SECURE HOME AUTOMATION USING RASPBERRY PI BY TELEGRAM APP

PRESENTED BY: **(1923ITP001)**

G HARSHITHA **(19K61A1215)**
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ASSOCIATE PROFESSOR
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Previous Review Comments

G HARSHITHA (19K61A1215)

R .no	Name	Comments	Action Taken
R1	Dr K. Subhash Bhagavan	Refer more algorithms in literature survey.	More libraries are Referred.
R2	Dr A V S. Chandra Shekhar	Asked to change the literature survey with more relevancy.	More models are referred respective to system.
R3	Mr G. Nageswararao	Asked to refer methodology of the papers.	Improved presentation techniques.
R4	Mr U. Srinadh	Refer more about the block diagrams.	More techniques are referred.
R5	Dr A V S. Siva Rama Rao	Modify block diagram.	More tools are verified.

Previous Review Comments

N AKANKSHA (19K61A1240)

R .no	Name	Comments	Action Taken
R1	Dr K. Subhash Bhagavan	Refer recent papers for literature survey.	More recent papers are referred.
R2	Dr A V S. Chandra Shekhar	Refer more techniques and models used.	More models are referred respective to system.
R3	Mr G. Nageswararao	Modify algorithms diagram.	Improved presentation techniques.
R4	Mr U. Srinadh	Refer more tools for methods used.	More tools are referred.
R5	Dr A V S. Siva Rama Rao	Refer more algorithms in literature survey.	More Algorithms related to System are verified.

Previous Review Comments

A HARIKA (19K61A1201)

R .no	Name	Comments	Action Taken
R1	Dr K. Subhash Bhagavan	Refer more libraries.	More libraries are Referred.
R2	Dr A V S. Chandra Shekhar	Asked to refer methodology of the papers.	More models are referred respective to system.
R3	Mr G. Nageswararao	Modify block diagram.	Improved presentation techniques.
R4	Mr U. Srinadh	Refer more techniques and models used.	More techniques are referred.
R5	Dr A V S. Siva Rama Rao	Refer more tools for methods used.	More tools are verified.

Contents

Abstract

In today's generation we are facing household security issues. So, we are resolving these issues by our proposed system. The goal of this project is to help users improve the door security of sensitive places by using face detection and recognition. If any unauthorized faces was detected automatically system will capture the image and will send the image to authorized person through telegram.

CONTENTS

Introduction

- IR sensor is used to sense any motion in front door, which triggers camera to capture the image and send it to the owner through the telegram.
- Unlike existing notification systems, ours proposed system uses Telegram notification to notify the owner. The advantage of using telegram is that some of the senior citizens does not use G-mail or Twitter as it requires the account creation and find it difficult to operate.

Literature Survey...

IOT HOME AUTOMATION: DASHI AND DEEP

Results	This system is successfully implemented, this is a very different concept from those available in market where a WI-FI module is setup.
Conclusion	This system is easy to use,saves unnecessary power consumption, easy to implement and low compared to other systems and has more related features.
Limitations	Security, privacy, and designing, developing the system is very complex.

Literature Survey...

IOT BASED SMART SECURITY AND SMART AUTOMATION: SUDHA AND PRIYA

Abstract	The IOT providing an easy way of life with comforts to human being by managing and interacting remotely control of home appliances.This proposed system contains two Node MCU.
Objective	The objective of this paper is to experimental setup of a home automation system by using IOT concept.
Methodology	The Proposed Model of home automation system contains Server, actuators. This system can control,managed remotely of room temperature.

Literature Survey...

IOT BASED SMART SECURITY AND SMART AUTOMATION: SUDHA AND PRIYA

Results	The objective of this paper is to experimental setup of a home automation system by using IoT concept.
Conclusion	This proposed home automation system can be scaled up to apartments but when it will be implemented on large scale then security issues will be occurred.
Limitations	Security has many issues during implementation.

