Capstone Project - 5

Face Recognition and Drowsiness Detection

Team members

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Introduction

- The Indian education landscape has been undergoing rapid changes for the past 10 years.
- Owing to the advancement of web-based learning services, specifically, eLearning platforms.
- Although the market is growing on a rapid scale. There are major challenges associated with digital learning when compared with brick and mortar classrooms.
- One of many challenges is how to ensure quality learning for students.

Introduction

- In a physical classroom during a lecturing teacher can see the faces and assess the emotion of the class.
- Lecturer tune their lecture accordingly, whether he is going fast or slow.
- He can identify students who need special attention.

Problem definition

- Due to distance education there is a gap created between student and teacher with less interaction and no physical presence grasping of the students becomes very less.
- To tackle this problem we can accesses to the video and images of students and we will come to know which student is alert in class.

Face recognition and drowsiness detection

- The definition of face detection refers to computer technology that is able to identify the presence of people's faces within digital images
- Face recognition describes a biometric technology that goes way beyond recognizing when a human face is present.
- It actually attempts to establish whose face it is.

Face recognition and drowsiness detection

- The process works using a computer application that captures a digital image of an individual's face
- The entire architecture is divided into 6 modules.
- Face Detection
- Eye Detection
- Face Tracking
- Eye Tracking
- Drowsiness Detection
- Distraction Detection

Face recognition and drowsiness detection

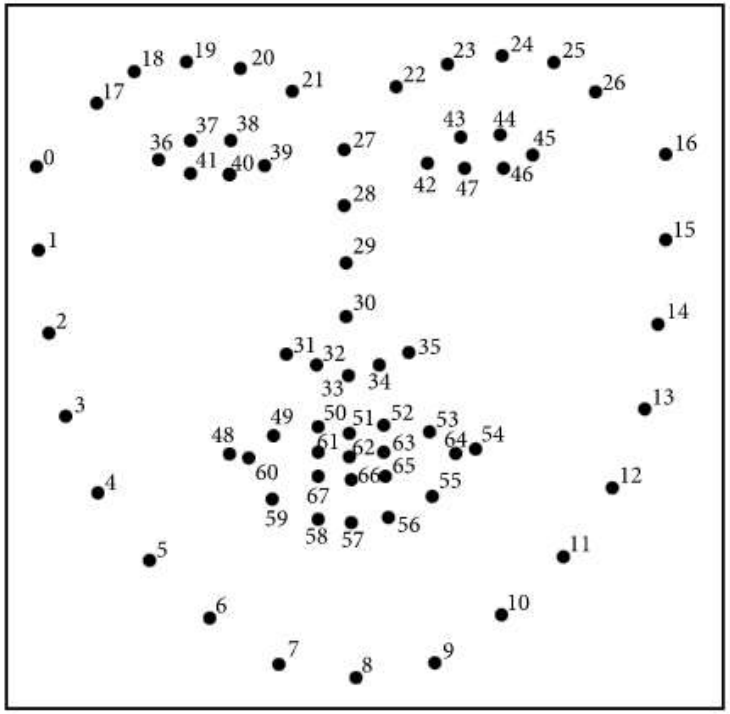
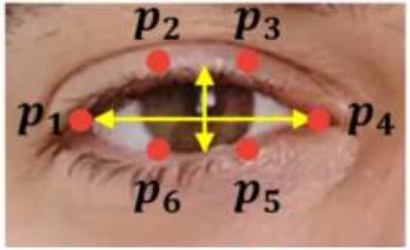
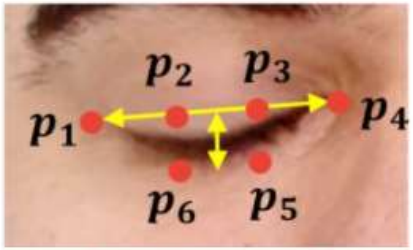


Fig 1: Facial Landmark Detection



Open eye will have more EAR



Closed eye will have less EAR

Fig 2: Eye aspect ratio(EAR)

