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import re
import numpy as np
import os
from flask import Flask, app, request, render_template
from tensorflow.keras import models
from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image
from tensorflow.python.ops.gen_array_ops import concat
from tensorflow.keras.applications.inception_v3 import preprocess_input
import cvlib as cv
from cvlib.object_detection import draw_bbox
import cv2
import time
import numpy as np
from playsound import playsound
import requests
from flask import Flask, request, render_template, redirect, url_for
#Loading the model

from cloudant.client import Cloudant

# Authenticate using an IAM API key
client = Cloudant.iam('3b29f284-eee0-4670-9be5-1205fdc019c7-bluemix',
'1wJFtQtOb9j63yxtzTDvIc7qHXAPjN0zKxAlKNi20P93', connect =True)

# Create a database using an initialized client
my_database = client.create_database('my_database')

app=Flask(__name__)

#default home page or route
@app.route('/')
def index():
    return render_template('index.html')

@app.route('/index.html')
def home():
    return render_template("index.html")

#registration page
@app.route('/register')
def register():
    return render_template('register.html')

@app.route('/afterreg', methods=['POST'])
def afterreg():
    x = [x for x in request.form.values()]
    print(x)
    data = {
        '_id': x[1], # Setting _id is optional
        'name': x[0],
        'psw':x[2]
    }
    print(data)

    query = {'_id': {'$eq': data['_id']}}

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docs = my_database.get_query_result(query)
print(docs)

print(len(docs.all()))

if(len(docs.all())==0):
    url = my_database.create_document(data)
    #response = requests.get(url)
    return render_template('register.html', pred="Registration
Successful, please login using your details")
else:
    return render_template('register.html', pred="You are already a
member, please login using your details")

#login page
@app.route('/login')
def login():
    return render_template('login.html')

@app.route('/afterlogin',methods=['POST'])
def afterlogin():
    user = request.form['_id']
    passw = request.form['psw']
    print(user,passw)

    query = {'_id': {'$eq': user}}

    docs = my_database.get_query_result(query)
    print(docs)

    print(len(docs.all()))

    if(len(docs.all())==0):
        return render_template('login.html', pred="The username is not
found.")
    else:
        if((user==docs[0][0]['_id'] and passw==docs[0][0]['psw'])):
            return redirect(url_for('prediction'))
        else:
            print('Invalid User')

@app.route('/logout')
def logout():
    return render_template('logout.html')

@app.route('/prediction')
def prediction():
    return render_template('prediction.html')

@app.route('/result',methods=["GET","POST"])
def res():
    webcam = cv2.VideoCapture('drowning.mp4')

    if not webcam.isOpened():
        print("Could not open webcam")
        exit()

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t0 = time.time() #gives time in seconds after 1970

#variable dcount stands for how many seconds the person has been
standing still for
centre0 = np.zeros(2)
isDrowning = False

#this loop happens approximately every 1 second, so if a person doesn't
move,
#or moves very little for 10seconds, we can say they are drowning

#loop through frames
while webcam.isOpened():
    # read frame from webcam
    status, frame = webcam.read()

    if not status:
        print("Could not read frame")
        exit()

    # apply object detection
    bbox, label, conf = cv.detect_common_objects(frame)
    #simplifying for only 1 person

    #s = (len(bbox), 2)
    if (len(bbox)>0):
        bbox0 = bbox[0]
        #centre = np.zeros(s)
        centre = [0,0]
        #for i in range(0, len(bbox)):
            #centre[i]
        =[(bbox[i][0]+bbox[i][2])/2, (bbox[i][1]+bbox[i][3])/2 ]

        centre =[(bbox0[0]+bbox0[2])/2, (bbox0[1]+bbox0[3])/2 ]

        #make vertical and horizontal movement variables
        hmov = abs(centre[0]-centre0[0])
        vmov = abs(centre[1]-centre0[1])

        #there is still need to tweek the threshold
        #this threshold is for checking how much the centre has moved

        x=time.time()

        threshold = 10
        if(hmov>threshold or vmov>threshold):
            print(x-t0, 's')
            t0 = time.time()
            isDrowning = True

        else:

            print(x-t0, 's')
            if((time.time() - t0) > 10):
                isDrowning = True

        #print('bounding box: ', bbox, 'label: ' label , 'confidence: '
        conf[0], 'centre: ', centre)
        #print(bbox,label ,conf, centre)

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print('bbox: ', bbox, 'centre:', centre, 'centre0:', centre0)
print('Is he drowning: ', isDrowning)

centre0 = centre
# draw bounding box over detected objects

out = draw_bbox(frame, bbox, label, conf, isDrowning)

#print('Seconds since last epoch: ', time.time()-t0)

# display output
cv2.imshow("Real-time object detection", out)
if cv2.waitKey(1) & 0xFF == ord('q'):
    break
playsound(r'C:\Users\indum\Downloads\emergency-alarm-with-reverb-29431.mp3')
webcam.release()
cv2.destroyAllWindows()
return render_template('prediction.html', prediction="Emergency !!!
The Person is drowining")
#return render_template('base.html')

# press "Q" to stop

# release resources
#webcam.release()
#cv2.destroyAllWindows()
#return render_template('prediction.html',)

""" Running our application """
if __name__ == "__main__":
    app.run(debug=True)

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