Methodology

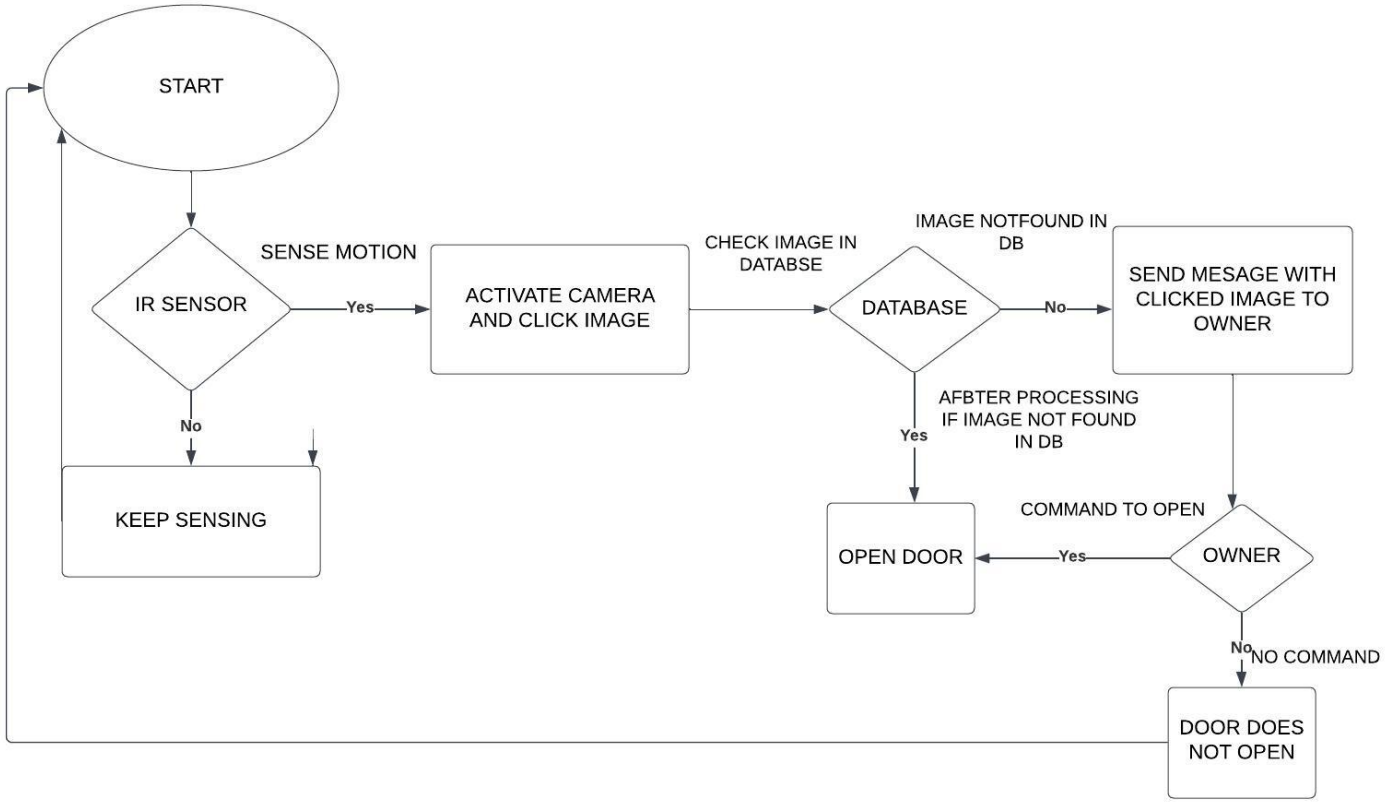
Step by Step initialization

- **Step 1:** SD Card - This contains the faces of person who are authenticated to enter the house.
- **Step 2:** Start-up of Secure Door – The user can keep the security system ON/OFF depending on whether he is available at home or not. When 'start' command is typed on the Telegram then it activates the monitoring system.
- **Step 3:** Object Identification using IR Sensor -IR sensor is activated when it senses any motion near the door and activates the camera.

Methodology...

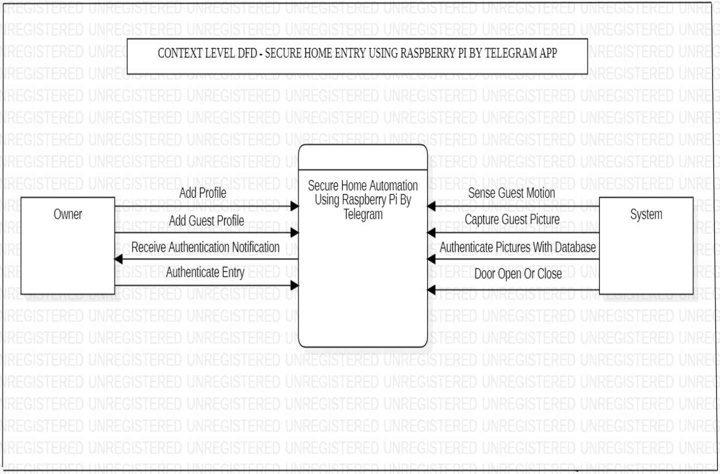
- **Step 4:** Identification of Person - When image is clicked, face recognition is done against the image stored in the SD card.
- **Step 5:** Door Action – Authenticated person is allowed to enter the house and corresponding detail message about the person is shared with the owner.

