Whatsapp/Telegram Controlled Advanced Security System

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Abstract—Personal Security is one of the main concern when it comes to offices, personal workplace in home, bank etc. Whatsapp/Telegram controlled advanced security system' is anintegrated security system which provides secured access to the areas where security is the main concern by providing two step verification. This system is an enhancement of the existing finger print based system. The existing finger print based system verifies the finger print of the valid user to provide authorization. But this system takes the finger prints of the user as well as captures image of that person by sensing his/her presence through sensor system and sends results of both finger prints and image to authorized person on his/her whatsapp/Telegram account. Besides this, authorized person also receives alert SMS through GSM along with Whatsapp/Telegram message. Authorized person takes the decision of access on the basis of both the results. If authorized person sends "open" from his/her Whatsapp/Telegram account, door will be opened automatically and access will be provided. If authorized person sends "unauthorized" door will remain shut and hence access will be denied. In this way system provides and ensures the two step verification to provide authorized access.

Keywords-GSM, pi camera, Raspberry pi-2, SD card, Whatsapp/Telegram.

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I. INTRODUCTION

The main aim of this system is to develop a device for the security purpose such as confidential area in offices, personal workplace in home, etc. Many people who may or may not known to us can access the personal workplace without our permission, because of this, there are many issues such as losing of documents and valuable possession. Whatsapp/Telegram controlled advanced security system' is the **integrated security system** which provides secured access to areas where security is the main concern by providing **two step verification**. This system is an enhancement of the existing finger print based system.The existing finger print based system verifies finger print of the entering person to provide authorization. But this system takes the finger prints of the entering person as well as captures the image of that person by sensing his/her presence through sensor system and sends results of both finger prints and image to authorized person on his/her whatsapp/Telegram account. When person tries to access confidential area through finger print scanner, at the same time PIR sensor detects the motion and activates the Pi camera to capture the image of that person. Raspberry pi model then sends this captured image along with finger print verification result(matched or not)on Whatsapps/Telegram accounts of registered authorized persons. Authorized person takes the decision of access on the basis of both the results. If authorized person sends "open" message from his/her Whatsapp/Telegram account, door will be opened automatically and access will be provided. If authorized person sends "unauthorized" message , door will remain shut and if authorized person sends "close" message , door will be closed. Besides this ,authorized person will receive an alert SMS through GSM along with whatsapp/Telegram message. In this way, authorized person can provide authorization from his/her Whatsapp/Telegram account to the confidential area. Hence system provides and ensures two step verification to provide authorization. This can also be used in places such as document storage places and other places where security is of major concern.

II. LITERATURE SURVEY

Study of theft detection and tracking using raspberry pi and PIR sensor using mobile devices that uses mobile technology to provide essential security to equipment's and detecting the theft. The proposed theft detection integrates camera and PIR sensor ,gps tracker on equipment to give the solution through mobile application. Raspberry-Pi operates and controls PIR sensor,camera when motion is detected for remote sensing and surveillance, then capture the image and live video then stores it for future playback, and finally tracing the location of intruder[1].

Security and safety has always become a basic necessity for urban population. The paper proposes a novel security system based on Open source cloud server "things speak .com" and a low cost esp8266 Wi-Fi module. The project includes a PIR

module which constantly monitoring the Home or Work space to be monitored .When the PIR module detects an intruder it sends a signal to the Atmega 328p microcontroller and the controller is connected to a Esp8266 wifi module and also to a alarm system. The System transmits an alert signal to the Open source cloud which provides a alert signal on the users mobile phone. The system employs a second esp8266 module which is programmed to act as a web server, which allows the user to activate or deactivate the security system by means of any device with internet. The system also employs a thumb print reader rs305 which controls the opening and the closing of a safety locker door. Thus the system uses esp8266 Wi-Fi module and atmega328p to control the security system from the users mobile phone by means of any device with a potential internet connection[2].

