

Secure Home

Nami Modi¹ Kinjal Modiya² Prof. Ajaykumar T. Shah³

^{1,2,3}Department of Computer Engineering

^{1,2,3}Alpha College of Engineering & Technology, Khatraj, Ahmedabad, India

Abstract— As we all know nowadays it's the time of technology and home automation, so we are making the technique through which we can know who is on another side of the door without opening the door in our phone itself. After seeing who is on the other side of the door we can order automation device such as Alexa or Google home, to open the door automatically. It works as someone is at our doorstep, camera detects that person's face and checks whether the person's name is in database or not. If it matches then our device announces the name of the person, i.e. xyz is at your doorstep. If there is no data then it will only announce that unknown person is there. This process uses python and AI. This system is beneficial to handicapped people, old age people, as well as when small children are alone at home. This will provide security to house at comparatively low cost.

Key words: Secure Home, Alexa, Camera

I. INTRODUCTION

As we enter the 21st century, the interaction between humans and computer is breaking the old barriers and entering a new realm. In the highly technology driven world of today's computer and cell phones have become a part of our lifestyles. Computers are no longer tool to manage data and neither cell phone is just communication tool. Now a day's secure home has become an important issue .Many types of solutions were developed and implemented. Now-a-days home is not secure from the strangers and thieves. While old age people or handicap people alone at home they are unable to open the door.

So our aim of the project is to help people to secure their home with less efforts. With the help of camera and other devices we get to know who is at our doorstep and we can easily give command to device to open the door or not with the help of this it improves personal safety of the person. And also this provides security to house at comparatively low cost.

Our system is quite easy to use. It provides features such as image capturing, image recognition, announcements of the person who is at the door step, also provides alert in case it encounters suspicious person and so on.

It saves our time and efforts. It can be used to secure house.

With this house is easily secure from the strangers and harmful peoples.

II. LITERATURE SURVEY

The important thing comes in mind that if we can make an assembly of software and hardware that can perform task for us then why we should waste our valuable time in doing such things. Challenges in Smart Home Automation is:

- Power efficiency
- Reliable
- Performance
- Level of smartness

A. Power Efficiency

There are many products are available in market which can makes your home automated but the amount of power required to carry out operations is very high. Lots of power gets wasted during the operation preformation.

B. Reliable

During surveying about project we understand that there are many products or existing system available which can made home automated easily but there is no reliability that any person or user can fully rely on it.. And the devices which are available they are working on high computation power supply. In existing system if the power gets off then there no a rescue plan for that, so Reliability cannot be achieved.

C. Performance

Performance which mainly related with Time taken by system for sensing, taking decision and perform action. The products which are available in market they are time consuming. Or they can't transmit a large data in just small amount of time. So the device's transmission capability is low and also it takes lots of time to transmission of data. So performance is another issue.

D. Level of Smartness

The level of smartness should be maintaining because there are so many products which are competing each other's in the issue of smartness. There are some situations like whenever there is no one in the automated room, the system will identify the situation and should turn off the lights and other equipment's. But in existing systems this facility is not available. If some unwanted motion gets detected, then CCTV camera should capture that instead of remain active at all the day

III. SYSTEM COMPONENTS

A. Camera

Camera is low cost image capturing unit that we can apply at home. It gets triggered when image is detected. When it captures image, it sends coordinates to raspberry pi through wired connection. A camera is used in this system which plays an important role in face detection and face recognition.



Fig. 1: Camera

B. Alexa

Alexa-controlled Echo speaker, now in its second generation and with several derivative versions available, continues to expand its music, smart-home, and digital-assistant abilities. It's a wireless speaker first, but capable of much more. Using nothing but the sound of your voice, you can play music, search the Web, create to-do and shopping lists, shop online, get instant weather reports, and control popular smart-home products—all while your Smartphone stays in your pocket.



Fig. 2: Alexa

IV. SYSTEM ARCHITECTURE

System is to design cost effective and open source secure home system which can be generalized for various home and outdoor environments. The system provides great flexibility by connecting all modules to system this in turn reduces development cost and adds flexibility of features and system configuration. Proposed system make use of wireless connection. The important reason to develop this system is to save maintaining security. Camera is low cost image capturing unit that we can apply at home. It gets triggered when image is detected.

V. CONCLUSION

After envisaging the future aspects, we can conclude that this project is going to give efficient and more effective results in comparison of current applications, because with the help of this system our house is safe and secure. House is secure from the unwanted or unknown people. The system is very simple and easy to use and convenient for the users.

REFERENCES

- [1] A.Z. Alkarand U. Buhur, "An Internet Based Wireless Home Automation System for Multifunctional Devices," IEEE Trans. Consumer Electronics, vol. 51, no.4, 2005, pp. 1169–1174.
- [2] Shamla Mantri and Kalpana Bagat "Neural Network Based Face Recognition using MATLAB" IJCSET Vol 1 Issue 1, Feb-2011.
- [3] R. L. Hsu, M. A. Mottaleb, and A. K. Jain "Face detection in color images" IEEE Trans. Pattern Analysis and Machine Intell., 24:696–706, 2002.
- [4] Vinay sagar K N, Kusuma S M, —Home Automation Using Internet of Things, International Research Journal of Engineering and Technology (IRJET) ISSN: 2395 - 0056, Volume: 02 Issue: 03 | June-2015.
- [5] Janarthany Nagendrajah, "Recognition of Expression Variant Faces- A Principle Component Analysis Based

Approach for Access Control"IEEE International Conference On Information Theory and Information Security, pp 125-129, 2010.

- [6] Tahia Fahrin Karim, Molla Shahadat Lipu, Md.Lushanur Rahman, Faria Sultana, "Face Recognition using PCA Based Method",IEEE International Conference On Advanced Management Science, vol.13, pp 158-162, 2010.
- [7] Muhammad Murtaza Khan, Muhammad Yonus Javed and Muhammad Almas Anjum, " Face Recognition using Sub-Holistic PCA",IEEE International Conference On Information and Communication Technology, pp 152-157, 2005.
- [8] Patrik Kamencay, Dominik Jelsovka, Martina Zachariasova, " The Impact of Segmentation on Face Recognition using the PCA", IEEE International Conference On Signal Processing Algorithm, Architecture, Arrangements and Application, pp1-4,2011.