Detailed Design



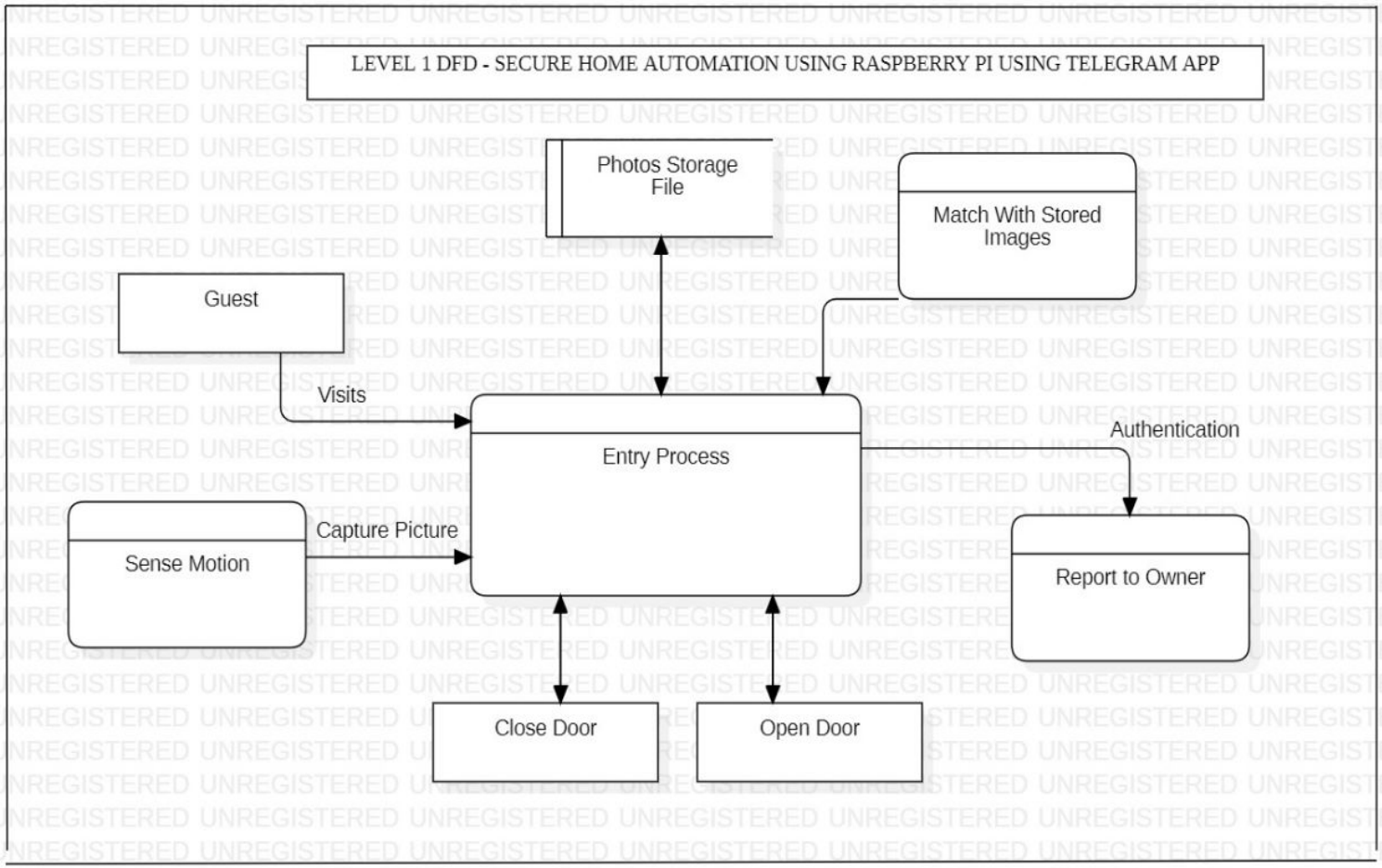
Data Flow Diagrams

Level 0 DFD:



Data Flow Diagrams...

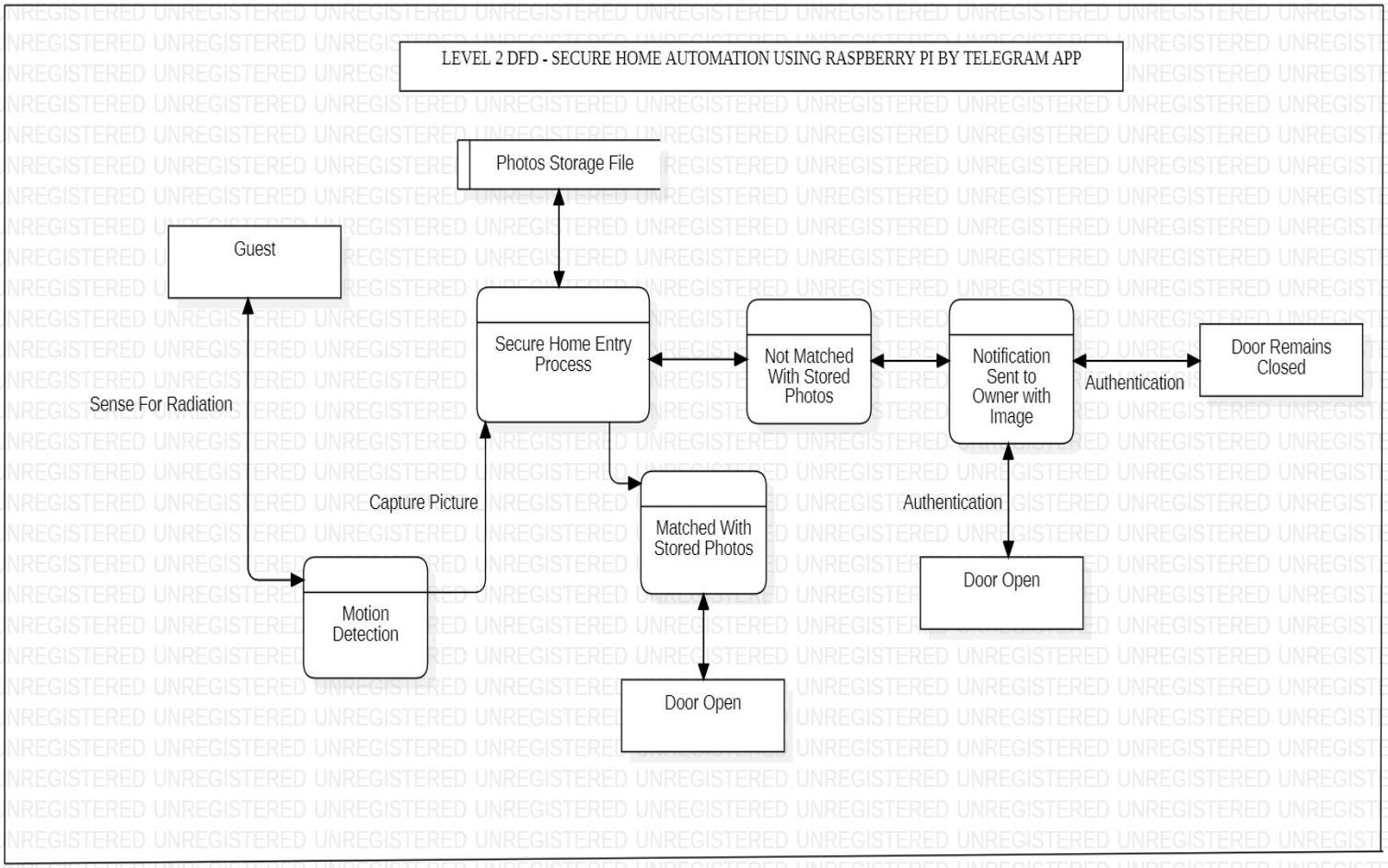
Level 1 DFD:



