handtracking module from cvzone, numpy, time.

MEMBER DETAILS:

- Rajeev Kaviskar(19302C0009)
- Karan Mamania(19302C0018)

Project code

```
#pip install mediapipe==0.8.7
import cv2
from cvzone.HandTrackingModule import HandDetector
import cvzone #Version: 1.4.1
import numpy as np
import time
```

```
cap = cv2.VideoCapture(0)
cap.set(3,1280)
cap.set(4,720)
detector = HandDetector(detectionCon=0.8)
colorR=(255,0,255)
cx, cy, w, h = 100, 100, 200, 200
pTime=0

class DragRect():
    def __init__(self,posCenter, size=[200,200]):
        self.posCenter = posCenter
        self.size =size

    def update(self,cursor):
        cx,cy=self.posCenter
        w,h = self.size
        # when finger goes into that rectangle region
        #x coord          #y coord
        if cx-w//2 < cursor[0] < cx+w//2 and cy-h//2 < cursor[1] < cy+h//2:

            self.posCenter=cursor
```

```
rectList =[]
for x in range(10):
    rectList.append(DragRect([x*250+150,x*250+150]))

while True:
    success, img = cap.read()
    img = cv2.flip(img, 1)
    img = detector.findHands(img)
    lmList, _ = detector.findPosition(img)

    if lmList:
```

```
l,_,_ = detector.findDistance(8 ,12 ,img,draw=False)# 8 is index and 12 is middle finger
```

```
# draw solid Rectangle
for rect in rectList:
    cx,cy=rect.posCenter
    w,h = rect.size
    cv2.rectangle(img, (cx-w//2,cy-h//2), (cx+w//2,cy+h//2), colorR, cv2.FILLED)

    cvzone.cornerRect(img, (cx-w//2,cy-h//2,w,h ),20,rt=0)
```

```
# Frame Rate
cTime = time.time()
fps = 1 / (cTime - pTime)
pTime = cTime
cv2.putText(img, str(int(fps)), (20, 50), cv2.FONT_HERSHEY_PLAIN, 3,(255, 0, 0), 3)
```

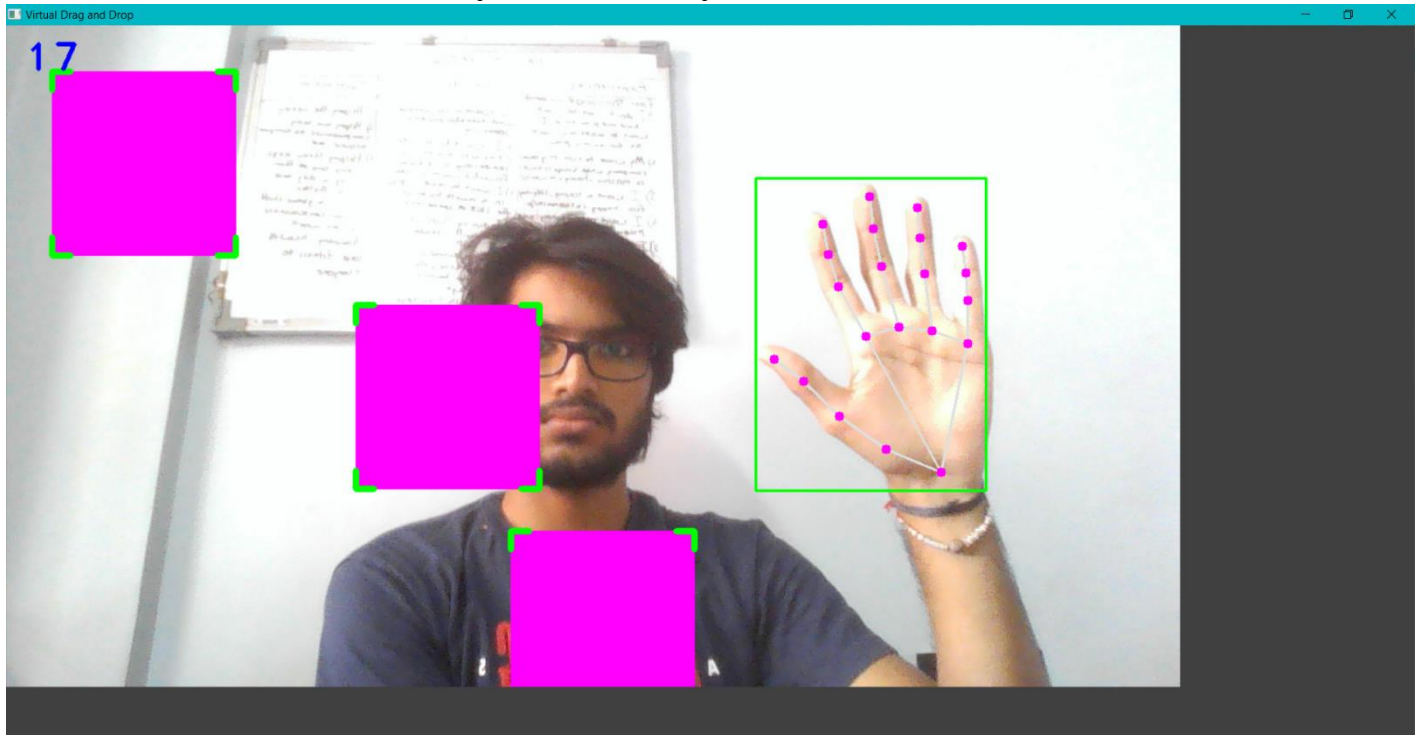
```
#display
cv2.imshow("Virtual Drag and Drop",img)
if cv2.waitKey(10) & 0xFF == ord('q'):
    break
cap.release()
cv2.destroyAllWindows()
```

Github Link:

<https://github.com/FuzzyCoder20/Virtual-Drag-and-Drop-.git>

Screenshots of the project

Hand detection done by cvzone library



Boxes can be dragged when index and middle finger is touched

