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PROJECT TITLE

Locator Using Face Recognition

AGENDA

In this agenda, we'll cover the essentials of implementing a face recognition system. We'll start with an overview and technical understanding, followed by data preparation, model training, and deployment considerations. Privacy, ethics, and future directions will also be addressed, with time for open discussion.

PROBLEM STATEMENT

Today we have facing many problems like missing cases, kidnaping, human trafficking more and more.

There are many ways to track a person, mainly we use the GPS system but it is not possible for tracking everyone.

None of the criminals or not every one of the victim keep the GPS on at every time. So it is difficult to track without GPS.

Like GPS tracking there are many tracking methods but all of them depend on some technologies like GPS tracker, mobile phone and so on.

PROJECTOVERVIEW

Our project aims to implement a face recognition system for enhanced security and streamlined access control. By leveraging advanced technology, we seek to improve identity verification efficiency while reducing reliance on traditional methods like ID cards or passwords. The system will integrate seamlessly with existing workflows and cater to diverse user profiles and environments. This initiative aligns with our organization's commitment to innovation and operational excellence.

WHO ARE THE END USERS?

The end users of the face recognition system include employees, customers, security personnel, administrators, authorized personnel, and public users. They interact with the system for access control, identity verification, security monitoring, and system management purposes in various organizational and public settings.

YOUR SOLUTION AND ITS VALUE PROPOSITION

Nowadays mostly every places are covered by **CAMERAS**, But it is not possible to track a person using cameras by manually. We planned to use facial detection by biometric marking.
Get the victim image and live stream video as input.

Detect the face in the given image mark the biometric outline of the image as a graphical view.

Detect faces in the live stream. Mark the biometric outline of all the images in video and compare the biometrics with the biometric obtained from image and need to compare the biometric face from the accessing camera ,once that face gets matched then the location of that camera will set the location as the output

```
import cv2
import dlib
import face_recognition as fr
import time
from google.colab.patches import cv2_imshow

one = input("Enter the First face path:")
faceOne = fr.load_image_file(one)
RgbFaceOne = cv2.cvtColor(faceOne, cv2.COLOR_BGR2RGB)
faceOneEnco = fr.face_encodings(RgbFaceOne)[0]
cap = cv2.VideoCapture(0)
start_time = time.time()

while True:
    ret, frame = cap.read()
    if not ret:
        break
    RgbFrame = cv2.cvtColor(frame, cv2.COLOR_BGR2RGB)
    face_locations = fr.face_locations(RgbFrame)

    if len(face_locations) == 0:
        print("No face detected in the frame.")
```

```
 continue
    faceLocTwo = face_locations[0]
    faceTwoEnco = fr.face_encodings(RgbFrame, [faceLocTwo])[0]
    Result = fr.compare_faces([faceOneEnco], faceTwoEnco)
    for (top, right, bottom, left) in face_locations:
        cv2.rectangle(frame, (left, top), (right, bottom), (0, 0, 255), 2)
    if Result[0] == True:
        print("Face Matched")
        current_time = time.strftime("%Y-%m-%d %H:%M:%S")
        cv2.imwrite("screenshot.jpg", frame)
        screenshot = cv2.imread("screenshot.jpg")
        cv2.putText(screenshot, "Matched at: " + current_time, (10, 30), cv2.FONT_HERSHEY_TRIPLEX, 0.8, (0, 0, 0),
2)
        cv2_imshow(screenshot)
        break
    elif time.time() - start_time > 300:
        print("Face not matched within time limit.")
        break
    else:
        print("Not Matched")
    if time.time() - start_time > 300:
        print("Time limit reached.")
        break
cap.release()
cv2.waitKey(0)
cv2.destroyAllWindows()
```

THE WOW IN YOUR SOLUTION

Innovatively integrating cutting-edge face recognition technology into our system not only enhances security but also revolutionizes user experience, eliminating cumbersome authentication processes. By seamlessly catering to diverse user profiles and environments, our solution ensures efficiency and accuracy while adhering to the highest standards of privacy and ethical considerations. This transformative approach not only safeguards our organization but also sets a new benchmark for technological advancement and user-centric design in access control systems.

MODELLING

Utilizing the **face_recognition** library, this process involves gathering a dataset of face images, detecting faces, and generating numerical encodings for each face. These encodings serve as input for training a classification model, such as Support Vector Machines (SVM). The model is trained on a split dataset, and its performance is evaluated using metrics like accuracy. Once trained, the model can be deployed for real-time face recognition tasks, enabling identification or verification of individuals from images or video streams.

RESULTS

Demo Link