We are living in an hi-tech era where crime is increasing day by day. Due to increase in numbers of threats and intrusions in society, everyone needs a Hi-Tech security system which can keep their belongings secure and at the same time we also want to protect our home assets from any kind of hazard. Knowing our home is protected provides peace of mind when we are away. The customers require simple, reliable and high performance core system that can be easily implemented. The major concern of the paper is to design a budget home security system based on wireless sensor network using Wi-Fi and Cloud technologies. It can detect the theft, fire, leakage of gas or smoke and sends an auto-generated email remotely to intimate the owner. In this review paper; we survey the current work on security system and applications. We examine the existing work, which is held by using different sensors and contributes to better understanding of the challenges in existing work on security systems and further research direction. In this paper we take an overview on how to protect our home from fire, theft and safety issues[3].

Today security is a main issue for protecting the resources. Security is important because risk of intrusion and theft has become increasing. Security is also necessary for protecting homes from fire and other leaking gases. Many people are using various types of security systems. We have found that most of the security systems are developed using Raspberry Pi, because the Raspberry Pi is a powerful small credit card size computer. It works as computer it allow user to remotely access and control resources, it is affordable system than any other security systems. It is compatible with most of the programming languages. Using Raspberry Pi user can monitor and provide security to their homes and commercial spaces. Raspberry Pi works with different sensors (PIR, Smoke, Temperature, Humidity, Gas) to detect or identify intruder or unauthorized access to homes and commercial spaces, it will also notify to the user about the illegal activity. Other than security Raspberry Pi also useful for learning so many things. This survey paper is focused on the design and implementation of security system based on IOT[4].

In the next security system, theft can be prevented using Raspberry pi and PIR sensors. In this system PIR sensors, camera, buzzer, relay, GSM module are connected to Raspberry pi. PIR sensors are able to detect the presence of human being. After detecting any person, relays are triggered

to switch on the lights. As soon as lights are on, buzzer will start ringing for specified time. After lights are turned on an image will be captured using cameras. This captured image will immediately upload on the web-page, which can be used as evidence. In addition, victim receives a notification in the form of text message with help of GSM module. Power supply to this system is given by an adapter. In absence of electricity battery backup is also provided. As the lights turn on and the buzzer rings, neighborhood becomes aware about a theft. This will make the thief scared and thief would try to escape the location. Thief is not able to execute his/her plan, belongings will be safe. This system can be implemented in jewelry shops, home etc[5].

III. SUMMARY

Table.1 summarizes work done by past researchers in the field of security.

Sr. No.	Title of the Paper	Authors	Year	Remarks
1	Study of Theft Detection and Tracking using Raspberry pi and PIR Sensor[1]	Rahane Madhuri	2015	The proposed theft detection integrates camera and PIR sensor ,gps tracker on equipment to give the solution through mobile application. when motion is detected for remote sensing and surveillance, then capture the image and live video
2	IOT based Theft Preemption and Security System[2]	SakthiPriyanka.N	2016	The System transmits an alert signal to the Open source cloud.esp8266 module is programmed to act as a web server, which allows the user to activate or deactivate the security system by means of any device with internet.
3	IoT based Home Alert System using Wi-Fi and Cloud Technologies[3]	PoojaDahiya	2016	It can detect the theft, fire, leakage of gas or smoke and sends an auto-generated email remotely to intimate the owner
4	A Survey on IOT Based Security System[4]	Indrajit Patil	2016	Raspberry Pi works with different sensors (PIR, Smoke, Temperature, Humidity, Gas) to detect or identify intruder or

				unauthorized access it will also notify to the user about the illegal activity.
5	Review on Theft Prevention System using Raspberry Pi and PIR Sensor[5]	Sadhana Godbole	2016	When motion is detected lights are on, buzzer will start ringing for specified time. Then image will be captured using cameras. This captured image will immediately upload on the web-page.

IV.   PROPOSED SYSTEM

The main goal of this project is to overcome the major drawbacks of different existingsecurity systems such as GSM and RFID based security sysyems.

