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Face Recognition and Health Check System to Enhance organizational Security

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ABSTRACT: Today's institutions are facing major security issues; consequently, they need several specially trained personnel to attain the desired security. These personnel, as human beings, make mistakes that might affect the level of security. A proposed solution to the aforementioned matter is a Face Recognition Security System, which can detect intruders to restricted or high-security areas, and help in minimizing human error. During this pandemic of COVID-19, we also focused on the health security by checking the body temperature. So we decided to develop project which will focus on our health as well as security. In this project we are using several IOT technology to provide more security with caring. This system is composed of two parts: hardware part and software part. The hardware part consists of a camera and temperature sensor, while the software part consists of face-detection and face-recognition algorithms software. When a person enters to the zone in question, a series of snapshots are taken by the camera and sent to the software to be analyzed and compared with an existing database of trusted people. An alarm goes off if the user is not recognized.)

KEYWORDS: Recognition Security System, COVID-19, face-recognition

I. INTRODUCTION

During this pandemic of COVID-19, maintaining the health as well as security became a huge dilemma for all industries, societies, schools and all other public places where monitoring both health and security is must and important. There should be enhancing technology which could help in monitoring health and maintaining security. So we decided to develop project which will focus on our health as well as security. In this project we are using several IOT technology to provide more security with caring. Security is a difficult factor today. Technology is enhancing rapidly in the world. The offence crew also enhanced their technology to accomplish their work. So automation of security should be modernized with trend to protect from the crime works [1]. In addition to this security factor now a COVID-19 is also in trend which comes in picture with a huge health issue in all over the world.

The IoT prototype is liable to incredible and auto configurative things which are associated with each other through a global network infrastructure. IoT is mostly considered as real objects, broadly scattered, with low storage capability and processing capacity, with the target of improving reliability, performance and security of the smart city and its infrastructures [2].

There are multiple research works are going on to determine positive cases of COVID-19 instantly so that treatment can be done quickly and it should not spread more. But identifying the people those are affected with the virus is very difficult until that person takes all the necessary tests or could find some symptoms in his/her body. But till that time affected people can spread the virus among many people accidentally or unintentionally. To solve this problem if it becomes possible to know whether the person is affected to virus or either having any symptoms related to it before person enters in the industry or society or in any other organization where they need to go inside that particular may help to reduce spread of virus.

II. LITERATURE REVIEW

Face detection is a computer technology that determines the location and size of human face in arbitrary (digital) image. The facial features are detected and any other objects like trees, buildings and bodies etc are ignored from the

digital image. It can be regarded as a ‘specific’ case of object-class detection, where the task is finding the location and sizes of all objects in an image that belong to a given class. Face detection, can be regarded as a more ‘general’ case of face localization. In face localization, the task is to find the locations and sizes of a known number of faces (usually one). Basically there are two types of approaches to detect facial part in the given image i.e. feature base and image base approach. Feature base approach tries to extract features of the image and match it against the knowledge of the face features. While image base approach tries to get best match between training and testing images.

Table 1.Literature review

<u>PAPER TITLE</u>	<u>AUTHOR</u>	<u>DESCRIPTION</u>
Smart Building Solution “Security By Design” Approach May 2019	1)Roxana Boca 2)RarvanRadule scu	In this paper,we explore the existing security standard and guidelines to be adopted in order to ensure a proper level Of security for our smart building solution.
The Security of the smart building. January 2019	1)Pierre Ciholes Aidan Lennie Parvin Sadigova 2)Jose such	It present result of a systematic literatutre review on current state of art in research of security of smart building
A Smart and Secure Home Automation System Using IoT Mar 2019	Kalyan Kumar	This paper is based on the development of a model simulating a home automation system with different operation modes which can be controlled by android mobile application.
Enhancing Security of smart building using Internet Of Things August 2019	1) Zahra Alisha 2) Scott Gordon	In this regard, enhancement of smart building security using the agent-based approaches in analyzed. Attributes: IOT, sensor network, Smart building, security, Agent based design.

III. METHODS

Face recognition is one of the most relevant applications of image analysis. It’s a true challenge to build an automated system which equals human ability to recognize faces. Although humans are quite good identifying known faces, we are not very skilled when we must deal with a large amount of unknown faces. The computers, with an almost limitless memory and computational speed, should overcome humans limitations.The 1990’s saw the broad recognition of the mentioned eigenface approach as the basis for the state of the art and the first industrial applications.The input of a face recognition system is always an image or video stream. The output is an identification or verification of the subject or subjects that appear in the image or video.

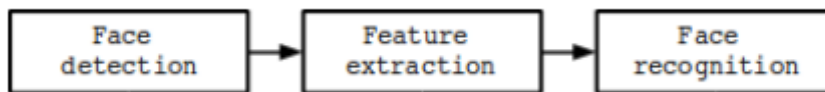


Figure 1. Steps of Facial recognition

IV. METHODOLOGY

The main proposed solution is a real-time face recognition system that reads a video from a camera connected to the computer running the software, detects any face present in front of the camera, and then checks if this face is present in a set of face images in a database using face recognition technique.

Module 1: System Authentication module

In System Authentication module “ It consists two option i.e.registration and login. One signup button for signing to access next module. One change button for changing Password. Admin is authorized user and only he/she look the result of face identification.”

Module 2: Record Insertion:

In this module admin having two different option i.e. Register to company and verify. If user select the Register to company option then next module i.e. registration Form is open and if verify option is selected then first scan face then verify it and then it check the temperature.