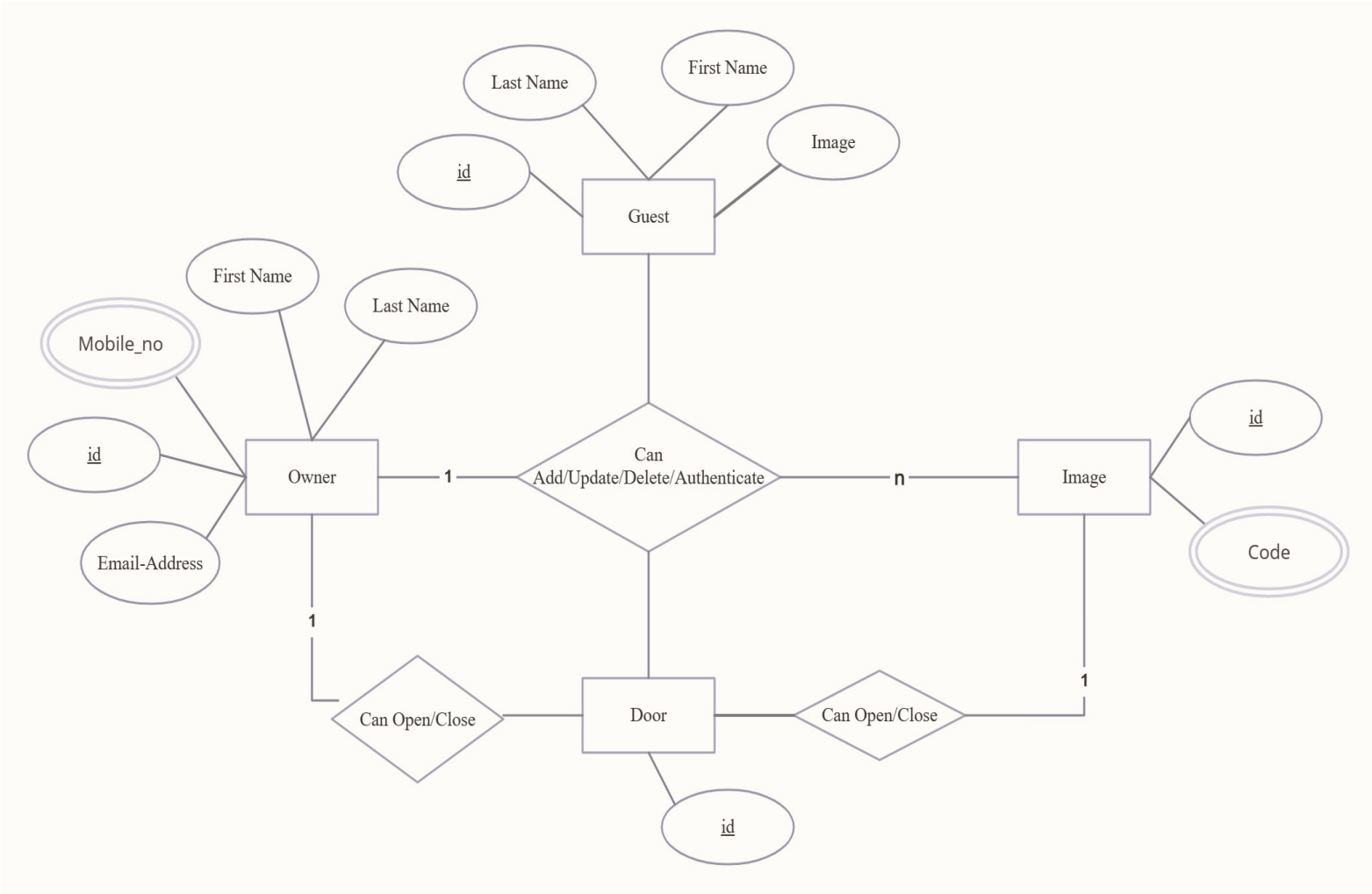
UNREGISTERED

Data Flow Diagrams...

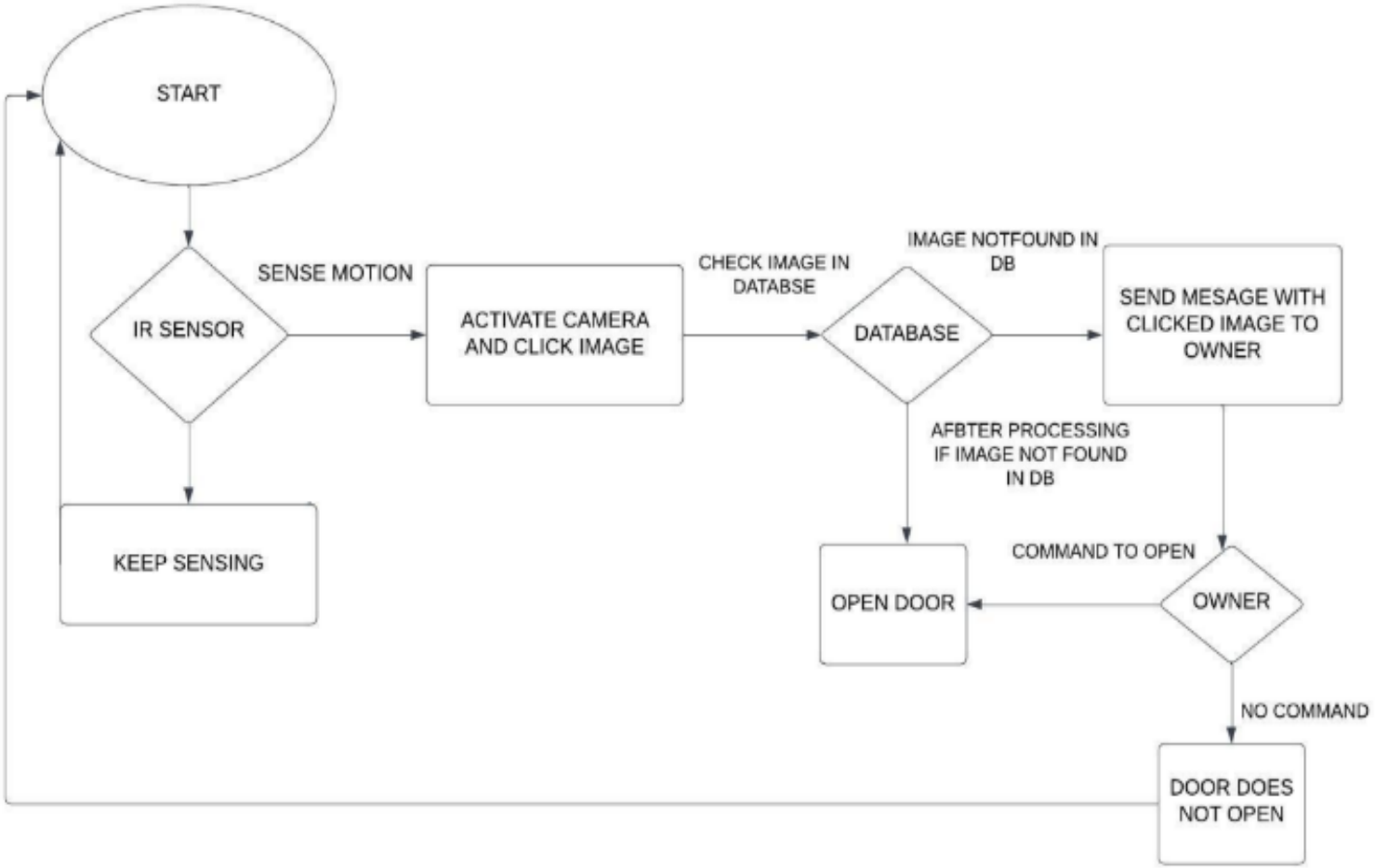
Level 2 DFD:



(ER)Entity Relationship Diagram



Control Flow



Contribution of the candidate

Project Associate (PA)	Problem Formulation	Design	Implementation	Testing	Deployment	Project Report Writing
PA1 19K61A1215	Yes	Yes	Yes	Yes	Yes	Yes
PA2 19K61A1240	Yes	Yes	Yes	Yes	Yes	Yes
PA3 19K61A1201	Yes	Yes	Yes	Yes	Yes	Yes

Requirements

Implementation design of the proposed system requires the following requirements:
Hardware Requirements, Software Requirements and User Requirements

Hardware Requirements:

- Raspberry Pi board
- USB Camera
- IR Sensor
- SD Card
- Door

Requirements...

Software Requirements:

- Python Software
- Open CV

Requirements at user end:

- Telegram

Python Software...

The python software component would be responsible for monitoring the system resources such as CPU usage, memory usage, and disk I/O. It would ensure that there is always a certain amount of processing power and memory available for other software components to use, while also minimizing power consumption and prolonging the life of the Raspberry Pi.

Open CV...

- OpenCV is an open-source library for the computer vision. It provides the facility to the machine to recognize the faces or objects. In this tutorial we will learn the concept of OpenCV using the Python programming language.

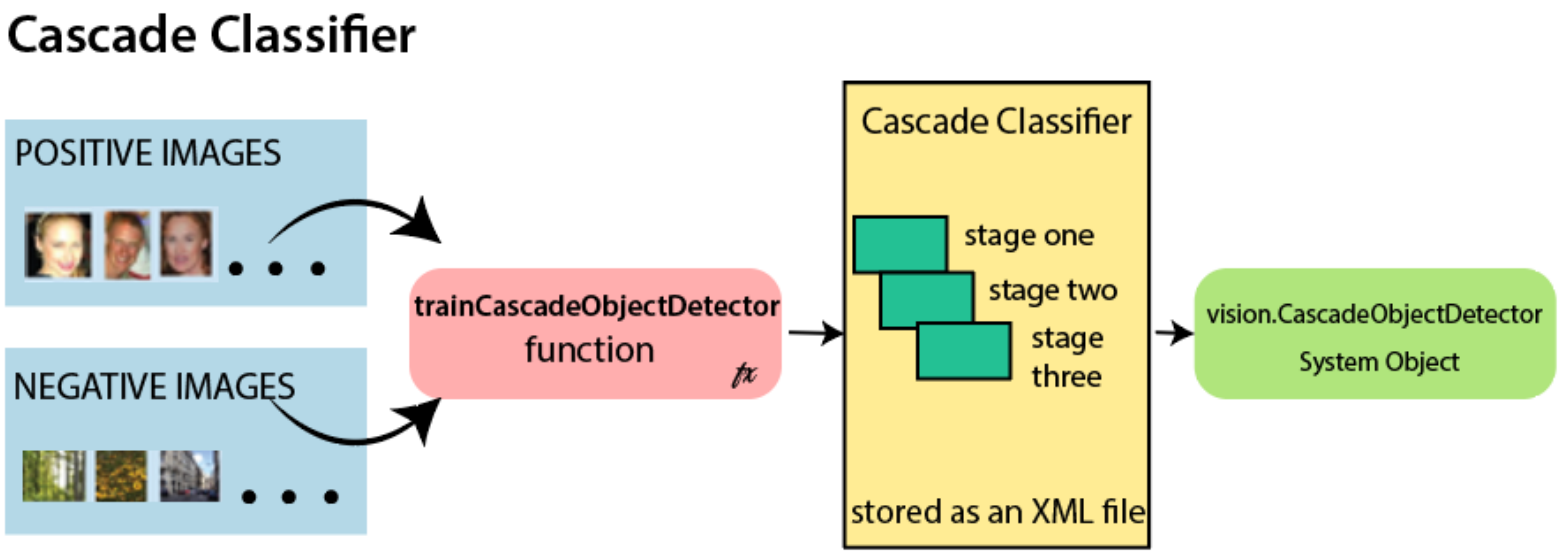
- In opencv face recognition is a technique to identify or verify the face from the digital images or video frame. A human can quickly identify the faces without much effort.

