



Smart Door Access with IoT Technology

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ABSTRACT:

The paper discusses the process of providing smart security which can be applied to numerous fields and contributes to the improvement of security. By using smart technology, the user will be able to use the system without any inconvenience. The main purpose of this paper is to achieve the remote access with the help of IoT technology. It mainly makes use of TCP/IP protocol to achieve the access to control the door. The proposed system works by capturing the image of the person with the help of ESP32 camera and sends that image to the owner with the help of Telegram Application. If the owner recognizes the person, then he can grant access to him from anywhere in the world.

Key Words: security, ESP32 camera, Blynk App, Arduino 2.0 software, TCP/IP

I. INTRODUCTION

In this modern era everyone uses smart phones to a greater extent. While in most of the times the smart phones are used to take pictures or for gaming purpose or as a tool for communication among people. Basically, everyone uses smart phone for the sake of their entertainment. But we can also use our smart phones for the purpose of smart security.

With a smart security system, we can monitor and manage our security system anywhere, anytime, from our smart phone, using sensors and wireless CCTV footage. With the help of smart security, we are in control of our security, making it convenient and accessible whenever we want.

With smart home security systems, homeowners are able to monitor their homes in real-time, alerting them when unusual behavior occurs or an unexpected attempt is made to gain access to their homes. Smart security systems, in contrast to conventional home security systems, continue to monitor and issue alarms even when they are disabled.

This paper discusses the methodology to achieve smart home security through the help of remote access. Users are able to access a hardware device or a network through remote access from any location. With the help of remote access, the user will be able to provide access from a far-away location. The user also doesn't have to worry about the losing of his keys and he will have the ability to monitor who is coming in and out from his/her home.

In our project whenever any person rings the calling bell to enter the house, the ESP32 camera takes a picture of the person who is trying to enter. After capturing the picture, the system sends the captured picture to the owner of the house with the help of telegram application.

If the owner recognizes the person, then he can directly grant the access from his smart mobile device. That remote access will be achieved through the help of Blynk application.

II. RELATED WORKS

In this paper M. Abdul Rahiman and D. Manohar proposed a system to achieve the smart security with low budget. The proposed system monitors the house 24/7 and if any intrusion is detected then it will raise an alarm and captures all the intruder's movements and sends those images to the owner. The main components in this system are ESP32 micro controller, Blynk app and magnetic switch and solenoid lock. The main advantage of this system is that the owner can be able to access the door and he can monitor his house any time he wants.[1]

In this paper Mohamad Farid Mohamad Ramlan, Lilywati Bakar proposed a security system that is based on the finger print detection. The proposed system uses finger print sensor, solenoid lock and ESP32 camera module as the main components. The system works by recognizing the owners finger prints and it will send an alert if the finger print is not detected or recognized. The main advantage of the proposed system is the owner can be free from the hassle of carrying the keys around. The system can be improved in the future by adding a face detection technology.[3]

In this paper Patilano, Hazel San L, Algaba, Vanessa Rose E, Deslata, Krezzel F, Dominguez, Novley A, Francisco, Kenneth M, Gamboa, John L, Ison, Gerard John C, Leon, Jeren C proposed a smart doorbell application to guarantee safety in our house. The proposed system works by using the yolo

algorithm and IoT modules. The system activates when someone rings the calling bell, it captures the image of the person and sends it to the owner, If the owner recognizes the person, then he can generate a QR code and send it to the person who rang the calling bell and based on that the person can access the door. The main disadvantage of the system is that it should have a power supply to work, which means it can't work without electricity [8].

In this paper, Kondamu Yashaswini Reddy, Ardha Jyothsna Reddy, K. Bhanu Prakash Reddy, Mr. B. Srinivasa Rao proposed a system of smart door. The proposed system consists of spy camera and it checks each person who tries to enter into the house and it also closes the door automatically after a few seconds to make sure no unauthorized person will enter the house [9].

In this paper Dilip Prathapagiri, Kosalendra Eethamakula, proposed a system of smart door. When we are in hurry it's possible that we may forgot to lock the door properly so by using this system we can get the status of the system. When someone presses the calling button it captures the image of that person and sends it to the owner. By using Blynk app we can also monitor who is coming in and out of our house. The proposed system works by using the Wi-Fi module. By the above proposed system, we can monitor the door and get the status of the door (whether the door is locked or not) and also have better security. [12]

3. PROPOSED METHODOLOGY

Smart doors are widely used in many applications. Now days everyone has smart phones and having internet access easily. IOT based systems and accessing units are very helpful in everywhere. Here we want to develop a smart door control with telegram app. We can access telegram app from pc or mobile phone so it's more convenient to use. We can lock and unlock door by controlling valve from telegram app. Also, it will send photo whenever doing lock and unlock. We can access this system from anywhere.