Module 3: Record Verification:

First, the image is taken as an input into the software. The program then converts it from its color mode (RGB) into grayscale then resizes it. An edge detection operation is then applied by calculating the gradient of the image. To calculate the gradient of an image, the Sobel operator is used, which creates a binary mask using a user-specified threshold value. The threshold value is determined by getting the mean of all gray values in the image. Below are further steps:

1. Filtering
2. Resizing
3. Color Mode conversion and Skin Detection

Module 4: Record Analysis

In this Bar chart will be created. It will show all the valid user count and invalid user count. This will help to analysis the employee health.

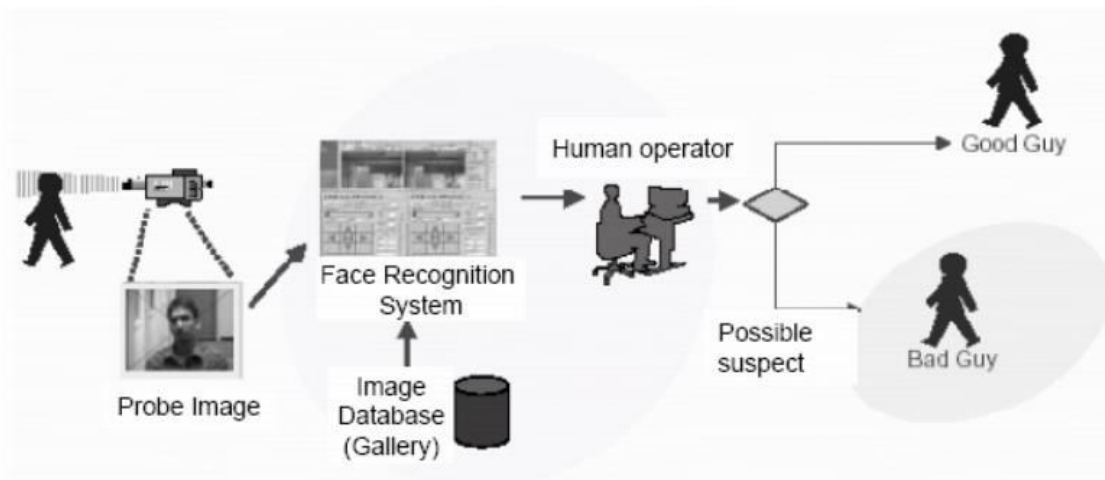


Fig 1. Architecture Diagram

V. DATA ANALYSIS

The FRVT 2002 [was a large-scale evaluation of automatic face recognition technology. The primary objective of the FRVT 2002 was to provide performance measures for assessing the ability of automatic face recognition systems to meet real-world requirements. From a scientific point of view, FRVT 2002 will have an impact on future directions of research in the computer vision and pattern recognition, psychology, and statistics fields.

- Indoor face recognition performance has substantially improved since FRVT 2000.
- Face recognition performance decreases approximately linearly with elapsed time, database and new images.
- Better face recognition systems do



not appear to be sensitive to normal indoor lighting changes. • Three-dimensional morphable models substantially improve the ability to recognize non-frontal faces.

VI. CONCLUSION

The camera Surveillance, which uses opencv algorithm for face detection, can increase the detection efficiency and has better adaptation for special environment. System will save all the face and its appearance time in the video. According to the time label, user can easily find the image information which is in certain slot.

VII. LIMITATIONS AND FUTURE STUDIES

This paper, discussed smart security system based on the face recognition and temperature control. Proposed security system only allows the authorized people to enter the sensitive area without targeting. Experiments with face recognition indicate that it is considerably challenging to obtain good recognition rates in real-time scenarios. The true accept rate does not have to be 100%, but the false accept must be extremely low. The recognition rate of our security system is about 2 out of 100 in terms of false accepts. In our experiments, these errors are mostly due to variation in pose and expression. Proposed system has limitations that it is designed for the concerned people and it is valid for the confined area. Simple techniques are adopted to portray the idea of a smart system which is a need of many organizations these days from military, investigation to the intelligence. Latest processing techniques can be adopted to improve the reliability and complexity. It can also be modified for a large area.

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REFERENCES

1. HarshalHemane, Debarati Sen "LASER BASED SECURITY SYSTEM FOR HOME" IRJET Jan-2018.
2. H. Arasteh, V. Hosseinnzhad, V. Loia, A. Tommasetti, O. Troisi, M. Shafie-khah, P. Siano "Iot-based Smart Cities: a Survey" IEEE-2016.
3. Jun Hou, Chengdong Wu, Zhongjia Yuan, Jiyuan Tan, Qiaoqiao Wang, Yun Zhou "Research of Intelligent Home Security Surveillance System Based on ZigBee" IEEE 2008.
4. B.Lakshmi Prathyusha ,J.Anusha ,D.saaiLalitha, D.venkata Krishna "Home Security System Based On GSM and Voice Module" IRJET 2018
5. Nita Chaudhari, Vishal Dalvi, MeghaPatil, AshwiniGharal, Sumit Kumar "Implementation of 802.11 Protocol in Home and Industrial Security Using Embedded System" IJSRSET Jan 2018
6. MichałZabłocki, KatarzynaGościewska, DariuszFrejlichowski, RadosławHofman "Intelligent video surveillance systems for public spaces –a survey" JTACS 2014.
7. "Hong Kong SAR Government" August 2012.
8. Yang Li, Sangwhan Cha "Face Recognition System".
9. Eva Schlehahn, Marit Hansen, Jaro Sterbik-Lamina, Javier Sempere Samaniego "Report on surveillance technology and privacy enhancing design" June-2013.
10. Kalyan Kumar Jena,Sourav Kumar Bhoi, Pabitra Kumar Maharana, PrabhasRanjan Das, Prabin Kumar Senapati"A Smart and Secure Home Automation System Using IoT" mar-2019



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