PROJECT REPORT ON
ATTENDANCE SYSTEM
USING
FACE RECOGNITION

Master Of Computer Application
<SUMMER PROJECT>

Submitted By:

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CERTIFICATE

This is to certify that the project titled **Attendance System Using Face Recognition** is successfully done by **Mr. Arindam Ghosh, Mr. Ninad Patil and Mr. Sarath Shankaranarayanan** during **MCA Sem V** of their course in partial fulfillment of **Master of Computer Application** under the **Vivekanand Education Society Institute Of Technology** carried out by him/her under our guidance and supervision.

External Examiner
(Signature & Date)

Internal Examiner
(Signature & Date)

ACKNOWLEDGEMENT

We avail this opportunity to express my sincere and deep gratitude to many who are a factor in helping us gain the knowledge and experience during the project and throughout the course.

We have great pleasure in presenting this project. The completion of this project is not merely due to only our own efforts but also due to the guidance given by our professors.

Finally we express my deep regards to all of those who stretch their helping

TABLE OF CONTENTS

ABSTRACT

Uniqueness or individuality of an individual face is the representation of one's identity. In this project the face of an individual is used for the purpose of attendance making automatically. Attendance of the student is very important for every college, university and school. Conventional methodology, the student and the attendance is recorded. Time consumption for this purpose is an important point of concern. Assume that the duration for one subject is around 60 minus or 1 hour and to record attendance takes 5 to 10 minutes. For every professor this is a waste of time. To stay away from these losses, an automatic process is used in this project which is based on image processing. In this project face detection and face recognition is used. Face detection is used to locate the position of face region and face recognition is used for marking the understudy's attendance. The database of all the students in the class is stored and when the face of the individual student matches with one of the faces stored in the database then the attendance is recorded.

INTRODUCTION

PROBLEM DEFINITION

Traditional student attendance marking techniques are often facing a lot of trouble. The face recognition student attendance system emphasizes its simplicity by eliminating classical student attendance marking techniques such as calling student names or checking respective identification cards. They not only disturb the teaching process but also cause distraction for students during exam sessions. Apart from calling names, attendance sheets are passed around the classroom during the lecture sessions. The lecture class, especially the class with a large number of students, might find it difficult to have the attendance sheet being passed around the class. Thus, a face recognition attendance system is proposed in order to replace the manual signing of the presence of students which is burdensome and causes students to get distracted in order to sign for their attendance. Furthermore, the face recognition based automated student attendance system is able to overcome the problem of fraudulent approach and lecturers do not have to count the number of students several times to ensure the presence of the students.

Hence, there is a need to develop a real time operating student attendance system which means the identification process must be done within defined time constraints to prevent omission. The extracted features from facial images which represent the identity of the students have to be consistent towards a change in background, illumination, pose and expression. High accuracy and fast computation time will be the evaluation points of the performance.

OBJECTIVE OF THE PROJECT

The objective of this project is to develop a face recognition attendance system. Expected achievements in order to fulfill the objectives are:

- To detect the face segment from the video frame.
- To extract the useful features from the face detected.
- To classify the features in order to recognize the face detected.
- To record the attendance of the identified student.

SCOPE OF THE PROJECT

We are setting up to design a system comprising two modules. The first module (face detector) is a mobile component, which is basically a camera application that captures student faces and stores them in a file using computer vision face detection algorithms and face extraction techniques. The second module is a desktop application that does face recognition of the captured images (faces) in the file, marks the students register and then stores the results in a database for future analysis.

SYSTEM STUDY

EXISTING SYSTEM

There are systems where only the face is recognised and taken attendance but no csv files are created in the background where the record of the student present on that day is recorded and can be used for future references.