Working of application

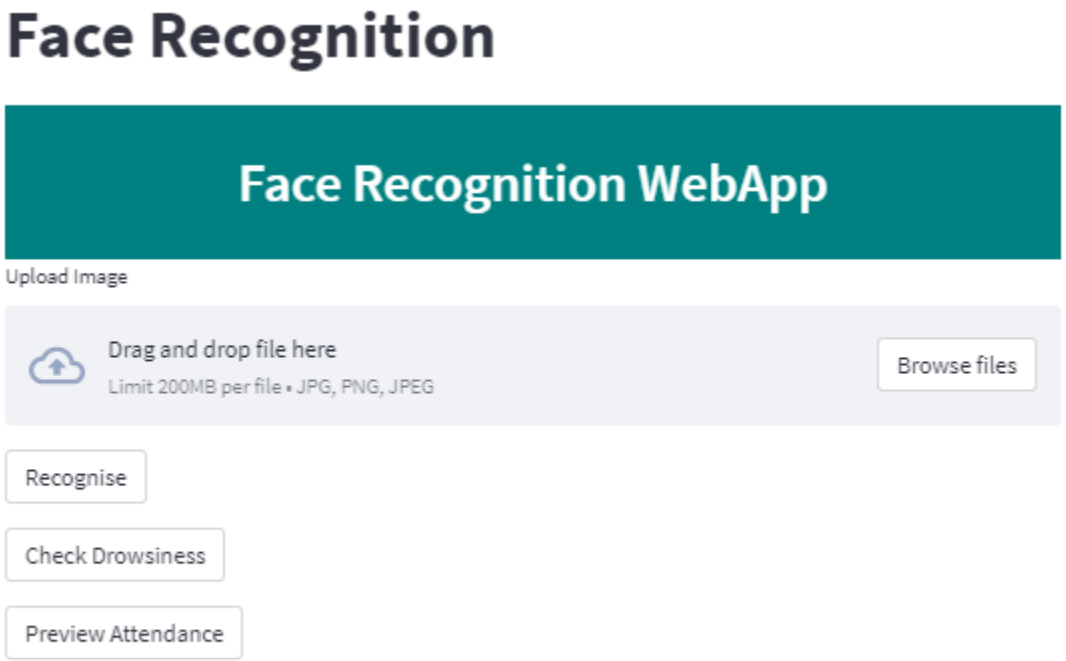


Fig 3: Application page view

Working of application

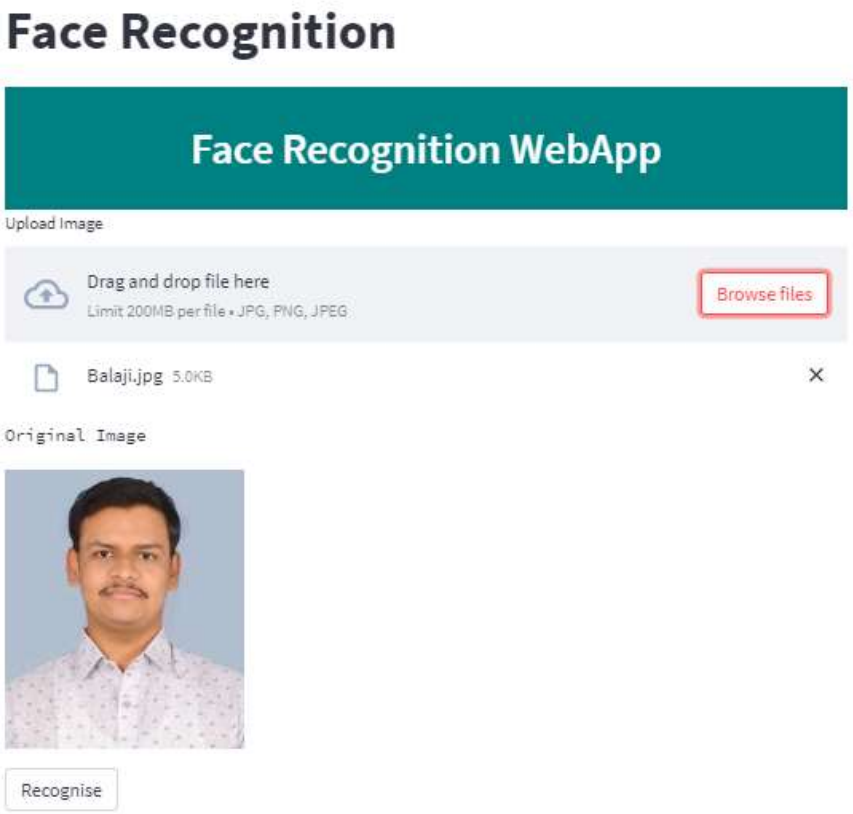


Fig 4: Upload of image

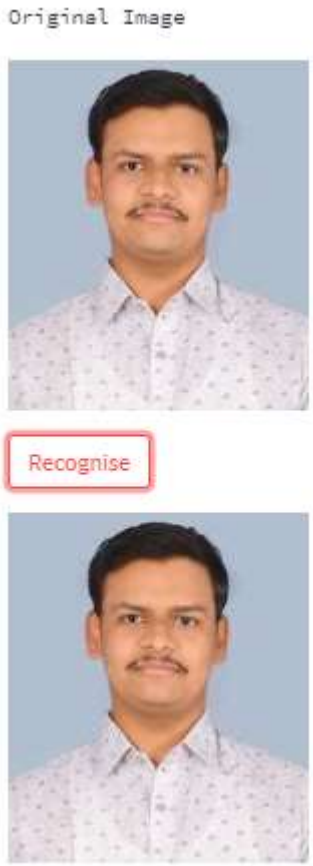


Fig 5: Image Recognition

Working of application

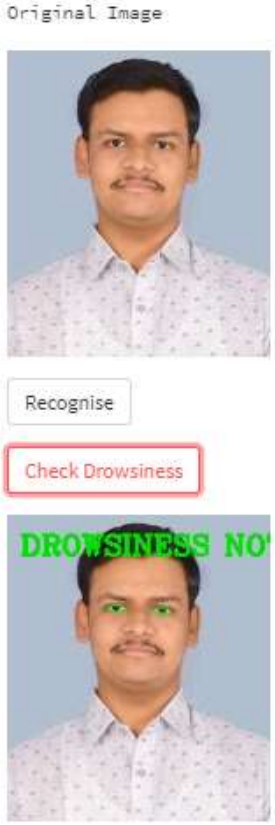


Fig 6: Drowsiness detection

	Name	Date	Time	Drowsiness_Status
0	Balaji	27-04-2022	18:50:20	false

Fig 7: Preview of Attendance

Working of application

Fig 8: Upload of image

Fig 9: Image Recognition

Working of application

Fig 10: Drowsiness detection

	Name	Date	Time	Drowsiness_Status
0	Balaji	27-04-2022	18:50:20	false
1	Anant	27-04-2022	18:52:30	false

Fig 11: Preview of Attendance

Working of application

Face Recognition

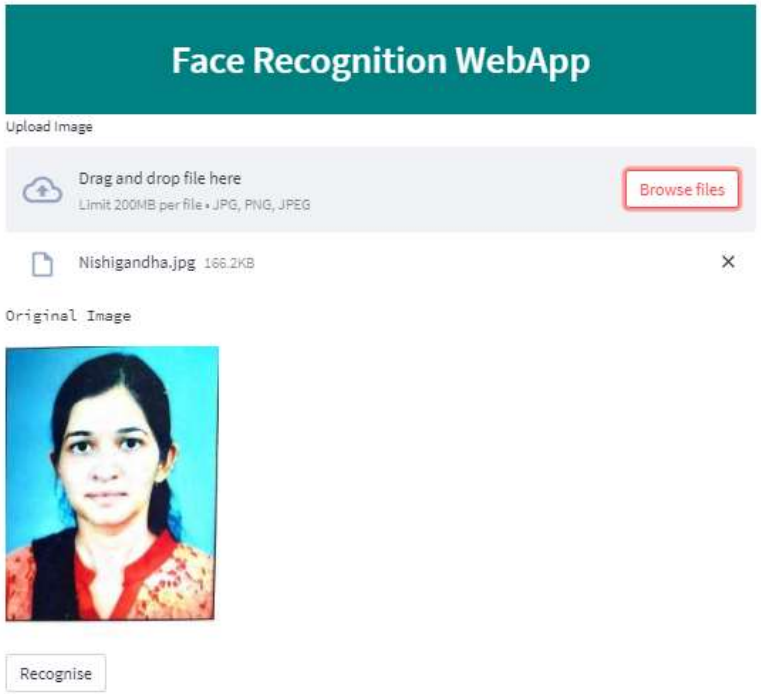


Fig 12: Upload of image

Fig 13: Image Recognition

Working of application

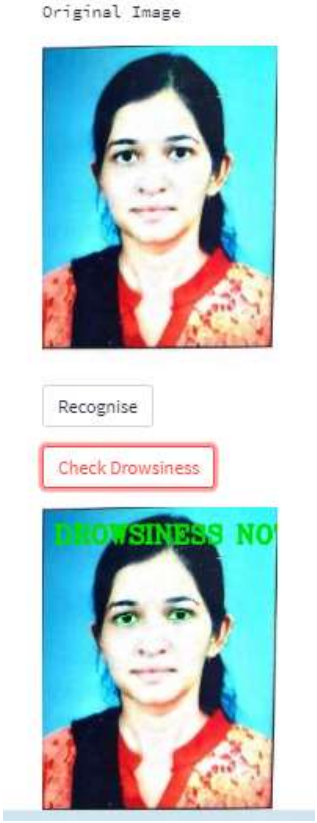


Fig 14: Drowsiness detection

	Name	Date	Time	Drowsiness_Status
0	Balaji	27-04-2022	18:50:20	false
1	Anant	27-04-2022	18:52:30	false
2	Nishigandha	27-04-2022	18:54:25	false

Fig 15: Preview of Attendance

Conclusion

- Due to distance education students are not getting motivated with traditional way of teaching with pen and paper it is more impactful.
- With the help of this model we will able to connect to students more precisely and with more effectiveness.
- As soon as student get distracted it will come to know to us.
- we can take actions according to that with the help of these systems.

Conclusion

- It will be beneficial to both students as well as teachers.
- With less number of input from students we can detect students and drowsiness.
- Education system will take new steps towards future with this.

References

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Thank You...