DISCTOR: COMPUTER VISION FACE DETECTOR

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***Abstract* –** Face Detection is the latest fresh technique for the identity identification of somebody. Face detection has spread in various domains like security, Educations System, HealthCare, Smart Phones, etc. Face Detection mainly includes image training, processing, and identification. This paper focuses on using face detection technology for Attendance purposes. The system will identify and mark the attendance within the database.

Similar to face detection this project also includes the expression detector. Face Expression is a software technology that uses biometric markers to detect emotions in human faces. Both these techniques make use of CNN.

Keywords *— Face Detection, Deep Learning, Attendance, CNN.*

I. INTRODUCTION

Face detection is a software technology used in a variety of applications that identifies human faces in images and videos. This technology is based on Deep learning which is a part of Machine Learning and Artificial Intelligence. The face detection system uses Convolutional Neural Network or CNN for detection. Convolutional Neural Network has different types of layers with which the image is processed for identification.
Convolutional and Pooling are two important layers in the detection process. In this process, the images are trained, tested, resized, and reshaped, a connection of the hidden layers.

This project Disctor is an online website where the attendance of the student is marked with the help of a webcam and the attendance is stored in the database. So, here the first thing is a login of the admin, then the student registration, the images of the student are trained and tested and then the attendance is marked. Another part is the expression recognition where the expression of the person or the image shown can be detected.
This technique is used almost everywhere in every domain like Security, HealthCare, Banks, Education Systems, Public Transportation, Access Controls, and many more.

II. METHODOLOGY/EXPERIMENTAL

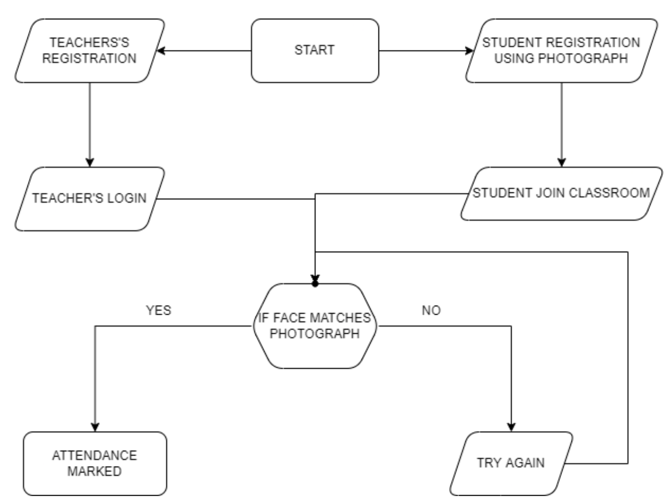


Fig 1

Fig1 shows the flowchart of how Disctor works.

The Face detection process works as first the student registration is done and these include images of the students. These images are trained in the training set section. The training improves the ability of the system to determine the faces in an image or camera. So in this the CNN Model adds different types of layers in the images during training like 2 hidden convolutional layer, 2 hidden max pooling layers, 1 layer of flattening, 1 ANN Layer, 1 output layer with 16 neurons. After adding layers the images are cropped, resized reshaped and then tested. After this the model becomes capable of identifying the faces. When the student face is seen in the camera it identifies it and then the attendance is marked. We can improve the accuracy of the system by using more amount of data as well as using epochs. These images will be the registered images from the admin itself. The other technique is quite similar to face detection. In this the face expression of the person is recognized which includes happy, sad, angry, neutral, etc. These techniques hold a great importance in todays modern era of technology.
This techniques can be used in many ways and has a great scope in future. Different types Advancement and features can be added to this.
Training more datasets will improve the efficiency and accuracy of the systems as well.

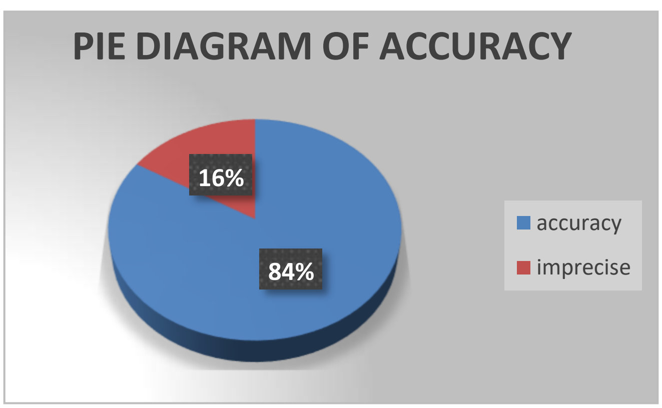
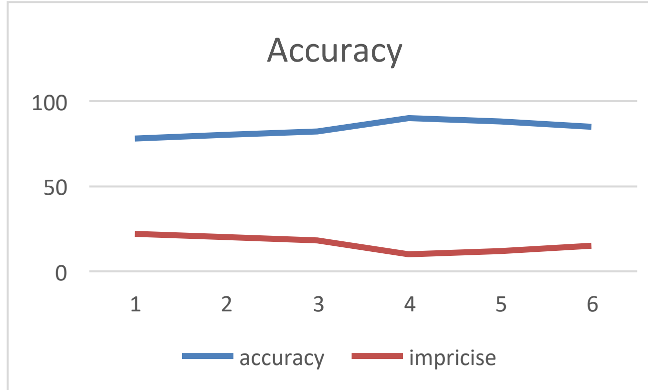


