Creating an end-to-end Offline Attendance System with Face Detection

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Key Details/Highlights Of The Solution

CHALLENGE

Hands-free offline attendance system to be built over a low-powered Android device

SOLUTION

A deep learning-based face recognition system built for marking attendance offline based on AI technology with decent accuracy numbers.

Client

It was a leading remote workforce management company that was looking for an efficient offline attendance system for its employees. During the discussion, they also told how the internet is not working in their area of operation. Considering their requirements, we suggested they go for an offline attendance system with a facial recognition system.The major requirement of the client was to make the attendance system that functions efficiently offline.

Challenge

was to administer their request of taking the entire system offline. While it was easy to build up the hands-free attendance system that they requested, however, the challenge still remained to formulate an offline program with anti-spoofing compatibility to avoid any fake attendance entries. Another challenge that we faced while developing this attendance system for them was to make it compatible with the low-powered Android device, as most of the face detection and recognition programs are quite heavy.

How DataToBiz Helped Them Build an Efficient Offline Attendance System?

As promised, the team at DataToBiz worked synchronously to develop a perfect attendance system for our client. For them, we built a customized attendance management solution powered by facial recognition technology that was made specifically to be compatible with the Android app. To shrink the heavy facial detection and recognition attendance program, we divided it into 3 sub-tasks –

✓ Capturing the image/video in real-time from the camera.

✓ Detecting the faces in the image

✓ Matching the faces with the uploaded entries in the database and mark the attendance of the person whose name is stored for the detected image.

We Created a Fully Operational Offline Attendance System That Works on Face Detection Techniques

➔ Creating facial detection and recognition system.

➔ Optimizing the program to run on the small, low-powered Android device.

➔ Creating an Android user Interface to capture the image and pass it to the database.

Conclusion

We helped the client establish an offline hands-free attendance system for their company. While they were concerned about the internet facility in their areas of operations, our team worked coordinately to ensure that the complete process functioned online. Additionally, we made the system run on a low-powered Android device.

The System Architecture We Built For Them –

Input Data

Once, the user opens the app they are provided with the following options - Choose the image from a database or click the image through the camera.

Image Processing

After that, the cropped image is passed to the processor algorithm where the image is converted in the set format compatible with the classifier as well as the device.

Detection

Once, you select the option and the image is clicked or selected, the image will be passed to a face detector algorithm.

Classifier

The processed image is passed to the classifier and the result is then stored in the local SQLite storage.

Output

Whenever the user uses the system to mark the attendance, the image is processed through the complete pipeline in which the output of the classier is compared to the database

Conclusion

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Want to Develop an Efficient & Risk-Free Attendance System For Your Team?

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