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Attendance System Using Face Recognition

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Contents

Problem Definition

Traditionally attendance is marked manually by teachers and they must make sure correct attendance is marked for respective student. This whole process wastes some of the lecture time and part of correct information is missed due to fraudulent and proxy cases.

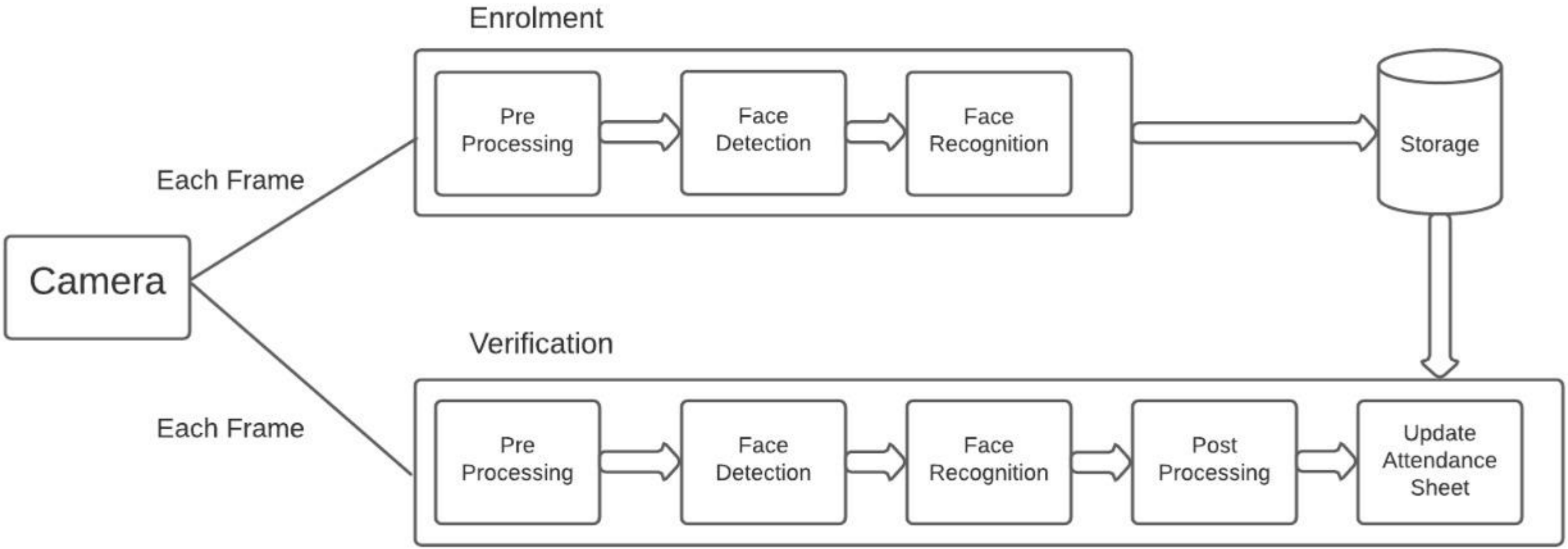
INTRODUCTION

In order to determine the classroom attendance, face detection and face recognition are performed. Face detection is used to determine the location of the faces in the classroom and to extract the sub images of face. Then in face recognition, the face images detected by comparing with the data base consisting of images of the students in the class, and attendance will be recorded accordingly.

LITERATURE SURVEY :

Sr.No.	Author	Title	Review	Journal/Conference	Year
1	Li Wang, Ali Akbar Siddique.	Facial recognition system using LBPH face recognizer for anti-theft and surveillance application	Proposed the system utilized the concept of facial recognition by using a pre-trained LBPH Face Recognizer to identify the person in the acquired frame.	Measurement and Control Volume 53, Issue 7-8,	2020
2	Kadambari S, Prabhu G, Mistry D, et al.	Automation of attendance system using facial recognition	The system can detect the desired person with the accuracy of 89.1%. If we further increased the number of datasets, then the accuracy will also increase.	international conference on advances in computing, communication and control	2019
3	Jagtap AM, Kangale V, Unune K.	A study of LBPH, Eigenface, Fisherface and Haar-like features for face recognition using OpenCV.	Face recognition is the process of identification of an individual by choosing the closest distance between test image and train image.	international conference on intelligent sustainable systems (ICISS)	2019
4	Changting He, Ya Wang, Ming Zhu	A Class Participation Enrollment System Based on Face Recognition	Estimated technique for face detection and recognition, which can classify the given face image by comparing with trained face images.	International Conference on Image, Vision and Computing.	2017