Use of Open CV...

- Face Detection: The face detection is generally considered as finding the faces (location and size) in an image and probably extract them to be used by the face detection algorithm.

- Face Recognition: The face recognition algorithm is used in finding features that are uniquely described in the image. The facial image is already extracted, cropped, resized, and usually converted in the grayscale.

HAAR Cascade Classifier



Experimental Results

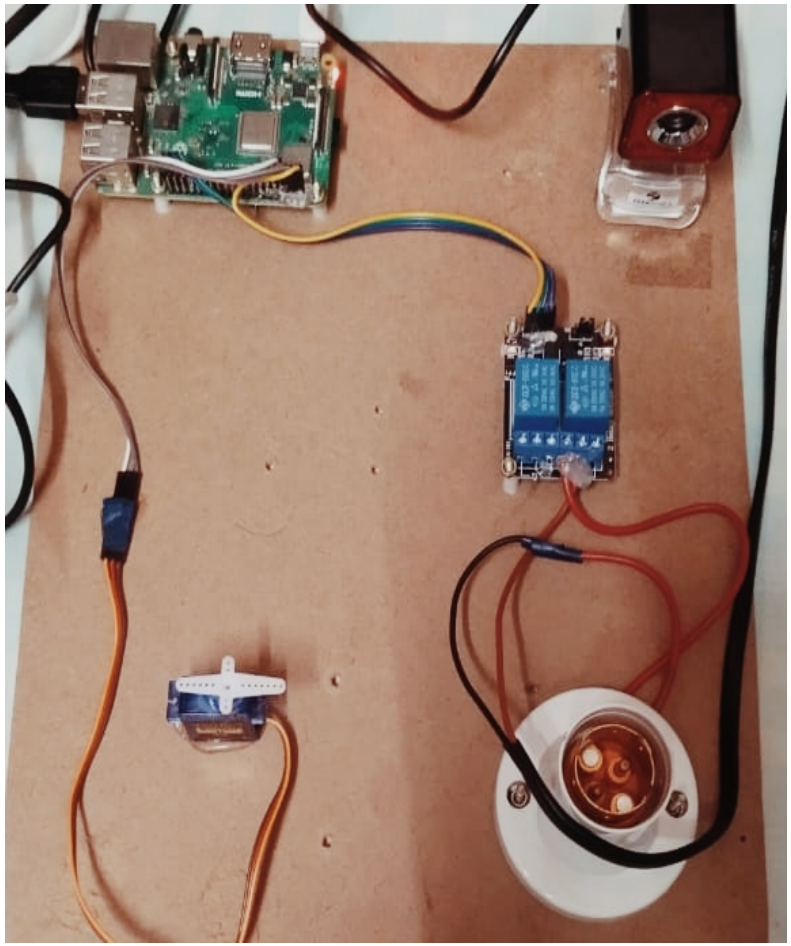


Figura: Overall Project Prototype