In this system finger print scanner scan the finger prints and sends it to the raspberry pi board similarly PIR sensor detects the presence of person and gives the high signal to raspberry pi. Raspberry pi then enables the Pi camera to capture the images. Pi camera then sends these both the results on the Whatsapp/Telegram account of registered authorized persons. And according the reply of authorized person to these messages raspberry pi controls the motoring action to open or close the door.The door is opened by sending "open"message and closed by "close" messagefrom Whatsapp/telegram account of authorized person and

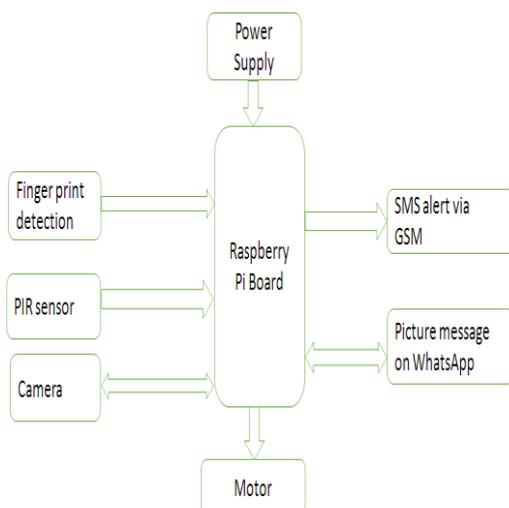This is how security is provided to confidential area by ensuring two step verification.

Fig.1 Block diagram of Whatsapp/Telegram Controlled Advanced Security System

A.   Power supply

In this project circuits, sensors,motors, are used which require +12V & +5V(DC) supply,to fulfill this requirement we are designing circuit of power supply which provides regulated +12V &+5V(DC).

B.   Raspberry pi board

Raspberry pi board plays most important role in the circuit, It takes all the data from sensor output, process it and sends it to the user with the help on wifi model which is included in raspberry board itself. Raspberry Pi is based on the Broadcom BCM2835 system on a chip (SoC) which includes an 700MHz ARM1176JZF-S processor, Video core IV GPU and RAM.

Specifications-
- Quad Core 1.2GHz Broadcom BCM2837 64bit CPU
- 1GB RAM
- BCM43438 wireless LAN and Bluetooth Low Energy (BLE) on board
- 40-pin extended GPIO
- 4 Pole stereo output and composite video port
- Full size HDMI
- CSI camera port for connecting a Raspberry Pi camera
- DSI display port for connecting a Raspberry Pi touchscreen display
- Micro SD port for loading your operating system and storing data
- Upgraded switched Micro USB power source up to 2.5A

Fig. 2 Raspberry pi 3

C.   PIR Sensor

A passive infrared sensor (**PIR sensor**) is an electronic **sensor** that measures infrared (IR) light radiating from objects in its field of view. It is used for **PIR**-based motion detection.

Specifications-
- Working Voltage Range: DC 4.5V- 20V
- Voltage Output: High/Low level Signal: 3.3V TTL output
- Detection Distance: 3 to 7m (can be adjusted)
- Detection Range: <140°
- Work temperature: -20-+80°C

Fig. 3.PIR Sensor

D. *PI Camera*

Camera is used to capture the images when a person tries to access the confidential room. The system will send captured image to Whatsapp/Telegram account of authorized person.

Specifications-
- High-Definition video camera for Raspberry Pi Model A or B, B+, model Raspberry Pi 3
- 5MPixel sensor with Omnivision OV5647 sensor in a fixed-focus lens
- Integral IR filter
- Still picture resolution: 2592 x 1944
- Max video resolution: 1080p

Fig 4.Pi Camera

E. *Fingerprint Scanner*

It is used to verify the finger prints.

Specifications-
- High-Speed, High-Accuracy Fingerprint Identification using the Finger 3.0 Algorithm
- Read and Write Fingerprint Templates and Databases
- Simple UART protocol (Default 9600 baud)
- 360° Fingerprint Recognition

Fig. 5.Finger Print Scanner

F. *Door Controller*

This block contains the door lock/unlock controlling mechanism. This will open the door if and only if the authorized person who get an alert message on his/her phone sends an approval message. The door is open by sending /open command and close by /close command.