This is highly secure and better way to protect our house.

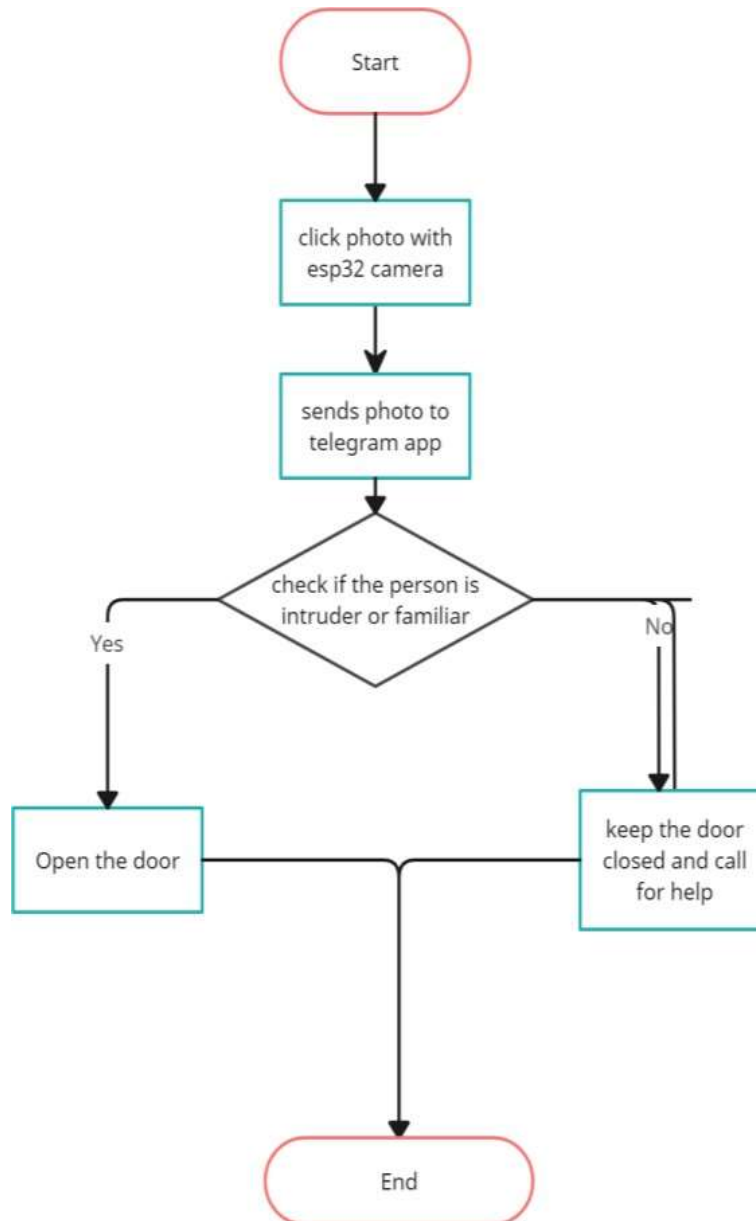
- This proposed system works by capturing the image through an ESP 32 camera and then it sends the captured image to the owner of the house with the help of telegram application.
- If the owner can recognize the person, then he can grant the access otherwise he can deny the access.
- The above system works with the help of TCP/IP protocol.
- It mainly uses Blynk App, Arduino 2.0 Software and Telegram.

4. EXPERIMENTAL SETUP



5. BLOCK DIAGRAM

The block diagram explains the work flow of our proposed system.



6. ADVANTAGES

- ✓ Better security
- ✓ We can access the door from anywhere in the world.
- ✓ Smart locks remove the threat of lock picking Increase accessibility without compromising security
- ✓ Smart locks are accessible via smartphones
- ✓ Auto-locking Free from the worry of losing keys Know who's coming in and out.

7. CONCLUSION

- This door lock system is an advance technology which is super useful which will help the people to keep their house safe.

- The major highlight of the project is the remote access i.e., when we want to allow any person into the house in our absence that will be possible using this application.
- The applications include smart home, video- based surveillance, banking security, ATM- transactions etc.
- Hence, the smart lock door system has wide range of scope in the technological advancement.
- We can also monitor we can come from and in of our house.

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