"FACE RECOGNITION DOOR USING WINDOWS IOT"

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ABSTRACT:

Home security is growing field. To provide security to home, face recognition system can be implemented. A standard UBS camera captures the image to identify the person. It's a prototype that identifies the visitor. If the door recognize the visitor, it will greet them by name, and the door will be unlocked named opened. The system will perform the detection and recognition rapidly in real time. If the visitor at the door is recognized, the door will be unlocked! This project adds mainly four features: security, safety, control and monitoring to home automation. Firstly the system needs a face authentication for the user to be able to enter the home(locked/unlocked). When an unauthenticated tries to log in, this face will be captured.

I. INTRODUCTION

In this project we want to provide high level security to home by using IOT technology. IOT is new technology which has made an enormous impact on the modern world. The IOT can be defined as the system of interconnected mechanical, electrical and computing devices. In short, the IOT has an ability to make things self-instructed. Hence it can make significant impact on modern security technologies. Home security has become a solemn issue in the society. Anyone can be harassed in its own house. Unwanted persons like thieves, murderers and some known criminals will try to intrude in the home any time they want. So to avoid such situations, we have to develop the system in such way that no one should get an intrusion to the system. IOT will enable sensing, actuating and communication in the system. System can be made automated easily. To develop this we will use a ATmega micro controller, crystal oscillator, relay module for face recognition. For the door unlocking system, we will place a stepper motor at door latch. We will use image processing technology to authenticate the person to enter in home. For image processing, we will use pi camera module. When someone wants to enter in home, he should stand in front of the camera. Camera will recognize the face and compares with the faces stored in the LFW (Labeled Faces in the Wild) database . If the face matches, the door will be automatically unlocked otherwise a warning call will be sent to the owner of the house.

II. CURRENT SCENARIO

The main approach adopted in the face recognition door is the security system work automatically in a smart way. In currently our whole system is based on the IOT technology. Here we have a smart door with solenoid door latch it is fully automatic door. In this project

Use different types of cameras like night vision cameras webcam for detecting the face in night vision both have its own application. Also used LCD screen for display the instruction that send through the system here we used web application like HTML, PHP, Jquery for coding and the language is used for

coding is electronic part embedded c. the microcontroller use to control the door access system also used battery in case power is gone. then the system on automatically by connecting the battery. Whole process is work on cloud that connected to the main system.

III. OBJECTIVES

The objectives is to implement a working model of a smart door and to give solutions to the problem faced by people in day to day incidents of burglary(the crime of entering a building illegally in order to steal) or loosing the key. Now adays the security has become main issue in the society. Nobody's home is safe, and the technologies which are developed for security purpose till now can be easily tackled by the intruders. Therefore, we are trying to develop a home security system using IOT

IV. RELATED WORK

Various studies for enhancing the security and convenience of digital door locks have been proposed their summarized features are [1] . 25-27 September(2016) "Human face Detection and Recognition in system .[2] February(2014) Research direction for the Internet Of Things. [3]. June(2015) Automation Door Access System Using Face Recognition. [4].25-27 April(2016) Real Time Face Recognition System.

V. IDEA PROTOTYPE

Now a days person or family carry a key or card but incidentally it can be misplaced hence to avoid such incidence we used face recognition technology. A smart door and to give solutions to the problem faced by people in day to day incidents of burglary(the crime of entering a building illegally in order to steal).We can add some features like in night we can detect the face using the night detecting cameras .Also in night time if someone tries to enter the house for security we can connect alarm or buzzer in the system. In case the power is gone at that time we can connect the battery to the system due to this system is work again.

VI. IMPLEMENTATION

The idea is based on IOT (Internet Of Things). The coding language is electronic part Embedded C . and also we used web application like HTML, PHP, Jquery.

VII. ARCHITECTURE

In this technology is based on IOT. we are using two types of camera like Web Cam and Night Vision Camera, for Coding we use web application like HTML, PHP, Jequery . In this web application we use face detection algorithm for determining the facial axis. Here we use esp32 is series of a low cost low power system on a chip, micro-controller with integrated wi-fi and dual mode Bluetooth . After that AC power supply is connected to the esp32 chip. The AC current is connected to the Relay Module , The Solenoid Door Latch for electrical locking and unlocking , It available in unlocking in the power on mode type and locking and keeping in the power on mode type. Here we use LCD Screen for display the instruction.