V.   APPLICATION OF PROPOSED SYSTEM

1. Can be used for bank locker system
2. Used in offices for confidential data storage room
3. For residential security
4. For home security
5. In schools ,colleges, Offices
6. At personal workplaces

VI.   ARCHITECTURE FLOW
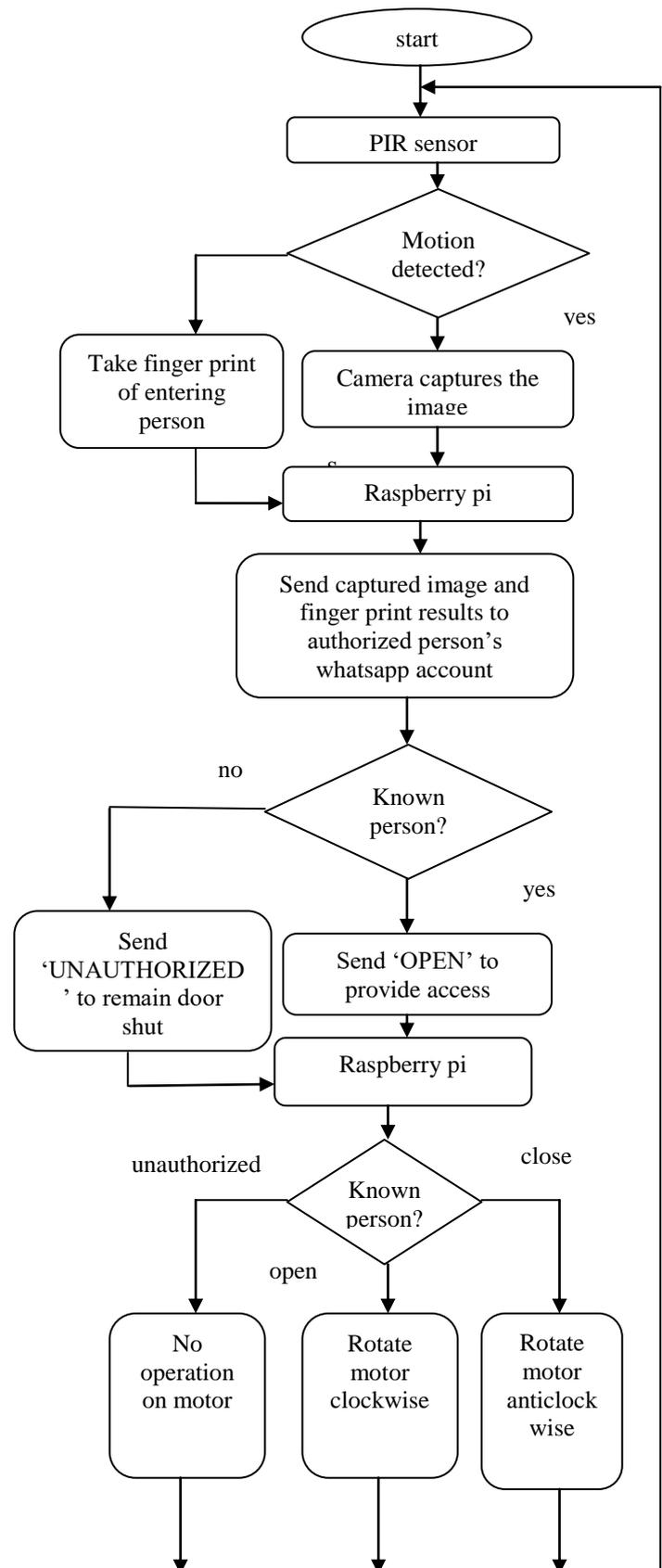
CONCLUSION and FUTURE SCOPE

The system"Whatsapp/Telegram controlled advanced security system" is designed for any confidential area where the security is the main concern and it is thoroughly tested and implemented successfully.It also can be implemented for home security, schools etc. We have presented a system that in which if a person tries to access any confidential area using finger print based system at the same time sensor system will be activating the camera module to capture the images of the entering person. These captured images along with finger print verification results will be sent to the authorized person on his/her whatsapp/Telegram account.Access to the locker will be provided only through whatsapp/Telegram of the authorized person. In the future we can use the stored finger prints of an entering person to get an additional information about entering person using aadhar card for further investigation if needed. Also we can integrate this security system with other security systems for example with RFID based security system for further enhancement.

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