Block Diagram :



Algorithm :-

1. If student is not registered then they have to register their details, otherwise go to step 4.
2. Capture images
3. Train the model
4. Attendance
5. Quit

Algorithm used

- HaarCascade Algorithm
- LBPH Algorithm

Main Modules

- tkinter
- cv2
- csv
- os
- numpy
- pandas
- PIL

Hardware / software Requirements

- Hardware Requirements *:*

1. *Laptop (i5, 8 GB)*
2. *Camera*

- Software Requirements

1. *Windows 10/11*
2. *Python*
3. *Pycharm 2021.3.3*

Execution flow and Snapshots

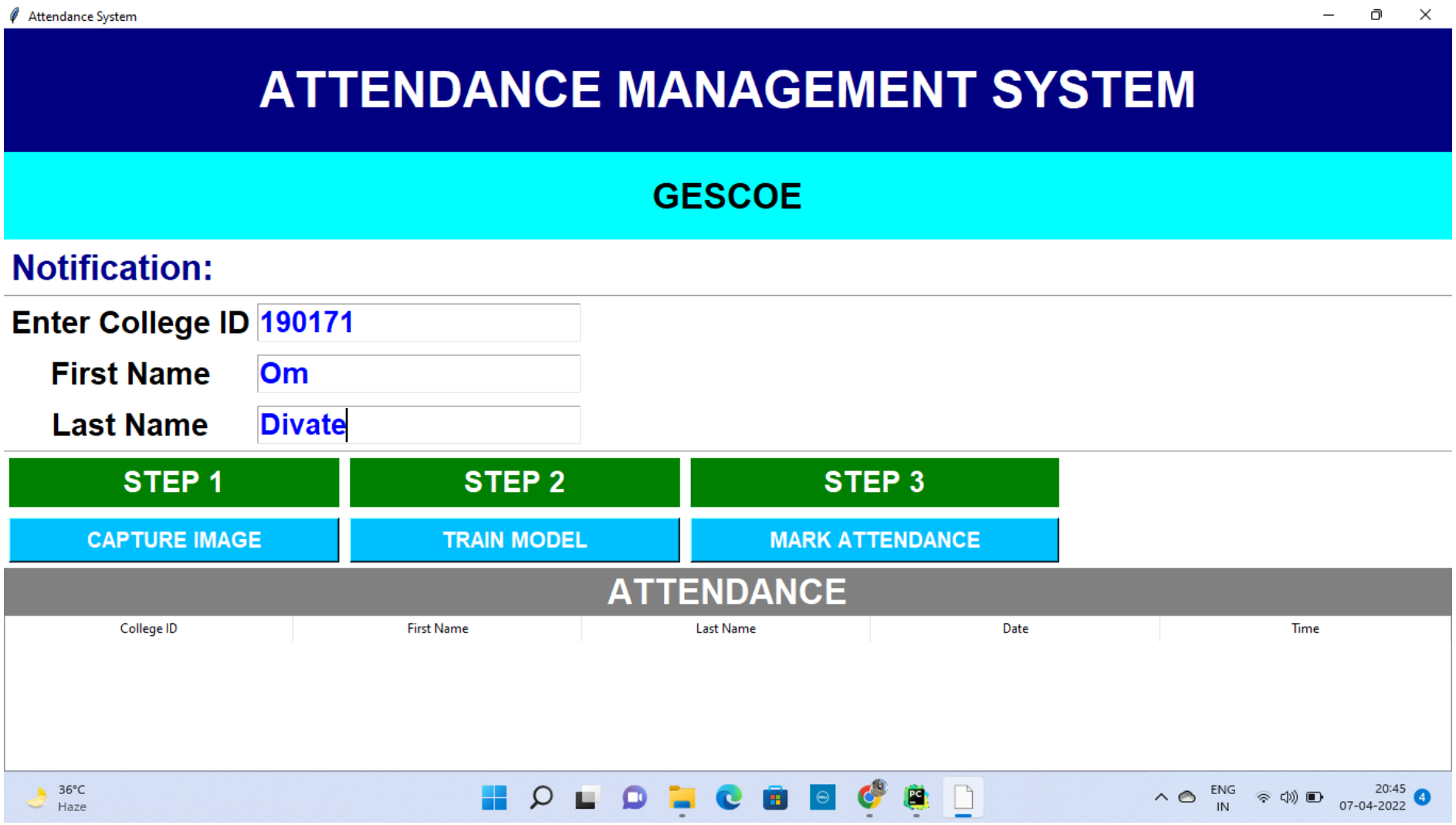