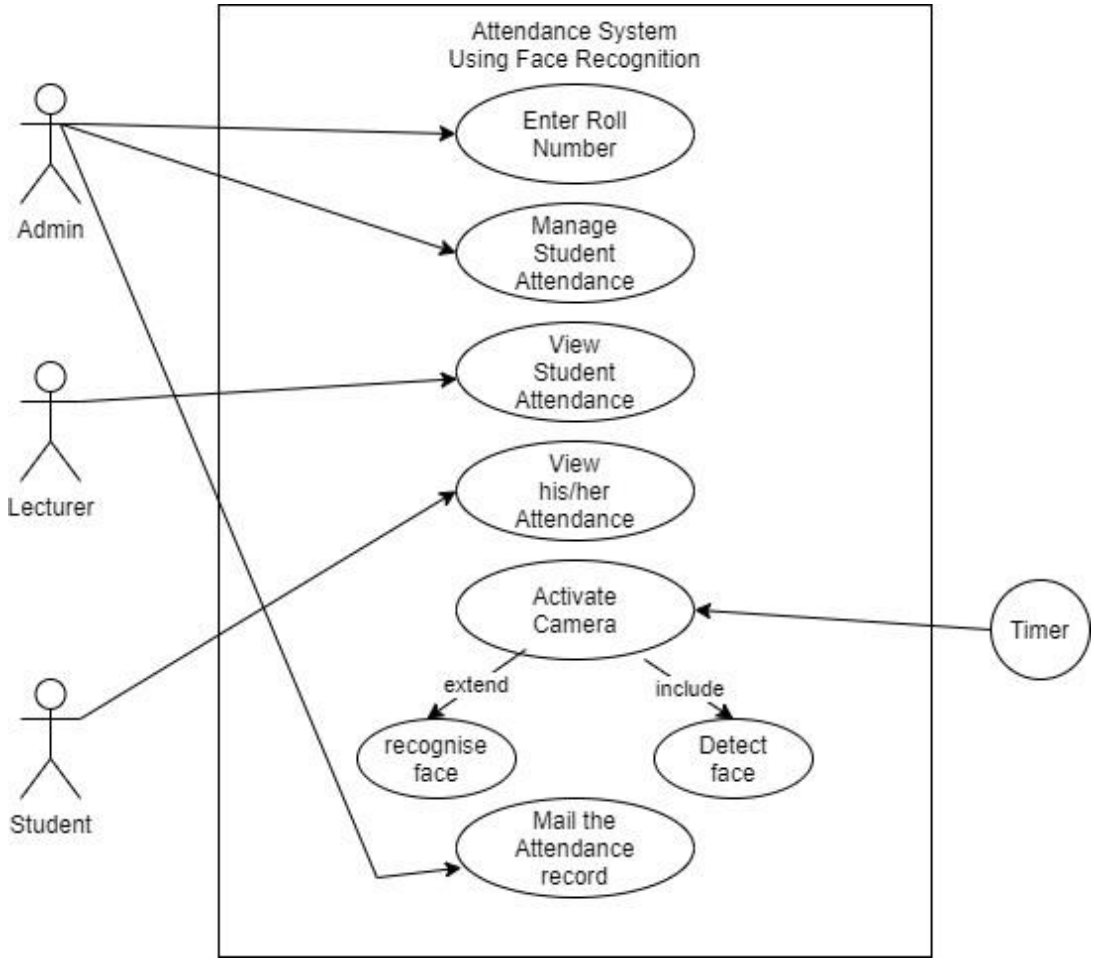
DISADVANTAGE OF EXISTING SYSTEM

- No system can create a csv file in the background to record the attendance record of all the students.
- There are biometric techniques and RFID systems. Although it is automatic and ahead of traditional methods it fails to meet the time constraint.
- Students have to wait in queue for attendance which is time consuming.
- It wastes lots of time of the professor during the lectures where they hardly get 1 hour to teach and spend almost 5-10mintues in taking attendance manually.
- Keeping the attendance record on a daily basis in a paper might get misplaced and a very time consuming process.

PROPOSED SYSTEM

- Involuntary attendance marking system, devoid of any kind of interference with the normal teaching procedure.
- Can be implemented during exam sessions or any teaching activities where attendance is highly essential.
- This system eliminates the classical student identification such as calling the name of the student, or checking respective identification cards of the student, which can not only interfere with the teaching process but also be stressful.
- The enrollment can be done on the spot through the user-friendly interface.

USE CASE



ANALYSIS & DESIGN

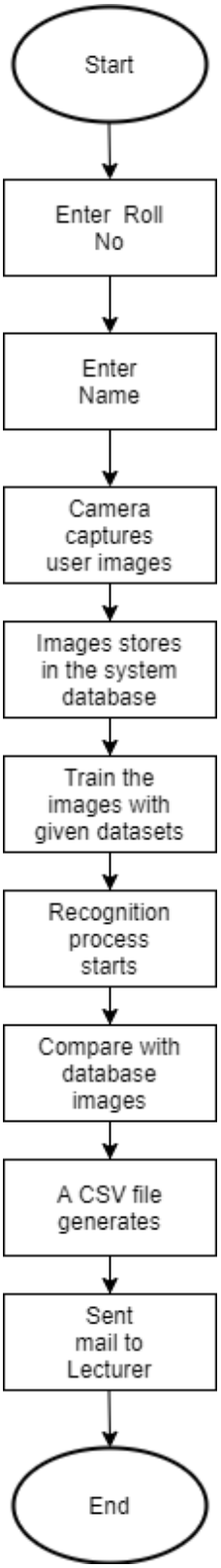
SOFTWARE REQUIREMENTS:

- **Operating Systems:** Windows 10
- **Software Used:** Excel, Google Chrome, OpenCV, Cascade detectors, PyCharm, Windows Terminal.
- **Programming Language:** Python

HARDWARE REQUIREMENTS:

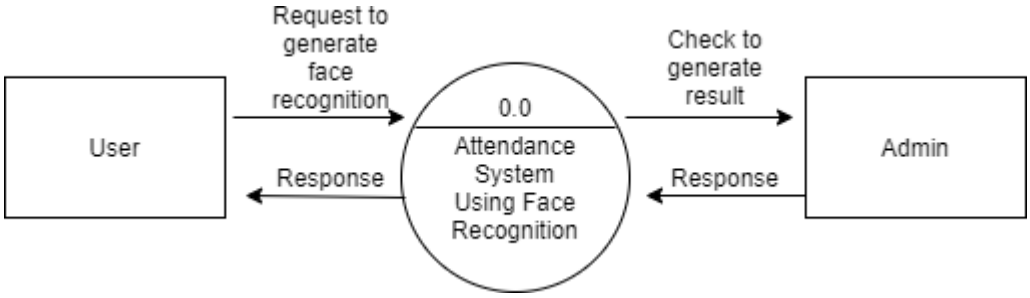
- Intel Core i3 (Processor)
- RAM: 4 GB
- Hard Disk: 15 GB
- Integrated Webcam

FLOWCHART:

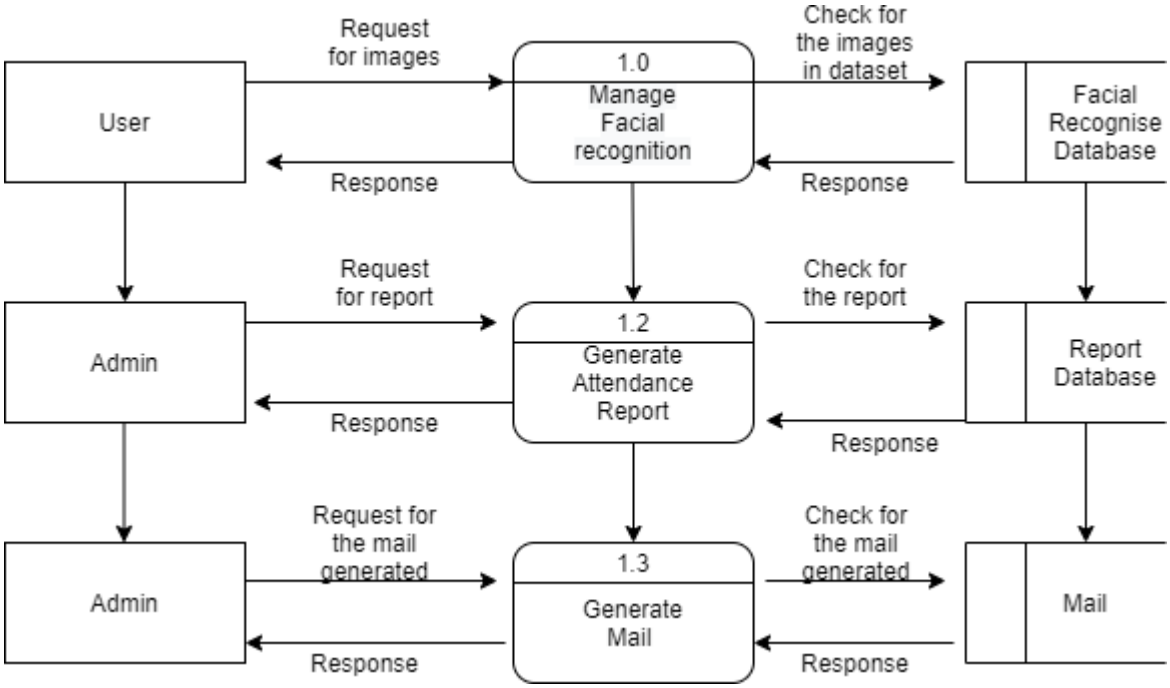

Start
Enter Roll No
Enter Name
Camera captures user images
Images stores in the system database
Train the images with given datasets
Recognition process starts
Compare with database images
A CSV file generates
Sent mail to Lecturer
End

DATA FLOW DIAGRAM (DFD):

0 Level DFD (The overview of data flowing in the system



1st Level DFD (In detail how the data is flowing in all modules)



USER MANUAL

KEY FUNCTIONALITIES OF EACH MODULE

A) **Image Capture:** In this module the system will capture 60 possible frames of the student and store it in the dataset which will be used later to help mark the attendance of the student.

B) **Model Training:** In this module the images which are captured by the system of the student will be trained and stored in the dataset so the system can recognise the face of that particular student when he/she marks his/her attendance.

C) **Attendance Marking:** In this module the admin will take the picture of the student for attendance with student details mentioned and matching the face with it..If the details and the face matches attendance will be marked and will show in the notification bar with subject name, time and student details.

D) **Mail Sent:** In this module the admin can mail the attendance record created in the form of CSV files at the background and can mail it to the HOD or anyone for future reference.

OUTPUT SCREENS:

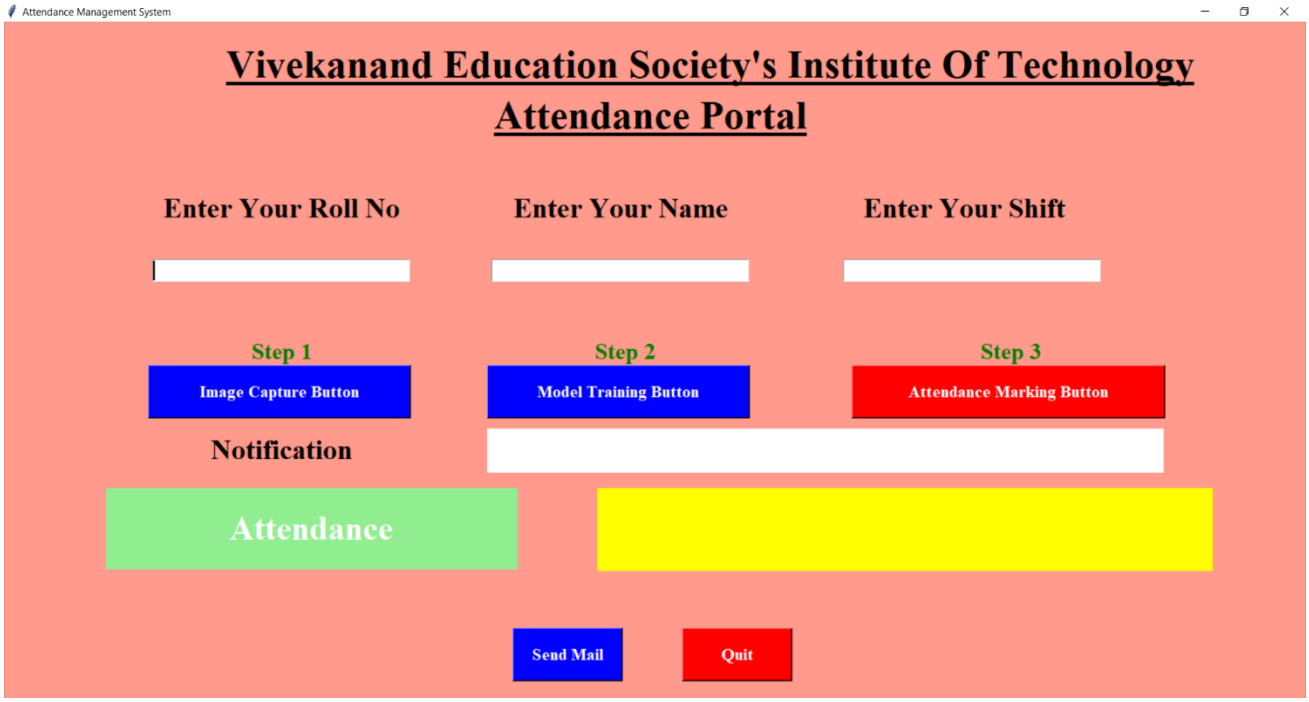


Fig:1 Home Page of the system

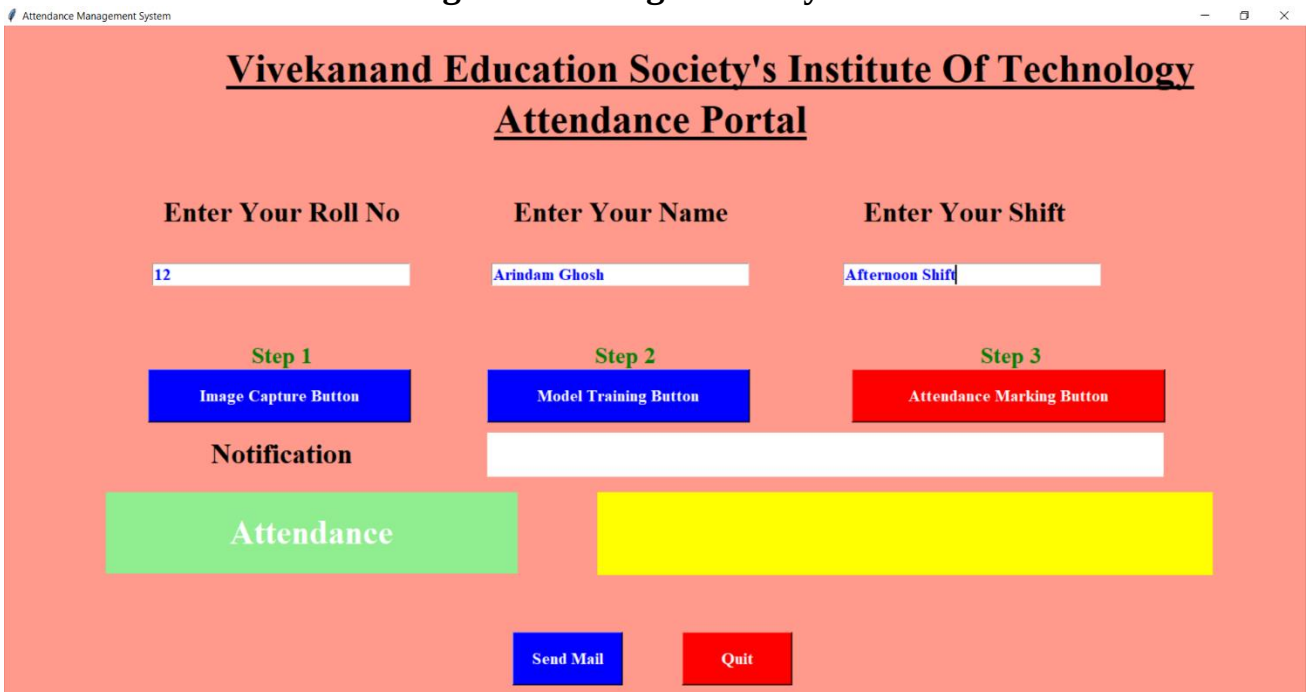


Fig: 1.2 Student adds details

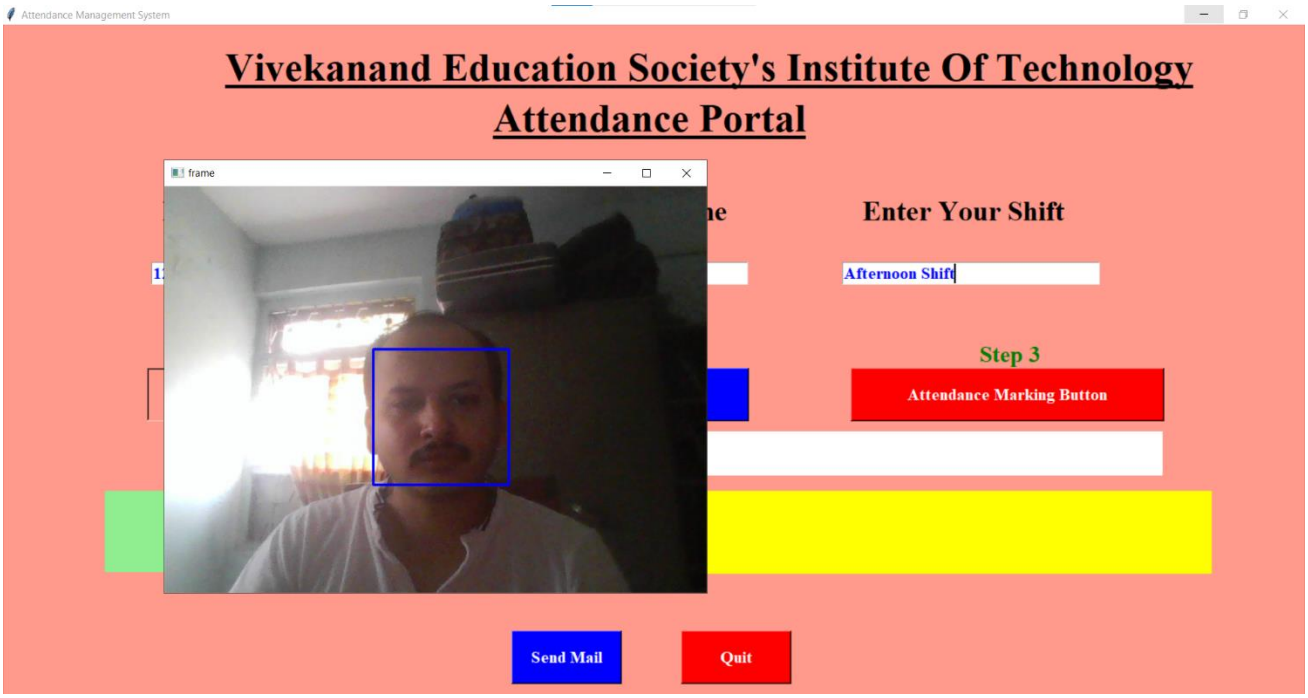


Fig: 1.3 Camera captures the face.

