**OBJECT DETECTION USING OPENCV**

import cv2

model = cv2.dnn.readNetFromCaffe('MobileNetSSD\_deploy.prototxt.txt', 'MobileNetSSD\_deploy.caffemodel')

classes = ['background', 'aeroplane', 'bicycle', 'bird', 'boat', 'bottle', 'bus', 'car', 'cat', 'chair', 'cow', 'diningtable', 'dog', 'horse', 'motorbike', 'person', 'pottedplant', 'sheep', 'sofa', 'train', 'tvmonitor']

def detect\_objects(image):

(h, w) = image.shape[:2]

blob = cv2.dnn.blobFromImage(cv2.resize(image, (300, 300)), 0.007843, (300, 300), 127.5) model.setInput(blob)

detections = model.forward()

for i in range(detections.shape[2]):

confidence = detections[0, 0, i, 2]

if confidence > 0.5:

idx = int(detections[0, 0, i, 1])

box = detections[0, 0, i, 3:7] \* np.array([w, h, w, h])

(startX, startY, endX, endY) = box.astype("int")

label = f"{classes[idx]}: {confidence:.2f}%"

cv2.rectangle(image, (startX, startY), (endX, endY), (0, 255, 0), 2)

y = startY - 15 if startY - 15 > 15 else startY + 15

cv2.putText(image, label, (startX, y), cv2.FONT\_HERSHEY\_SIMPLEX, 0.5, (0, 255, 0), 2)

return image

cap = cv2.VideoCapture(0)

while True:

ret, frame = cap.read()

if not ret:

break

frame = detect\_objects(frame)

cv2.imshow('Object Detection', frame)

if cv2.waitKey(1) & 0xFF == ord('q'):

break

cap.release()

cv2.destroyAllWindows()