fig.1 Filling the details of student

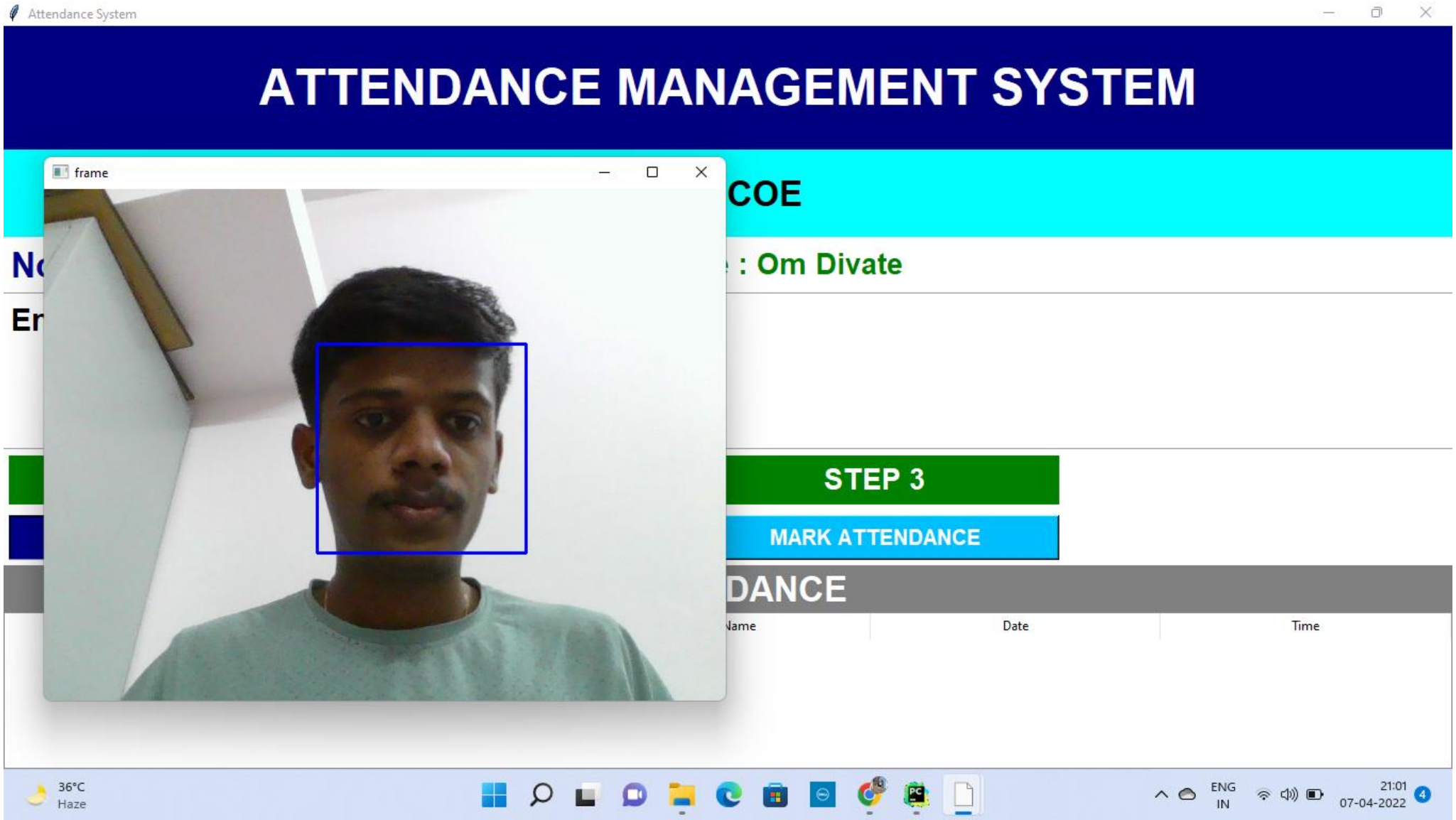


fig.2 clicking student images for registration

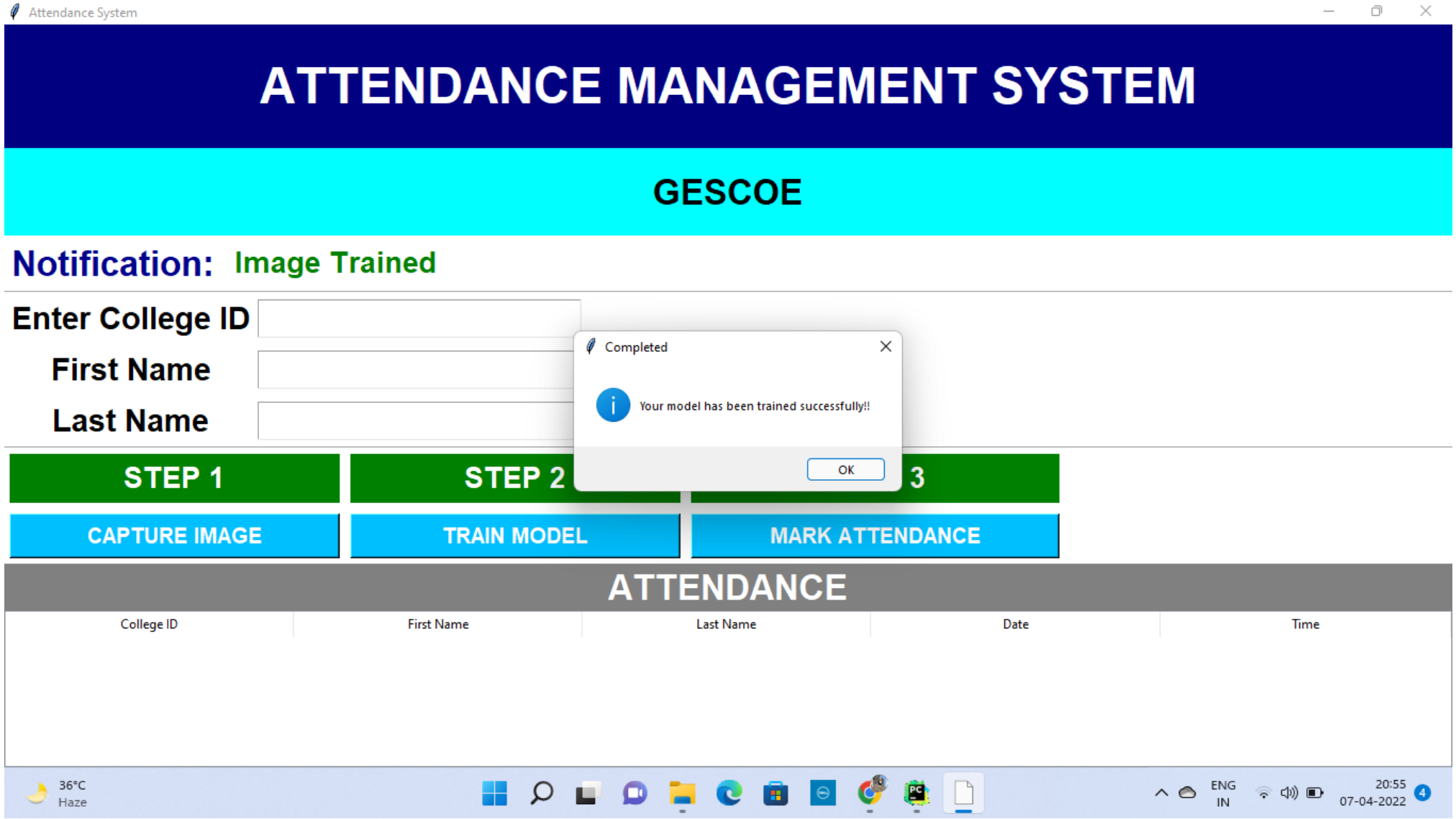


