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import cv2

import numpy as np

from tensorflow.keras.models import load_model

from tensorflow.keras.preprocessing import image

class Video(object):
    def __init__(self):
        self.video = cv2.VideoCapture(0)

        self.roi_start = (50, 150)

        self.roi_end = (250, 350)

        self.model = load_model('asl_model.h5') # Execute Local Trained Model
        # self.model = load_model('IBM_Communication_Model.h5') # Execute IBM Trained
Model
        self.index=['A','B','C','D','E','F','G','H','I']

        self.y = None

    def __del__(self):
        self.video.release()

    def get_frame(self):
        ret,frame = self.video.read()

        frame = cv2.resize(frame, (640, 480))

        copy = frame.copy()

        copy = copy[150:150+200,50:50+200]

        # Prediction Start

        cv2.imwrite('image.jpg',copy)

        copy_img = image.load_img('image.jpg', target_size=(64,64))

        x = image.img_to_array(copy_img)

        x = np.expand_dims(x, axis=0)

        pred = np.argmax(self.model.predict(x), axis=1)

        self.y = pred[0]

        cv2.putText(frame,'The Predicted Alphabet is:
'+str(self.index[self.y]),(100,50),cv2.FONT_HERSHEY_SIMPLEX,1,(0,0,0),3)

        ret,jpg = cv2.imencode('.jpg', frame) return jpg.tobytes()

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