

Face Recognition Attendance System Based on Real- Time Video Processing

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Abstract - This is a research regarding, how can we bring up more interaction between the teachers and students. Our app can help to improve to mark attendance in this pandemic situation. It is an online platform where the teachers can keep the record of each and every student. This application would also provide a great platform to the parents in this Pandemic as everything is online and parents must know what their child are attending the lectures or not. This entire project would involve the development of the app using Android Studio.

Key Words: Teacher's Record, Student alert, Online Attendance

1. INTRODUCTION

This app is something about where teachers can confirm student's presence. In this pandemic situation, using this APP teachers can understand students are actually attending the class and can mark the record of it. When entering to lecture, the person's face is detected and if he/she is not registered w.r.t to database then he/she is not allowed to enter. The person if entered in class and if any other people is interacted in between, then that person won't allowed to attend and will be marked as absentee and abruptly the lecture will close. This inspires our project which is an Android and iOS-based application which would provide great connectivity between a teacher and student's.

1.1 AIM & OBJECTIVE

The major objective of this app is to create awareness among teachers about the students' presence been performed in their lectures.

The main of this application are as follows: -

1. To provide a platform for a better connectivity
2. Through this platform parents will easily connect to teachers and vice versa
3. Teachers and Students can interact with each other through a video meet.
4. This app updates the presentee of students with its record.
5. Parents will come to about the presence of their child through teachers.

1.2 PROBLEM STATEMENT

In the current pandemic, teachers are unaware about what the students is doing online. However, the lecture is taken through some or the other online platform. Teachers don't have much idea about who is attending the lectures. The other problem we face is that there may be instances where the student may not be physically present and he or she might have put up their photo or something similar to their face. Few years back the only way possible to interact students and teachers and get update about its presence in the academic year was only possible to go-through Attendance Register.

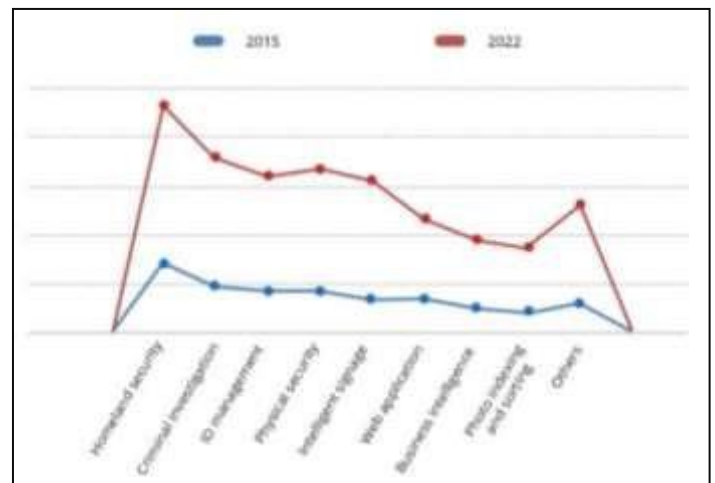


Fig 1 Face Detection Market Size [1]

Nowadays, circumstances have changed and we have more ways to interact and see students' presence. Many-a-times, it may happen there are duplicates of a student w.r.t Real-time Detection. Online Platforms are some of the best means of communication between teachers and students. But they too lack duplicating. At present, using software that connects teachers and students in a short period of time, with accuracy can do wonders. The graph shows the involvement of students in curriculum deteriorating year by year.

2. RELATED WORKS

During this pandemic, Children have become independent and due to this the parental involvement has decreased. Teachers have started using various platforms such as Microsoft Teams, Google Meet, Zoom Meets. But, the drawback to this is that this remains between only the teacher and student. Presentee are recorded by teachers w.r.t to Real-time detection which is not known to parents that they are attending or not. The main aim is to make students understand about the importance of presence in lectures on daily basis.

There is a huge increase in the usage of mobile phones since 2013 and most of students utilize mobiles in wrong way by playing games, using social media, etc. So, to cover most of the population in India we chose to build a mobile application.

Table -1: Strengths and Weaknesses of Detection System

NAME OF APPLICATION	STRENGTHS	WEAKNESSES
GOOGLE MEET	Ease of use	Highly competitive market
	Connectivity and Collaboration	Losing Ads
	Accessibility	Regulations restricting Operations
	Market Leader	Product Imitation and Counterfeiting



Fig 2 Google Meet UI [2]

3. METHOD

This project is developed using Android Studio which is an official integrated development environment for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.

Android Studio provides a unified environment where you can build apps for Android phones, tablets, Android Wear, Android TV, and Android Auto. Structured code modules allow you to divide your project into units of functionality that you can independently build, test, and debug.

Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on IntelliJ IDEA. On top of IntelliJ's powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps.



Fig 3 Android Studio Logo [3]

WHY ANDROID STUDIO?

- ❑ Android Face detection API tracks face in photos, videos using some landmarks like eyes, nose, ears, cheeks, and mouth. Rather than detecting the individual features, the API detects the face at once and then if defined, detects the landmarks and classifications.
- ❑ Besides, the API can detect faces at various angles too.
- ❑ **Face recognition** is a method of identifying or verifying the identity of an individual using their **face**. **Face recognition** systems can be used to identify people in photos, video, or in real-time.
- ❑ Android face (.face) files are simple image files created by **facial** recognition system in your **android** phone.
- ❑ The **face** files are created while recognizing a **face** from all your photos. It's safe to delete these files only if you don't use **facial** recognition in your phone/tab.

4. EVALUATION

Testing's such as Unit testing, Integration testing, Load and Stress testing were performed on the prototype of our app. Some improvements regarding data management in apps and faster response rate were suggested by the testing team. These updates will be done in the next version of the app, and after Acceptance testing this app will be published on Google Play store and iOS App Store.

5. FUTURE SCOPE

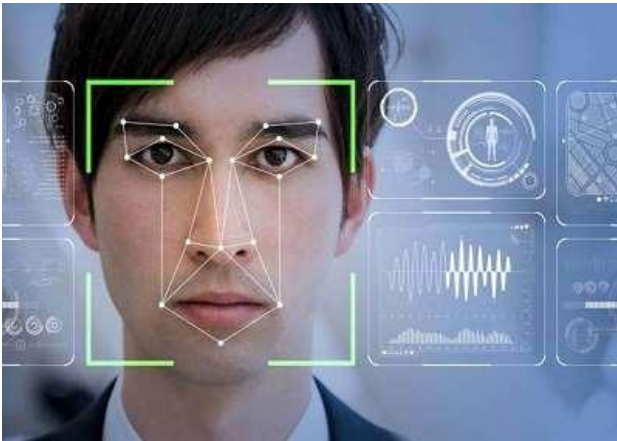


Fig 4 Future Detection Scope [4]

After this app will be published our team will be working

on some new features for the app. These features would be as follows: -

- ✓ An Attendance module where students will get its presentee' record.
- ✓ If any student tries to malpractice, then it will be recorded w.r.t Real-time Detection & will be kicked out from the meeting.
- ✓ Also; by detecting student's face, his/her academic progress, behavior, etc will be displayed.
- ✓ A personalized Mail/Message will be sent to that particular student whose face is not detected on that particular day.

- Less work-load for teachers to take manual attendance and also for students to have complete focus on studies.
- Build up a friendly communicating environment between the
- teachers and the students.

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6. CONCLUSIONS

The prototype of our **FaceTrack** was developed successfully. The major objectives covered by us application are as follows: -

- Making an Ease to teachers for student's attendance.