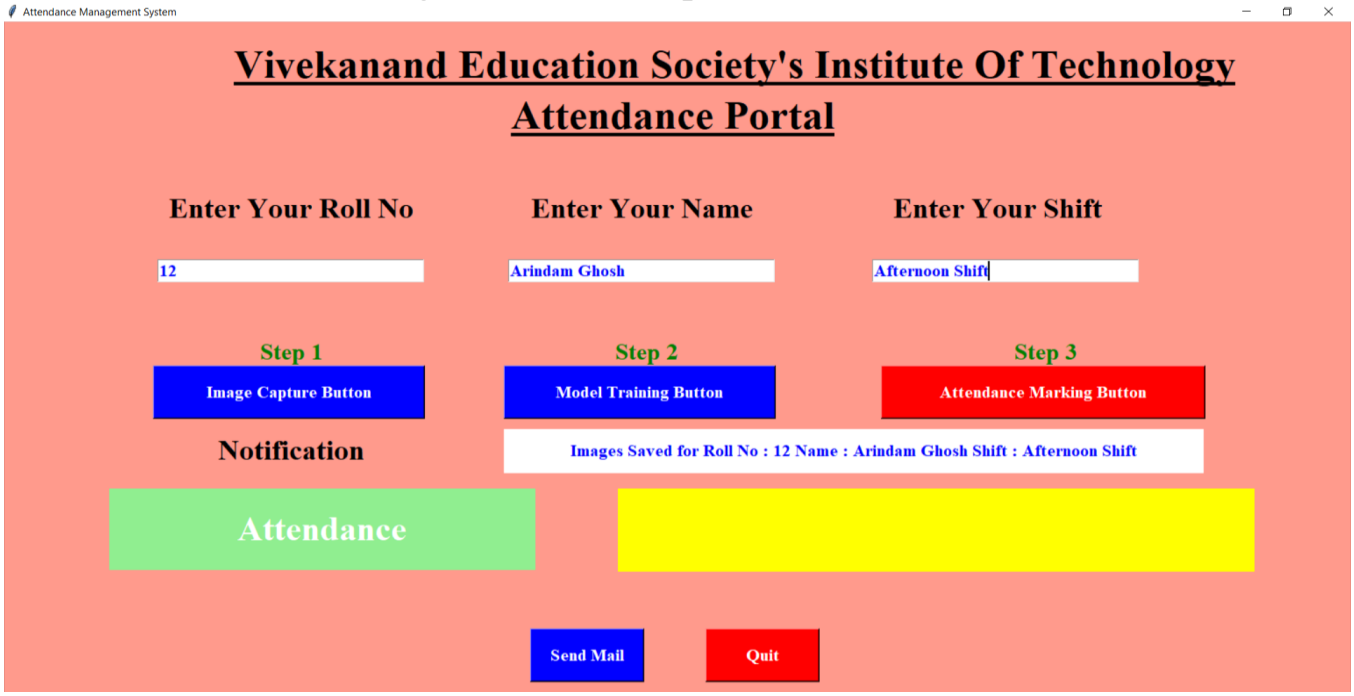


Fig: 1.4 After capturing the image is stored in dataset.

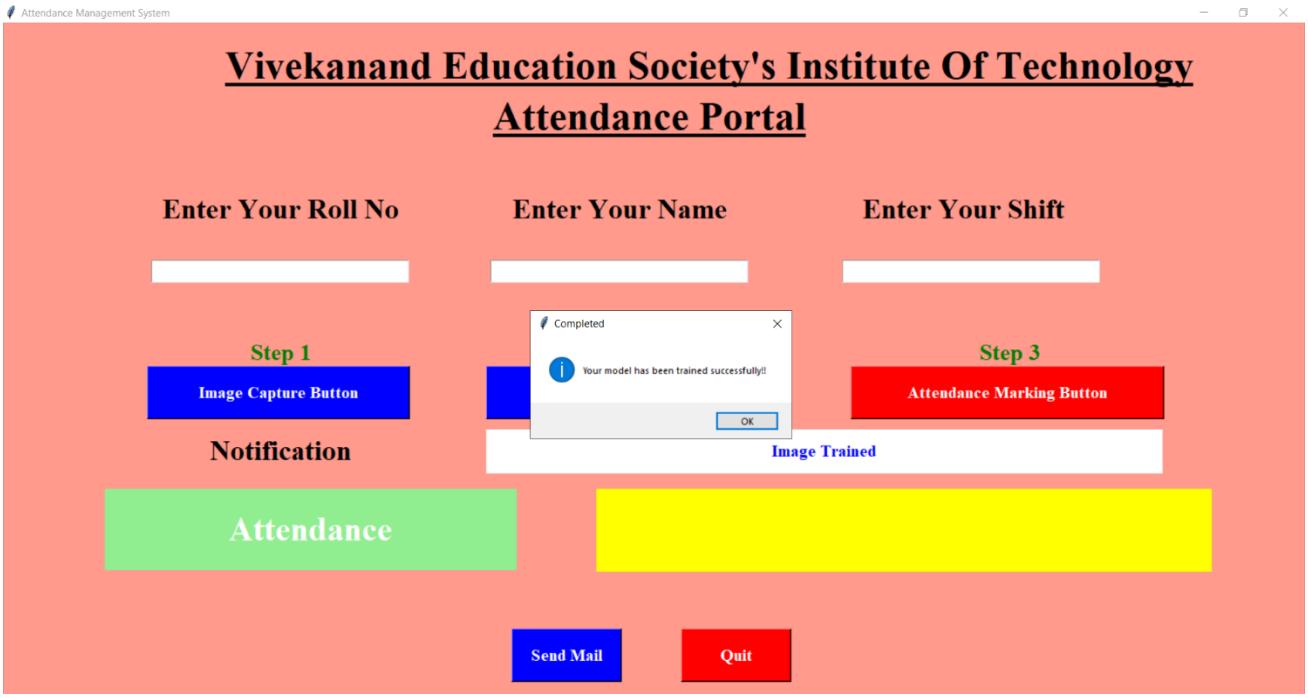


Fig: 1.5 Images are trained at the backend.

