Secure Home Automation Using Raspberry Pi by Telegram App

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Contents

Abstract

- Secure home automation using raspberry pi by telegram is an attempt to construct a smart, innovative and secure entry by using the raspberry pi controller, camera and various other associated sensors.

- Existing system uses notification via twitter app and through mail, our system sends notification via telegram.

- Due to popularity and flexibility of using current social network for all type of generation, we are proposing home security system using Telegram notification.

Problem Statement

- The main objective of this system is to allow only authorized persons into home and capture image of unauthorized persons and sent through telegram.

- This system involves secure home entry to avoid intrusion of burglars using raspberry pi and raspberry camera, a high level security is provided for entry.

Literature Survey

IOT HOME AUTOMATION: DASHI,DEEP AND RAI (YEAR: 2021)

Abstract	Automation changes the way of how people live, An android app is designed to help elderly people who can't themselves also this designed system is used who are living alone by an android application this system is designed.
Objective	This system is Implemented uses easy lot web server and WiFi which has and good future development use of the upgraded Sensors increases precision of sensor, These can be Implemented to Large Scales (like up to street Nights).
Methodology	This system includes use of LDR sensor for light intensity and IR Sensor to detect the human presence, The Raspberry pi here in this Paper is used instead of PIR sensors which are more effective than normal sensors, The signal is sent from Android phone to Wi-Fi module, the Android application consists of GUI buttons for every appliance.

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Results	This system is successfully implemented, this is a very different concept from those available in market where a WI-FI module is setup.
Conclusion	This system is easy to use,saves unnecessary power consumption, easy to implement and low compared to other systems and has more related features.
Limitations	Security,privacy,and designing,developing the system is very complex.

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WEBPAGE AND TELEGRAM BOT CONTROLLED HOME AUTOMATION SYSTEM: DHIRAJ and RAMANA (YEAR: 2020)

Abstract	The paper the System is controlled using web page and telegram bot, users can access to household devices anytime by connecting to network and can control them accordingly, this system also provides security as system Sends the e-mail alert to user on detection of intruder/Person.
Objective	The main objective of the System is controlling the home appliances by webpage also using telegram bot in which we give commands by message to bot in telegram and it updates with messages.
Methodology	In this system a Three 2-channel relays, two fans and 2 light with a electromagnetic door lock is experimented where 2-channel relays is connected to the door lock, GPIO pins which then activates the SMTP server for Sending signal through mail (simple mail transfer Protocol).

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Results	This system is Successfully Implemented in this case user turn on both bedroom and kitchen lights, and also un-locks the door using buttons on the webpage, we use the telegram app to turn on the kitchen light and lock also to dock the door, The Status of the device can be checked using the telegram bot with status like "true" also "false", it sends the signal to Raspberry Pi.
Conclusion	This System implemented remotely through telegram bot Connected over a network. The Status of devices used Such as lights, fans and door lock are updated instantly on the webpage. we can know the status of devices by giving suitable text commands on telegram system bot. Home Security is provided in system using PIR Sensor which is enables when door is Locked.
Limitations	SMTP server updation can be delayed as usage Of Rasp-berry Pi makes it more complex as detection of Intrudution Send mail(It can be enchanced further).

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HOME AUTOMATION USING CHATBOT AND VOICE ASSISTANT: BHAVYASRI,NEHA,PRANAYA and MANOJ (YEAR: 2020)

Abstract	Home Automation system that uses a whole some blending of some technologies like Internet of Things.The prime feature of this system is that, it provides two modes of communication to the user : Text and Voice.The text input from the user will be given via a Chat bot Application and the voice input from the user will be given via a voice assistant.
Objective	The input will undergo Natural Language Processing. The IoT component, Raspberry Pi would perform the actuation's in the form of-switching On or Off of Lights and Fans of a room in the house.
Methodology	This unit is responsible for processing the textual input to find the intent.The speech input from the Voice Assistant module will undergo speech-to-text processing, hence providing a text input to the NLP module.

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Results	The testing and result analysis includes the following Three interfaces :• Chatbot Interface• Terminal Interface (for Voice Assistant)• Working Model Interface The system is currently customized for three rooms :Living Room, Kitchen, Bedroom.Hence, providing the visuals for Switching On and Off actions.
Conclusion	This project is a small attempt at delivering an efficient but affordable Home Automation System with a flexibility to acquire input through two means alternatively, text and speech. This will contribute in removing the dependency on either forms of input i.e speech and text.
Limitations	The system can be further made inclusive of extensions such as attaching of email services as an alternate form of message delivery, in situations of utmost importance. The number of devices that can be connected to the system can not be expanded to a larger range.