fig.3 Notification for successful registration

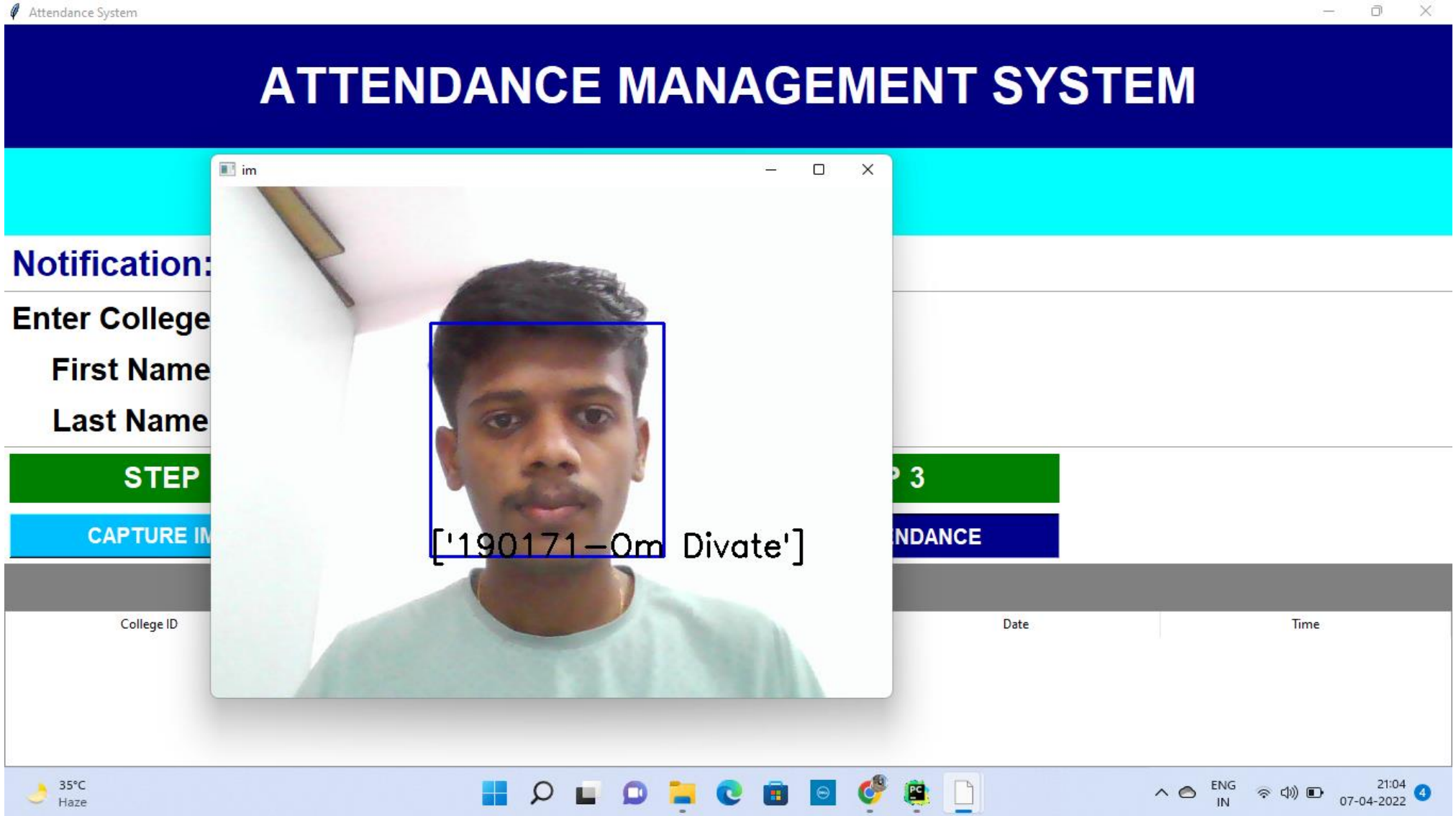


fig.4 marking attendance for students

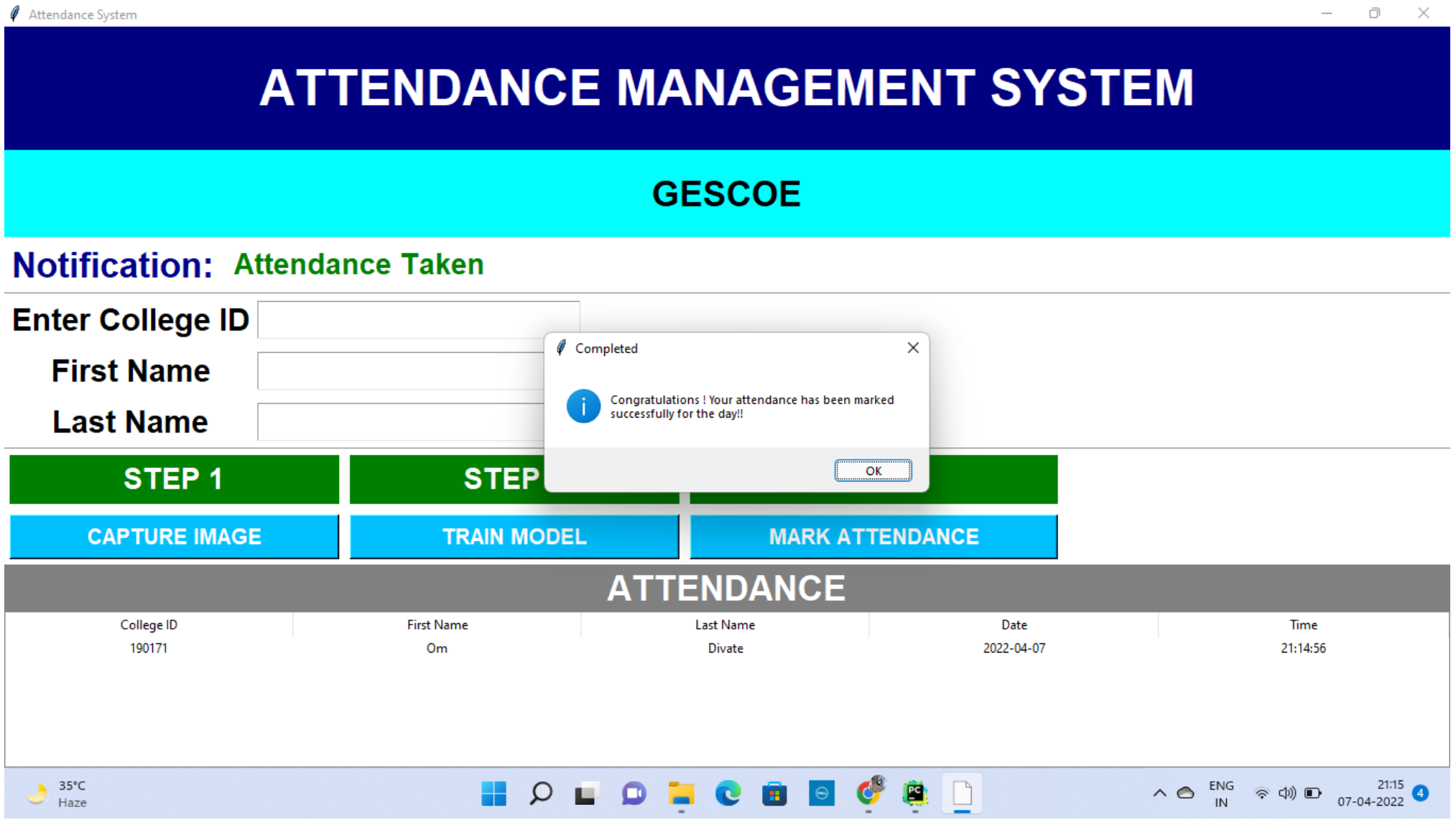
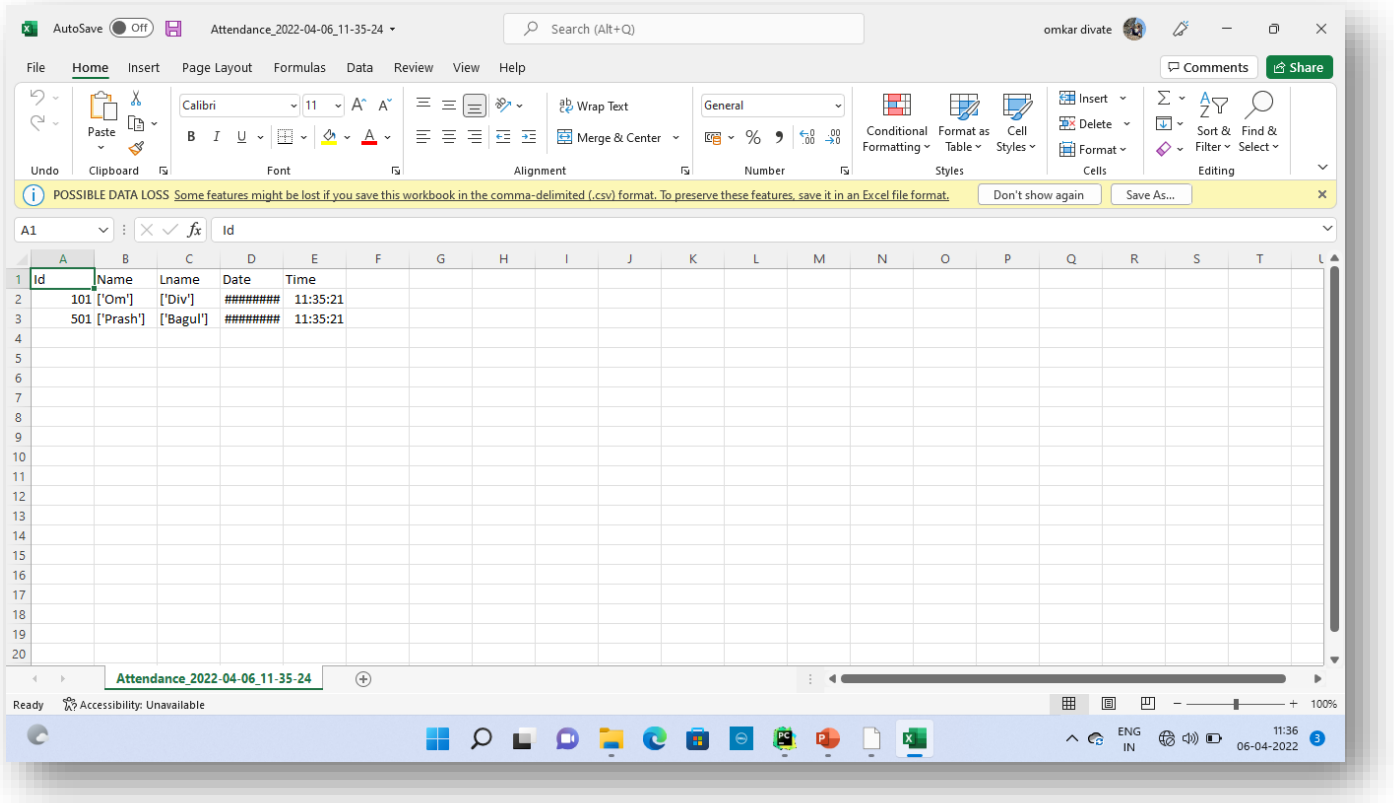