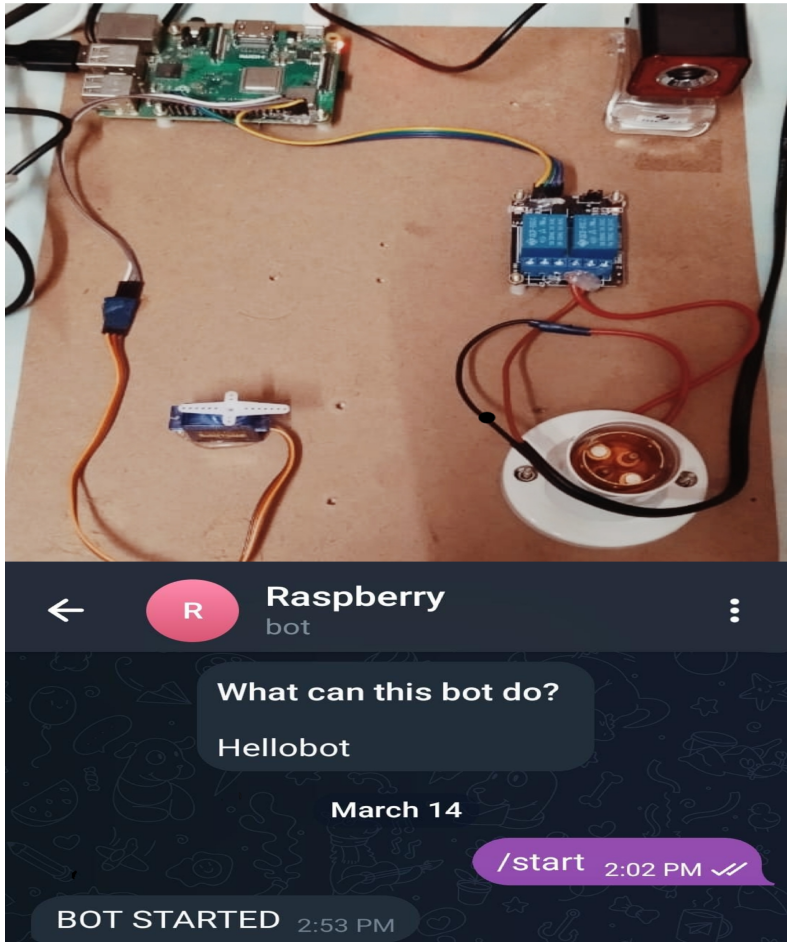


Figura: Telegram Connective

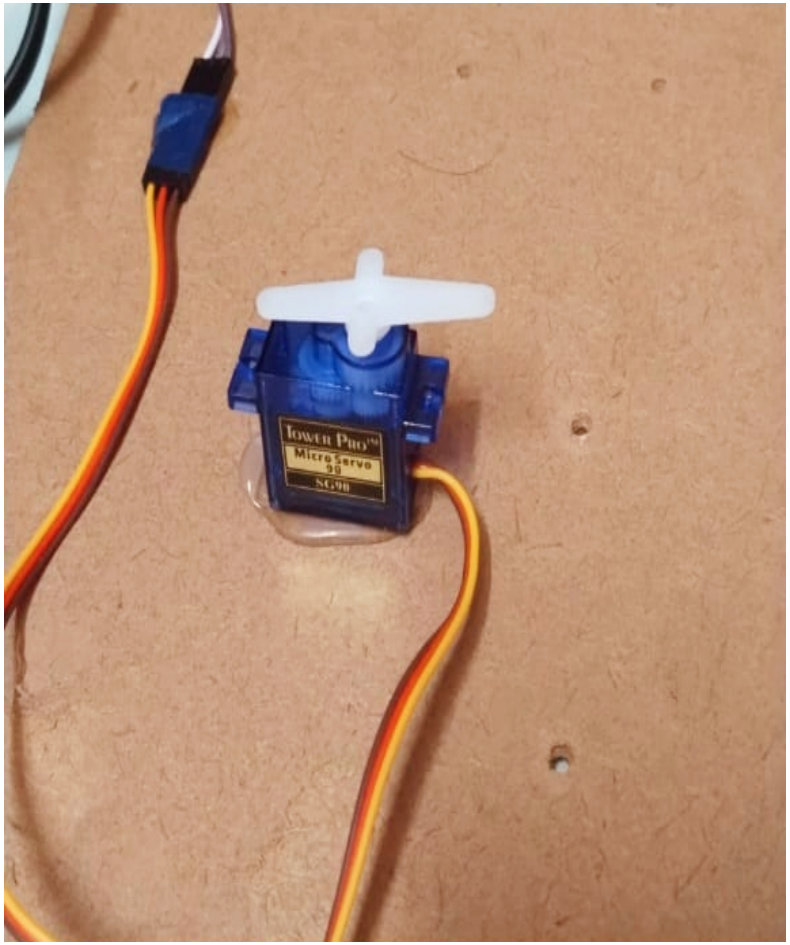


Figura: Closed Door

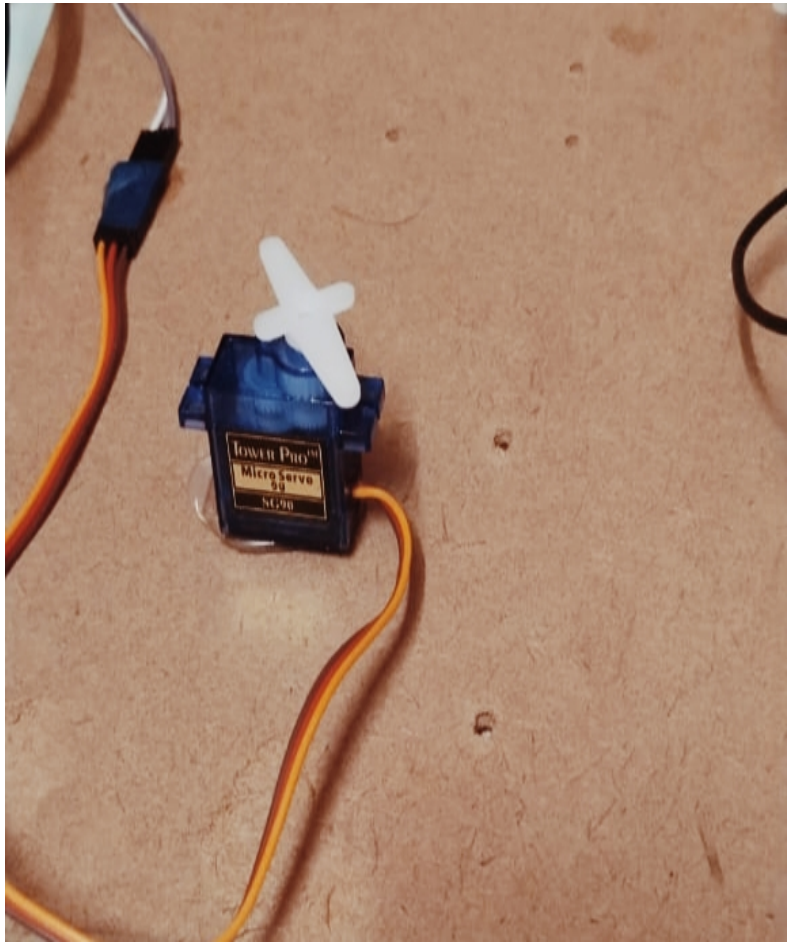


Figura: Open Door

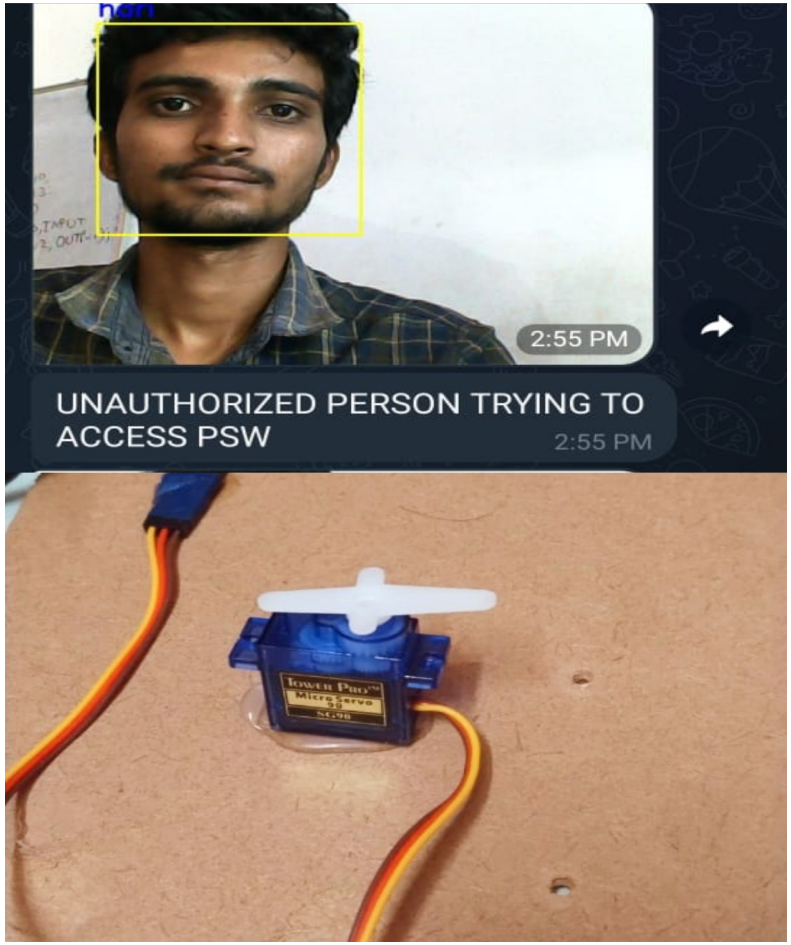
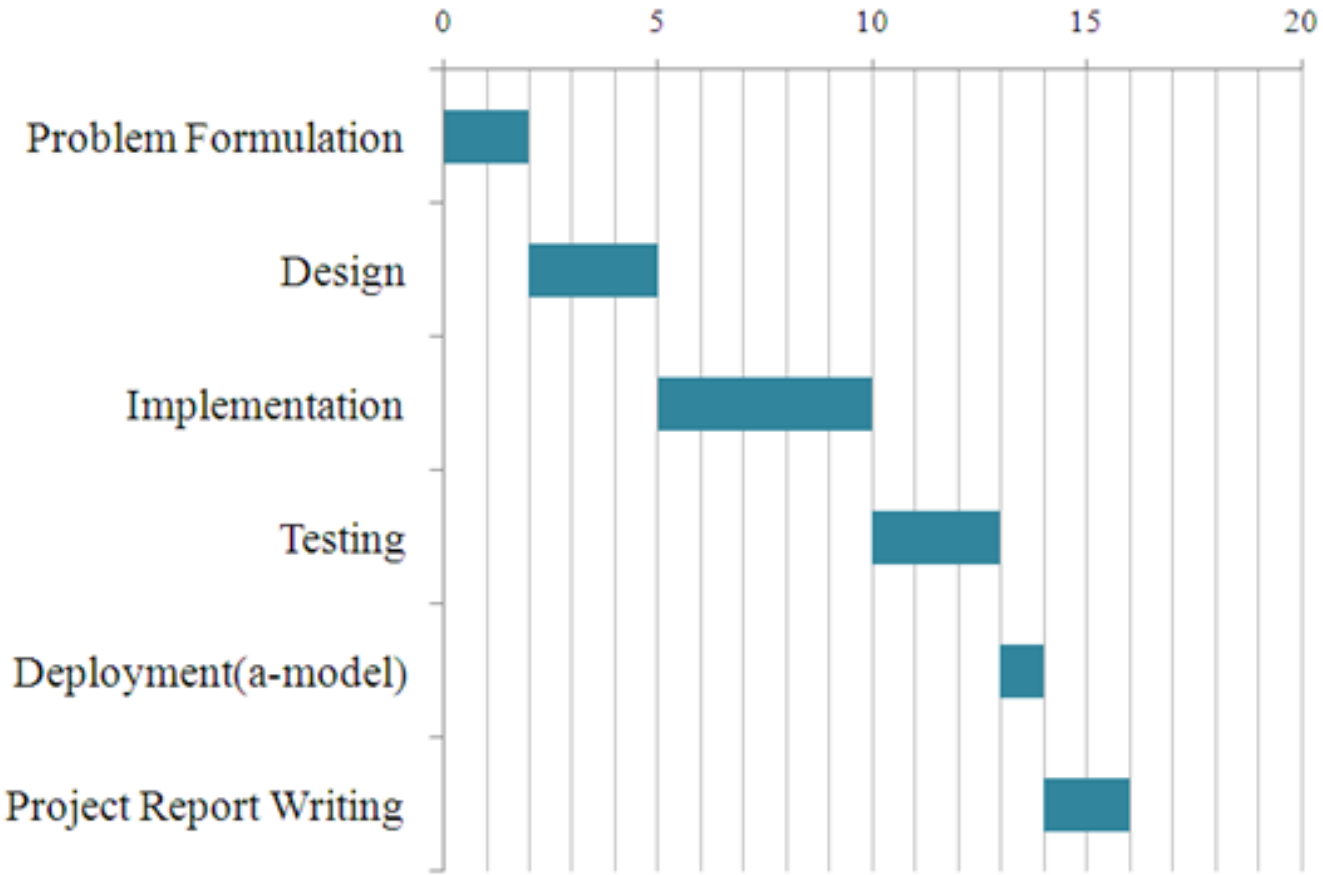


Figura: Unauthorized Person

Attained Outcome

- Finally, outcome of the system is a secure home entry with owner's permission.
- The intrusion to household's can be easily avoided by this system.

Gantt chart



Future Scope

- By using the raspberry pi the proposed system can be used as a Smart Surveillance Monitoring security system. As we are using open CV in our project which can be used for designing an attendance system of the class. Therefore, no one can mark proxy of another student. The technology is scalable, upgrading can be done easily with the proposed work.

References

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ANY QUERIES?

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THANK YOU!

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