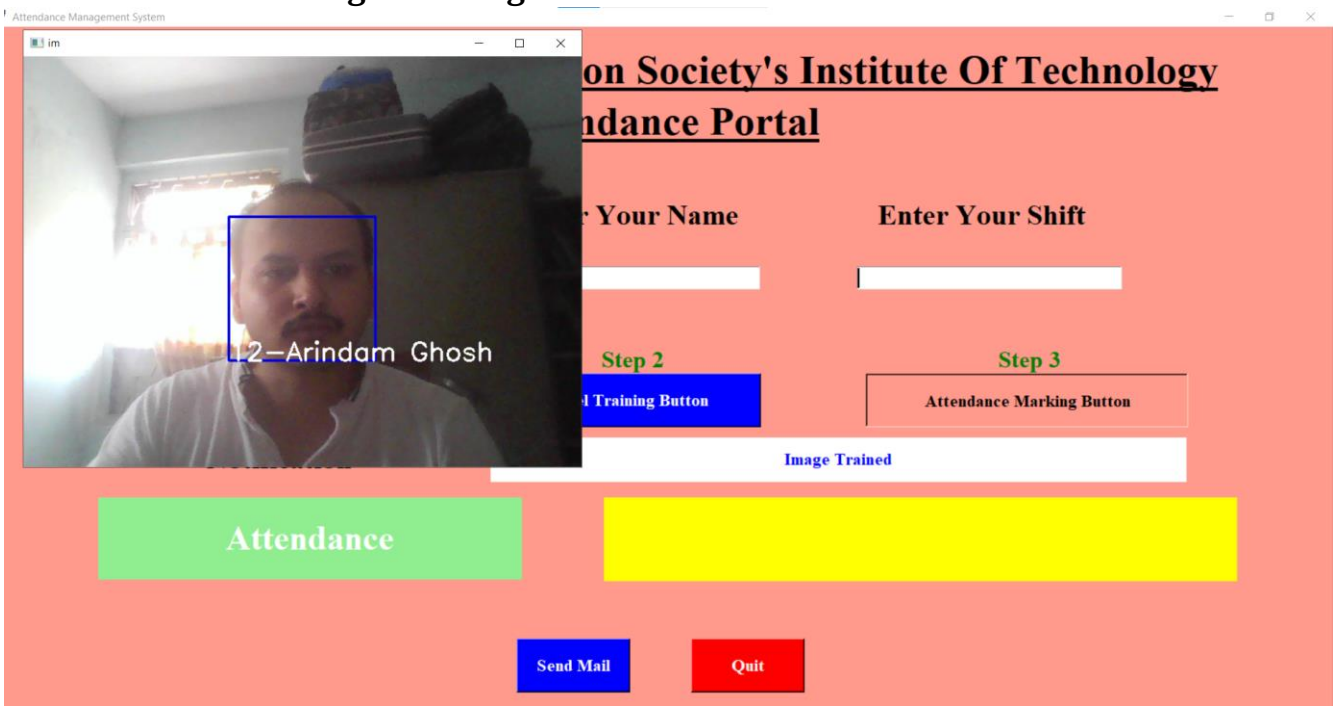


Fig: 1.6 For marking attendance the camera scans the face to match with the dataset.

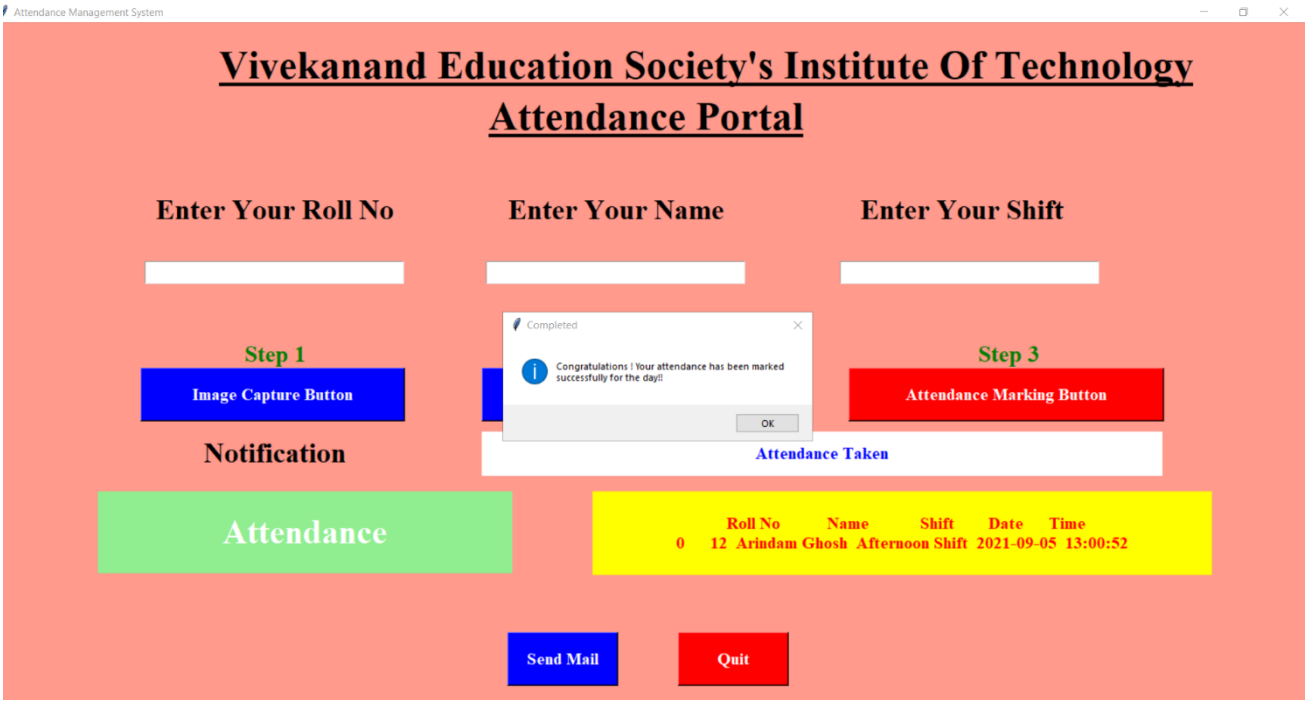


Fig: 1.7 Once done student attendance is marked.

