

C. Iris-Recognition Based Attendance System:

Among the different biometric this is most reliable Iris biometric authentication has complex implementation.

1) Disadvantages:

- Target or inferencing area is pretty small
- Obscured by eyelashes, lenses, reflections
- Partially occluded by eyelids
- As pupil changes size, results may vary
- Some negative (Orwellian) connotations

D. Python:

Learning curve of python is not so steep. As compared to other programming languages. Python is currently being used today in most of machine learning and artificial intelligence project. Python was got a lot of inbuilt libraries, so we don't need to write code from scratch. So, it saves lot of time and you will be able to see results quite early

E. Face Recognition:

is a python library which can be used for face detection and face recognition Built using dlib's state-of-the-art face recognition built with deep learning. The model has got great accuracy on the Labeled Faces in the Wild benchmark

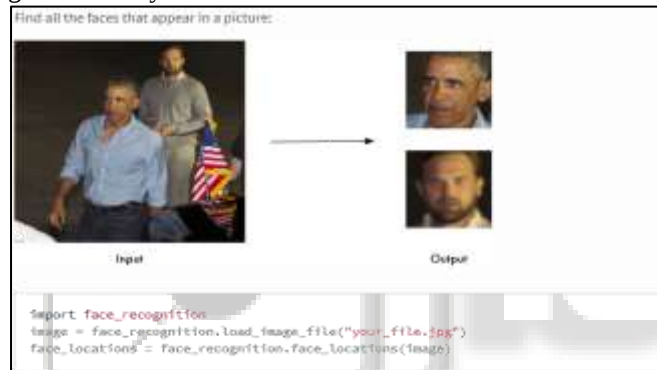


Fig. 2: Face recognition

F. WEBRTC:

Web Real-Time Communications (WebRTC) is an open source project created by Google. WEBRTC is used basically for peer to peer communication but due to its ease of implementation and high-performance results most of the apps are incorporating WEBRTC.

G. VIDEO Conferencing:

Video conferencing is a market that exists for over a decade. Video conferencing offerings, in an attempt to shift IT. WebRTC is now part of this trend and can be viewed as an accelerator. It uses test data to make an "educated guess" on what an unclassified point should be classified as. There have been various studies conducted on how this algorithm can be improved. These studies aim to make it so you can weigh categories differently in order to make a more accurate classification. The weighting of these categories varies depending on how the distance is calculated. In conclusion, this is a fundamental machine learning algorithm that is dependable for many reasons like ease of use and quick calculation time. It is a good algorithm to use when beginning to explore the world of machine learning, but it still has room for improvement and modification.

1) Pros:

- Easy to use.
- Quick calculation time.
- Does not make assumptions about the data.

2) Cons:

- Accuracy depends on the quality of the data.
- Must find an optimal k value (number of nearest neighbors).
- Poor at classifying data points in a boundary where they can be classified one way or another.

H. ELK:

The ELK stack is an acronym used to describe a collection of three open-source projects – Elasticsearch, Logstash and Kibana. Elasticsearch acts as a storage for logs. We can consider it as a document-based database system, where all the records are stored in the form of documents. Logstash can act as aggregator and can give you better formulated details. Kibana is used to display aggregated results on the dashboard

IV. PROPOSED WORK

As stated, the whole implementation would be done in python, we would be creating a web-based application. Where the end user has repository of images which are clicked while registering the student. We would need a single image to train our classifier. The image quality needs to be good as we would be taking only one image of the student who needs to be identified. We can register new student using this application as well.

We would be using flask webserver to host the application. We would need live feed of a video whose source might be a CCTV footage or video stream might come from an application hosting an online video communication platform. We could tap the stream and break it down into frames. From each frame we would work on identifying the person in that image captured from the stream.

As an output either the persons in the image gets identified or gets notified as an unknown person. if the person gets identified the database gets updated marking that person as present. All the data about the current status of the person in the image gets updated in database. This is connected to ELK stack to get better reports and dashboard. We would need to create index in Elasticsearch which would act a schema for our database. All the required data would be stored in the format decided by index.

Then the data could be aggregated and queried depending upon our requirement. The output of our query could be presented in the graphical format using Kibana

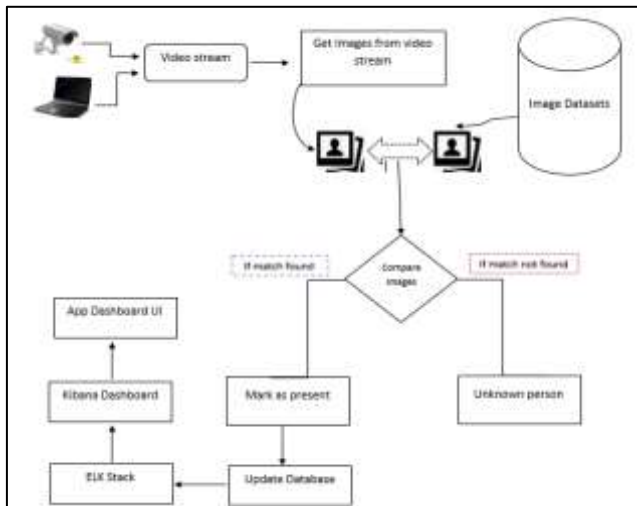


Fig. 3: Architecture diagram

V. RESULTS

We would be getting dashboard about the attendance of the students and we can aggregate those to get the monthly average.

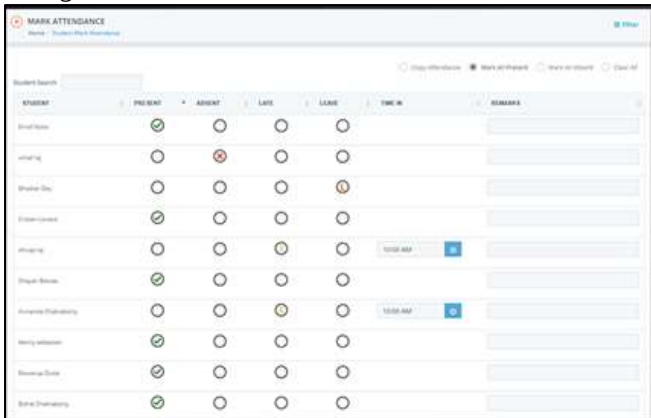


Fig. 4: Student attendance sheet prototype



Fig. 5: Aggregated Results Prototype

VI. CONCLUSION

The presented work can be concluded using the following points:

- 1) This paper helps in knowing the technologies in brief which can be used for face identification and recognition.
- 2) Paper also includes different techniques used for attendance monitoring system

- 3) Brief introduction about the architecture and implementation is defined

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