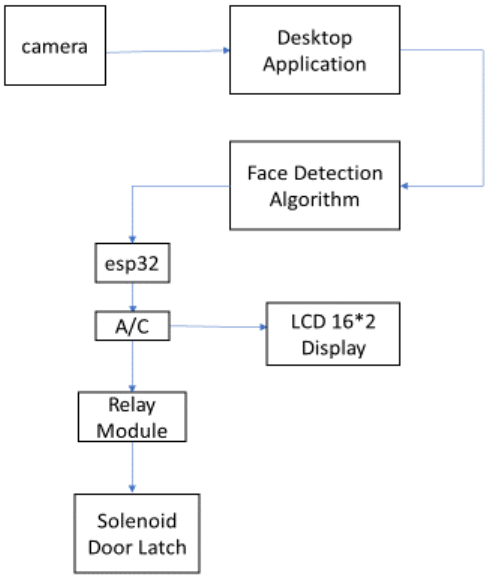


Fig: Block diagram of face recognition door

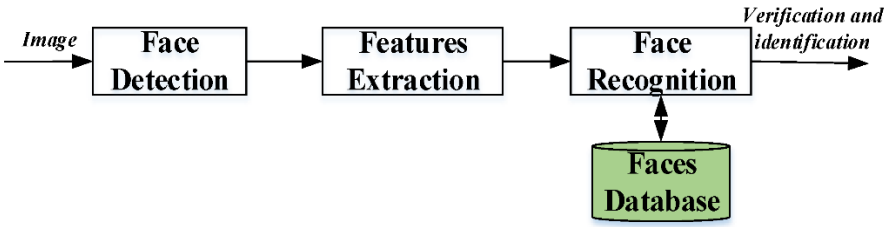
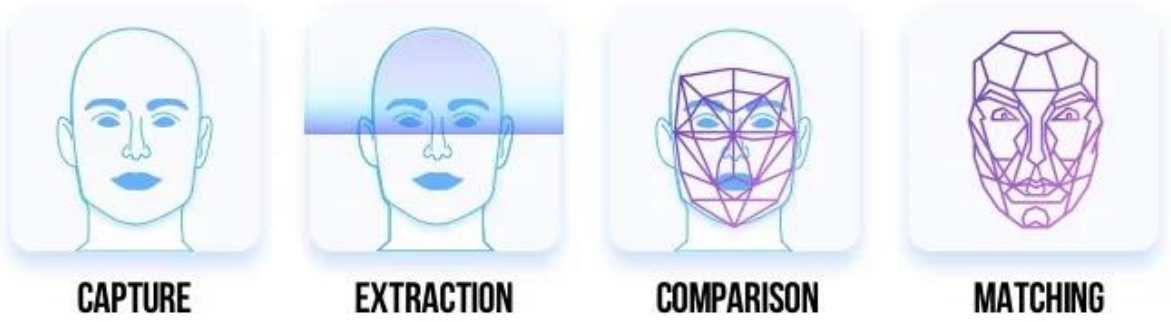


Fig: System architecture of face recognition door

VIII. HOW IT WORKS?



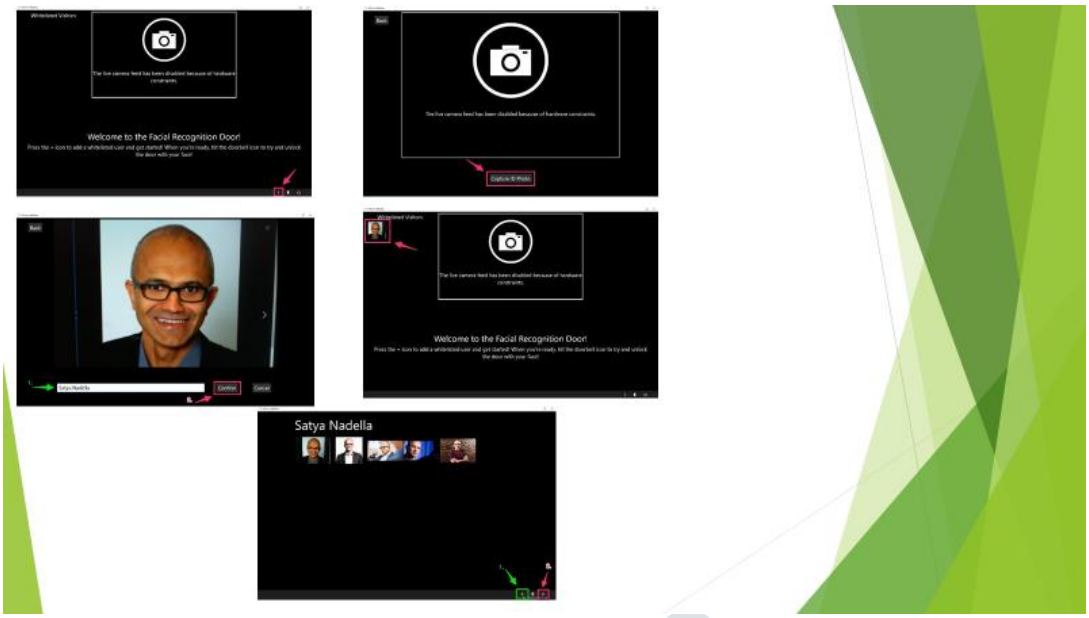


Fig: How to save image in system

In this project the above figure shows the system architecture from which we can easily understand the main objectives of the project. First of all , on pressing the door bell the HD camera capture the photo that means the image is detected by the face detection process. Then the application developed detect the face out of image and crop it out and sends for this various Microsoft are used . this all happen in the features extraction process. Now the face is identified and recognized from pre-saved database of images on cloud this is done in face reorganization . database is already saved in monitor which is recover inside . If the face is matched as soon as display message on the screen and the door get opened this all phase in system architecture .

IX. CONCLUSION

The security system, proposed, is low cost, low power consuming system. This system can easily provide high level of security as it combines two modern technologies together i.e. Face recognition and IoT. Therefore these two have made a significant impact on security system development.

X. FUTURE SCOPE

This security system is a combination of face recognition system and IOT. These two technologies are growing technologies and with the help of them, much advancement can be done. There are many face recognition algorithms developed till date but none of them are proper and hence each one has its disadvantages. Hence in the future a proper designing in the face recognition algorithm can be done and a new algorithm can be introduced. The technology is scalable therefore new modifications can be easily done. New hardware can be easily attached hence new smart home concept can be implemented. Everything in that home will be smart. easily attached hence new smart home concept can be implemented. Everything in that home will be smart.

XI. REFERENCES

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