fig.5 attendance successfully recorded

Results

The result of the proposed system is shown in figure. The id and name of the students are displayed and attendance will be marked successfully.



Conclusion

- Sensitive to background, light and head orientation.
- Accurate and efficient method.
- Time saving.
- User-friendly and easy to use.

References

- *Li Wang, Ali Akbar Siddique. "Facial recognition system using LBPH face recognizer for anti-theft and surveillance application based on drone technology" , Measurement and Control, 2020 URL: https://journals.sagepub.com/doi/10.1177/0020294020932344*
- *A brief history of facial recognition. 2020. URL: https://www.nec.co.nz/market-leadership/publications-media/abrief-history-of-facial-recognition/*
- *Mark Andrejevic & Neil Selwyn (2020) "Facial recognition technology in schools: critical questions and concerns, Learning, Media and Technology,"*
- *Changting He, Ya Wang, Ming Zhu, " A Class Participation Enrollment System Based on Face Recognition", 2017 2nd International Conference on Image, Vision and Computing.*
- *Ahonen, Timo, Abdenour Hadid, and Matti Pietikainen. "**Face description with local binary patterns: Application to face recognition**." IEEE transactions on pattern analysis and machine intelligence 28.12 (2006): 2037–2041.*

Link for ideas and Source Codes

https://data-flair.trainig/blogs/artificial-intelligence-project-ideas/

https://journals.sagepub.com/doi/full/10.1177/002029402093234 4

http://eprints.utar.edu.my/2832/1/EE-2018-1303261-1.pdf

https://www.tandfonline.com/doi/full/10.1080/17439884.2020.1686 014

THANK YOU !