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DESIGN AND IMPLEMENTATION OF SMART HOME SECURITY SYSTEM:KAMAL,BISWAS and SAYIDUL (YEAR: 2020)

Abstract	In this paper it has been ensured three level security systems. NFC tag use, providing Password and PIR motion sensor.If one of them absence the door will not open. The door will opened by servomotor with a lock coupled in its shaft. When wrong password is pressed, error text is displayed in the LCD.
Objective	Maximum security will be maintained in home. This security can be applied not only home but also the place where important document, file are preserved also the bank vault.
Methodology	Port D is connected with similarly here all pin is connected with keypad. Now remaining port C one of pin is connected with PIR sensor, other pin is connected with servo motor and another pin is connected with buzzer. Here 2pin for VDD and 2 pin for VSS.

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Results	When password is correct servo motor gets power and open the door. After entrance, PIR sensor will not work. When the person goes out of the door, he should provide NFC tag in the door and then press C for close in keypad. For password changing the person should press A in key-pad.Providing new code, the password will be unchanged until user does not want to change password.
Conclusion	Beside the cost of the project is not too much. Here it has provided utmost security so it is quite impossible to any burglar to enter the room without concern of owner.Some feature has been added to make the project more efficient. It could be implemented it by GSM based home security system.
Limitations	Developing the system is very complex which leads to not reaching all the features.

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IOT BASED SMART SECURITY AND SMART AUTOMATION: SUDHA AND PRIYA (YEAR: 2021)

Abstract	The IOT providing an easy way of life with comforts to human being by managing and interacting remotely control of home appliances.This proposed system contains two Node MCU.The Node MCU(Node micro controller unit) is a open source contains software and hardware that built very less expensive system designed on chip known as ESP8266.
Objective	The objective of this paper is to experimental setup of a home automation system by using IOT concept.
Methodology	The Proposed Model of home automation system contains Server, actuators, sensors and micro controllers.This system can control,managed remotely of room temperature, automatic on and off fans, automatic lights on and off etc are automatically control and managed by home automation system.

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Results	The objective of this paper is to experimental setup of a home automation system by using IoT concept.All sensors are connected and testing with each other and system will give output positively.
Conclusion	This proposed home automation system can be scaled upto apartments but when it will be implemented on large scale then security issues will be occurred, proper actions should be taken like weeping the bell for alert human for avoiding problems.hence it has more and more options for making, updating, modifying or making it smarter.
Limitations	Security,privacy,and designing,developing, managing the system .

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HOME AUTOMATION AND SECURITY USING IOT:APEKSHA AND BHACHEH (YEAR: 2021)

Abstract	Wireless Home Automation System using IoT is a system that uses computer systems or mobile devices to control features automatic through the internet from anywhere around the world, though an automated home can be called/defined as a smart home.
Objective	A smart home security system is a collection of security components connected and controlled by a smartphone app using the internet or other connections. Using technology driven increased peace of mind for property owners that they can monitor their home from anywhere.
Methodology	The Proposed system is a multiple featured home automation system which consist of hardware drivers/devices, sensors, Wi-Fi router webpage and can also get the readings of current flow. Wi-Fi Module, Relay Module, DHT11, Current Sensor.

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Results	Implementation of ANPR.
Conclusion	The project has proposed the idea of implementation of home automation and home security features such as device control, temperature and humidity monitoring, monitoring current flow and on the security side features included are number plate plate detection using tesseract OCR.
Limitations	This project is composition of both home automation and security which are today's prime requirement.

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A REVIEW ON IOT BASED SMART SECURITY AND HOME AUTOMATION:RUHI (YEAR: 2021)

Abstract	These systems usually consists of sensing and actuating layer that is made up of sensors such as passive infrared sensors also known as motion sensors , and web cameras for security.An automatic door control system working through mobile app.
Objective	Control light with a IoT; and electromagnetic locks using keypad Perform password verification using a keypad.
Methodology	Touch sensor for door is activate buzzer if door is locked and someone wants to open it LPG Gas sensor activate Exhaust FAN and Buzzer (For kitchen) Online from website we can turn ON / OFF light Data of room Temp and Humidity, it is like a central server focus mainly on implementing services without the need of physical hardware.

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Results	For Controller Programming : Arduino IDE software is use.
Conclusion	Future homes will most likely offer practical and advanced security to its owners and revolution in smart homes is made possible through IOT Digital code lock security is provided as an advanced feature. If the Gas leakage detected then exhaust fan started automatically.
Limitations	IoT digital code lock security is provided as an advanced feature.

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SMART HOME AUTOMATION VIA TELEGRAM CHATBOT AND ANDROID APPLICATION:AKASH AND PRIYANKA (YEAR: 2020)

Abstract	Devices such as lights, fans, Camera access are used in this system. The Android Application and telegram bot allows user to control the home appliances through any internet enabled device such as smart phone or laptop.The proposed system also provides home security using a camera which can take photo through telegram bot message when nobody is at home.
Objective	The whole system is unique because of the use of the Internet of Things (IoT) . All the data and information received from the Raspberry Pi and the circuitry needs to be stored.
Methodology	In the proposed scheme, we will get the live pictures from the camera in our homes in the from of images. Through Telegram bot we fire a command and get the desired output.