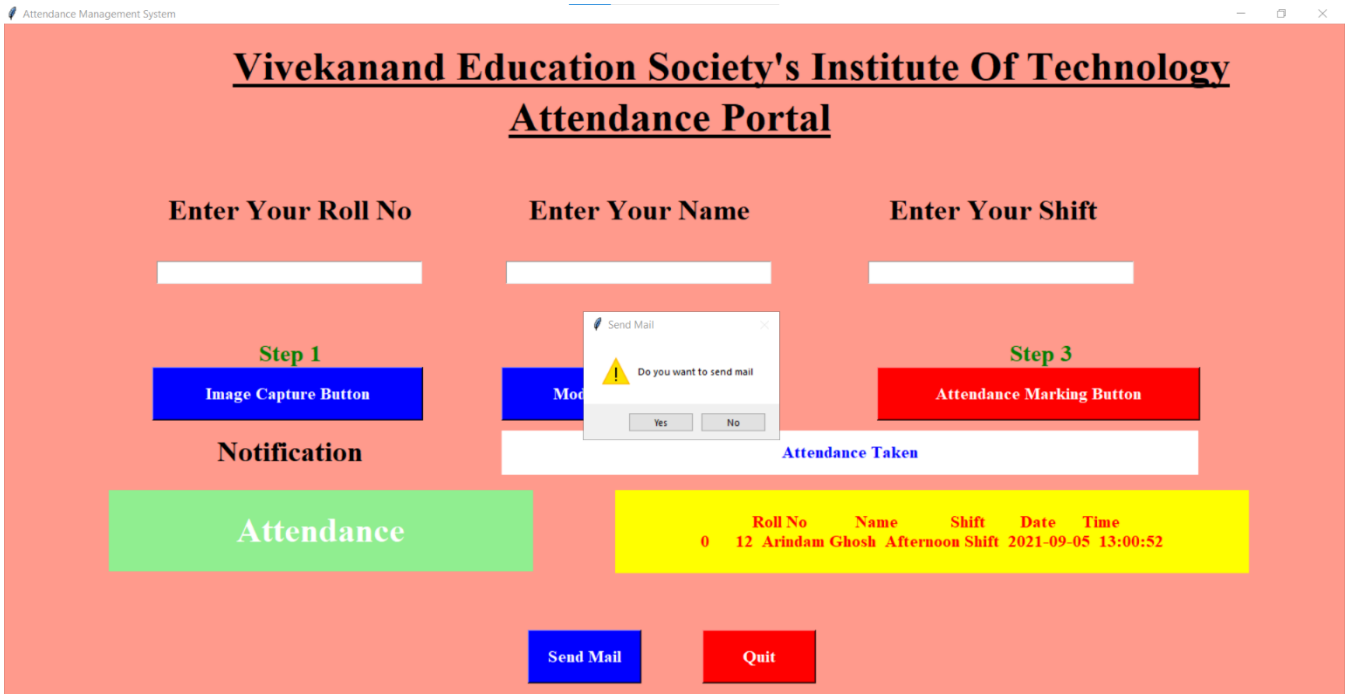


Fig: 1.8 Option to mail the attendance sheet created at the backend.

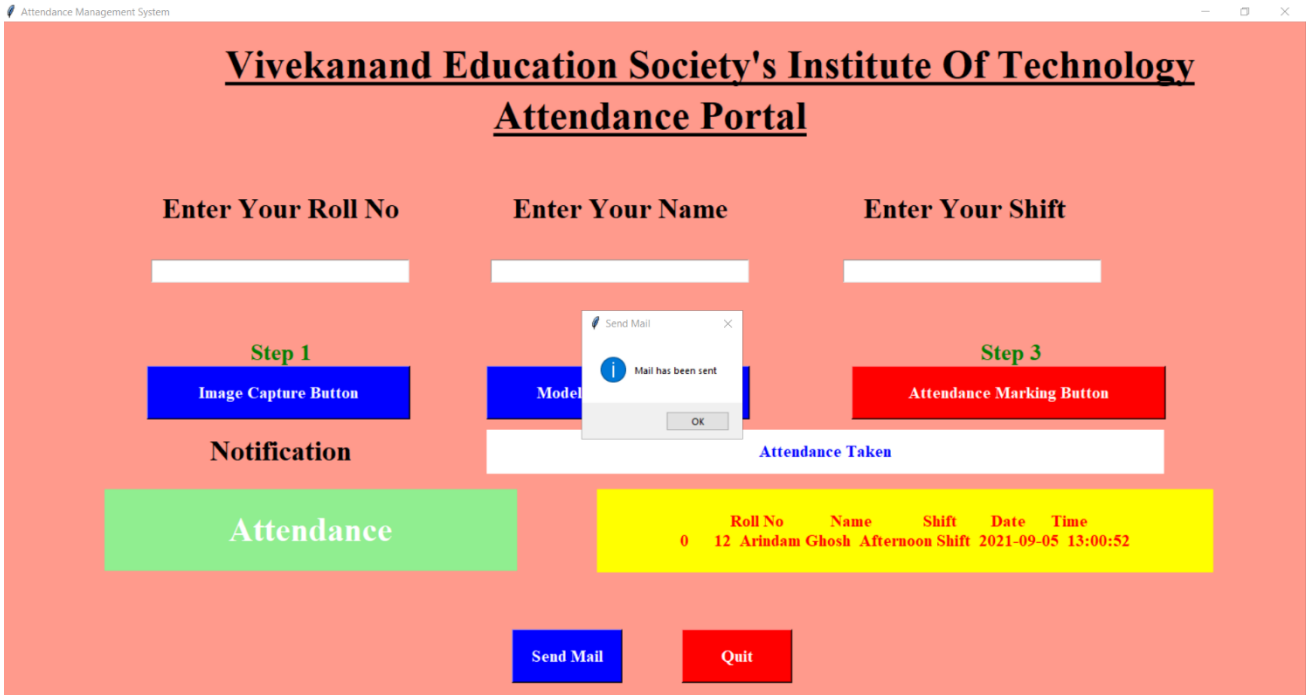


Fig: 1.9 mail has been sent to the respective person.

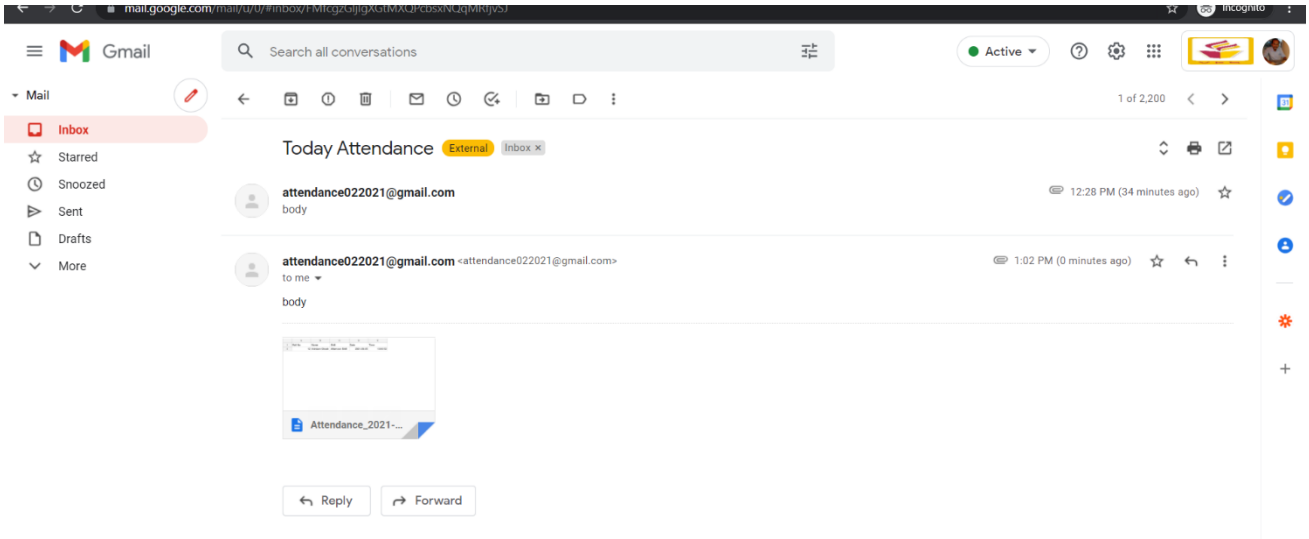


Fig: 2.0 Proof the attendance sheet has been received by mail.