Fig 2 . Accuracy Pie Diagram

accuracy	imprecise
83.83	16.17



accuracy	imprecise
78	22
80	20
82	18
90	10
88	12
85	15

III. Results and Discussions

A) The login Page of the system:

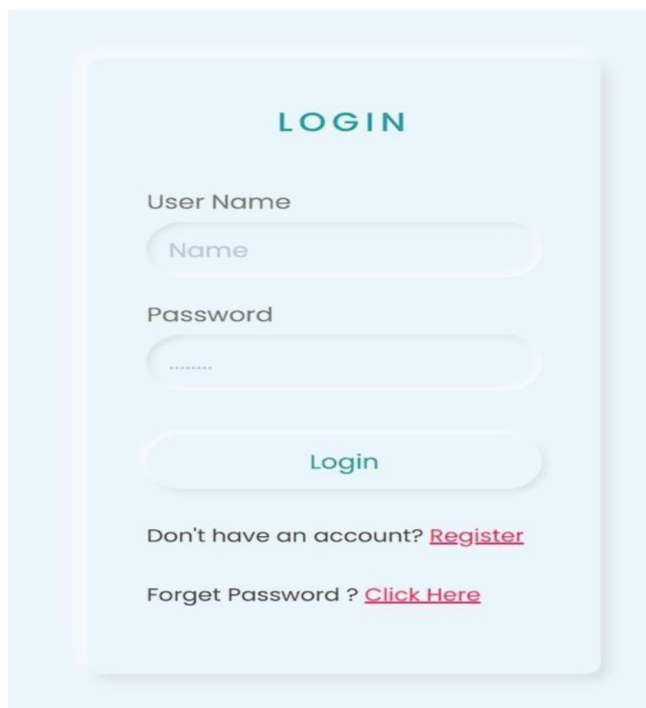


Fig 3. Login Page

B) Registration Page:

Fig 4 Registration Page

C) Dataset training and testing:

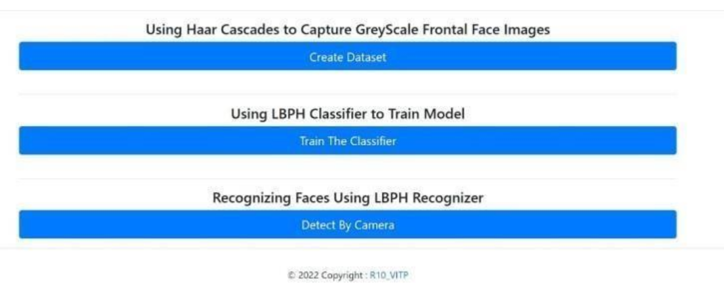


Fig 5 Dataset Training and testing

D) Database:

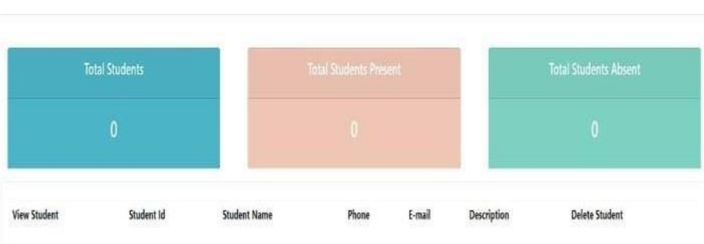


Fig 6 Database

IV. Future Scope

- Face Detection technology and its applications can be applied across different segments in the country.
- Preventing the frauds at ATMs in India. A database of all customers with ATM cards in India can be created and facial recognition systems can be installed.
- Passport and visa verification can also be done using this technology.
- For access control verification and identification of authentic users it can also be installed in bank lockers and vaults.

V. Conclusion

Face detection is an emerging technology that can provide many benefits. Face Detection can save sources and time, and even generate new income streams, for companies that implement it right. With the help of this technology the attendance system and emotion recognition has been successfully completed. The system identifies the image and marks the attendance perfectly.

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