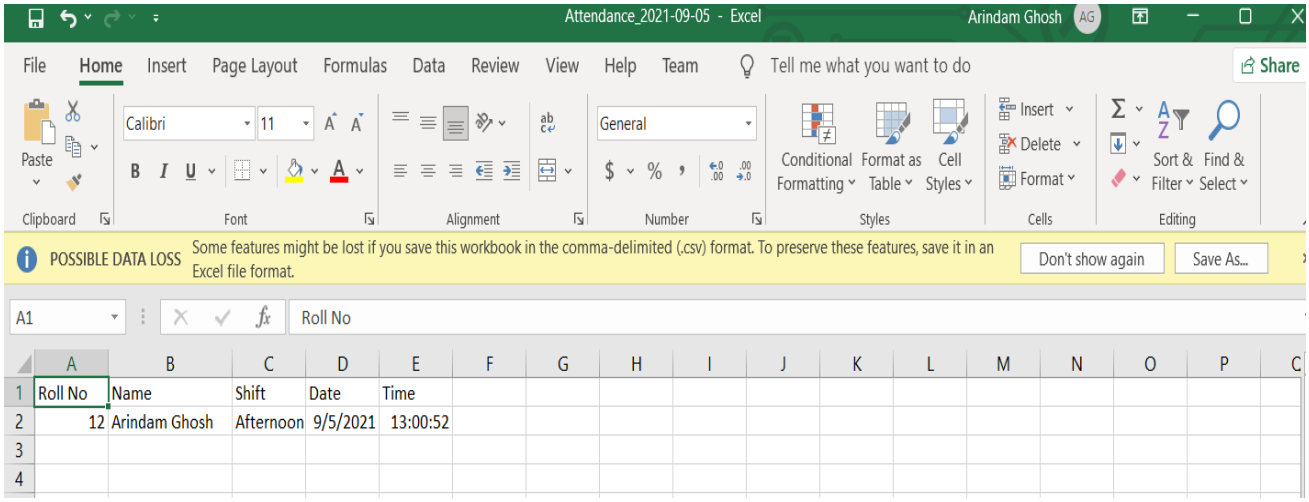


Fig: 2.1 Complete information of the student attended the lecture.

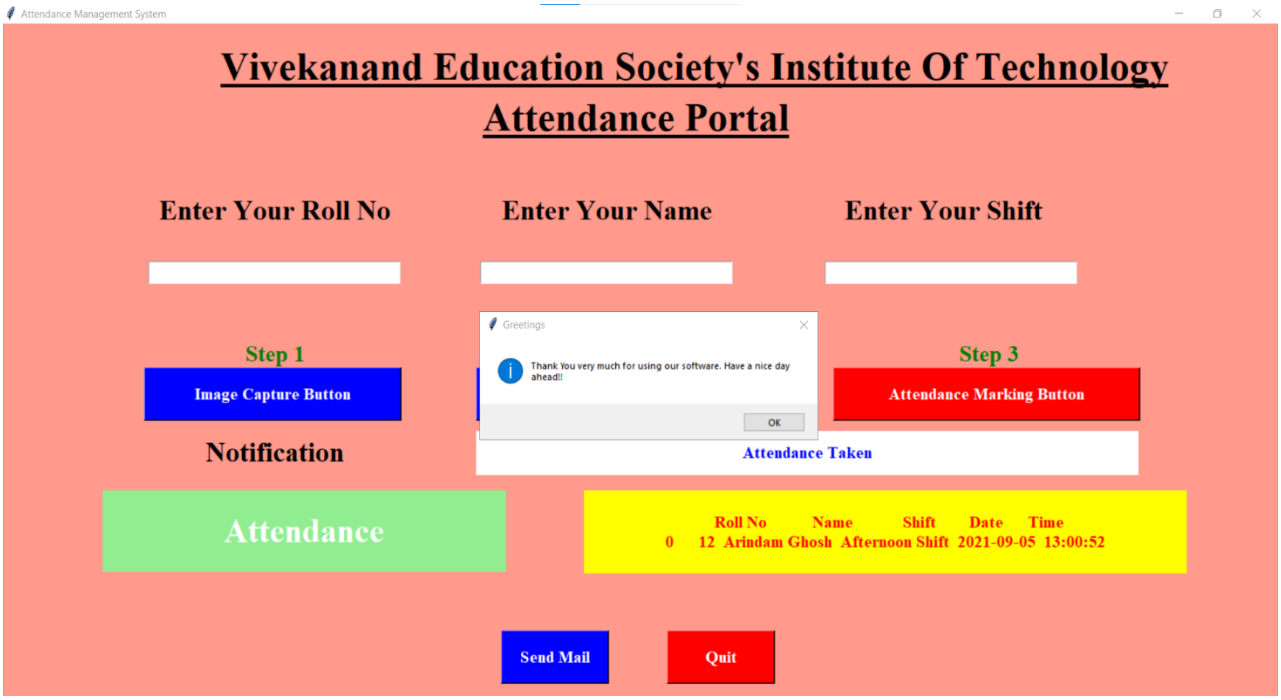


Fig:2.2 Quit the Applications and greetings

CONCLUSION

FUTURE ENHANCEMENT:

There are so many future scope on this project. Some of them are :

- Can improve security
- Can use Neural Network for high accuracy
- Can used in big factory or employee attendance
- Can build on a fully web based system.

REFERENCES

BIBLIOGRAPHY:

- Programming ASP.NET Jesse Liberty
- ASP.NET Unleashed, Second Edition Stephen Walther

WEBLIOGRAPHY:

- https://www.geeksforgeeks.org/python-programming-language/
- https://www.pyimagesearch.com/2018/07/19/opencv-tutorial-a-guide-to-learn-opencv/
- https://www.resourcespace.com/knowledge-base/user/facial-recognition