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Results	An internet based smart home system that can be controlled remotely upon user authentication is proposed and implemented.
Conclusion	The Android based smart home app communicates via internet using the REST fully based web service. Any android supported device can be used to install the smart home app, and control and monitor the smart home environment. The Android Application and telegram bot allows user to control the home appliances through any internet enabled device such as smart phone or laptop.
Limitations	Computer vision can be used for motion detection and alerting through telegram.

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ARDUINO BASED HOME AUTOMATION USING INTERNET OF THINGS(IOT):MOHAN,SAMIR,NIHAR (YEAR: 2020)

Abstract	To demonstrate the effectiveness and feasibility of this system, as a connectivity module. It helps the user to control various appliances such as light, fan, TV and can take decision based on the feedback of sensors remotely, on various environmental conditions.
Objective	This paper presents a low cost flexible and reliable home automation system with additional security using Arduino micro controller by authorized user remotely using Smart phone application.
Methodology	Initially through Arduino programming, the system checks the modules as well as their connections. If any kind of error is detected by the system then it will indicate the ERROR status.The system will wait for the signal and switch the load accordingly after receiving the command and update the display.

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Results	As soon as the setup is completed, a home page will appear, from which the user could keep a track of all the electronic and electrical devices which are connected with the server.
Conclusion	In this paper we focused on different process of operating or controlling electrical and electronic appliances remotely with the help of Arduino. This method of controlling such applications is referred to as automation. The experimental setup which we designed has its focal point on controlling different home appliances providing 100 percent efficiency.
Limitations	Reducing the time delay to turn on and off of an appliance , Adding speech recognition to the system,using automatic smart phone detection through Wi-fi such that it will operate the loads automatically when it is in range,Expansion of range of Wi-Fi such that one can operate in permissible long distance through smart phone.

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IOT BASED WEB CONTROLLED HOME AUTOMATION USING RASPBERRY PI:G. JOGA AND VINOD (YEAR: 2020)

Abstract	The work is mainly concentrated on IOT based home automation using raspberry PI wireless home automation system using IOT helps us to control basic home appliances automatically through internet from anywhere around the world by using computers or mobiles.
Objective	Wireless home automation system using IOT helps us to control basic home appliances automatically through internet from anywhere around the world by using computers or mobiles. To design this system, we are using a Raspberry Pi module with computer vision techniques.
Methodology	The Raspberry Pi 3 is the third generation Raspberry Pi. It replaced the Raspberry Pi 2 Model B in February 2016. Compared to the Raspberry Pi 2 it has: • A 1.2GHz 64-bit quad-core ARMv8 CPU • 802.11n Wireless LAN • Bluetooth 4.1 • Bluetooth Low Energy (BLE)

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Results	In this paper, a prototype smart home automation using IoT is presented.As an extension, authors propose a generic IoT framework and use cloud computing in frastructure for connecting and managing. Expected to grow in popularity in the near future is the use of smart home products to in crease family safety, specifically related to fire protection and carbonmonoxide monitoring. Nowwea reconnecting and controlling the few devices in home appliances.
Conclusion	In this paper, a prototype smart home automation using IoT is presented.Expected to grow in popularity in the near future is the use of smart home products to in crease familysafety, specifically related to fire protection and carbonmonoxide monitoring. Nowwea reconnecting and controlling the few devices in home appliances.
Limitations	It is possible to use a DC to AC relay to connect the AC circuit load.

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HOME SECURITY WITH TELEGRAM COMMUNICATION USING RASPBERRY PI:SHAIK,KRISHNA (YEAR: 2020)

Abstract	Now, this is the age of speed, everything is happened in the speed of supersonic and the data can be transferred at the speed of light in digital medium. Hence there is need of information inflow the same speed using Internet protocols.
Objective	Automation and security are the act of implementing the control of equipment with advanced technology, usually involving electronic hardware. It is the process of automatically performing everyday functions around the home to save the time, energy, money and at the same time offering improved security.
Methodology	The home security system have of two major components,Telegram Application Unit (TAU) is a framework designed on Users Android OS supported mobile phone.

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SMART DOOR SECURITY SYSTEM USING RASPBERRY PI WITH TELEGRAM:DESAI,VIRENDRA (YEAR: 2020)

Abstract	In modern world, the IoT is at its peak. The world is becoming smarter, the home automation is emerging. Smart Door control system is a latest technology in home automation.The aim of this paper is to enlarge the door automation technique using Raspberry pi and android phone.
Objective	The Purpose of this system is that whenever the person arrives in front of the door , the person's motion is been detected by a PIR sensor and as soon as he/she presses the bell button, the camera captures the image and the still image is sent on a telegram app of an android device.
Methodology	When the person arrives at a home and stands in the front on the door, he/she will get detected by PIR motion detector.The person will press the bell the image is captured with the help of a camera module.

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Results	The system uses various components like PIR sensor, camera module, switch and telegram app on an android phone. The networks security is also playing a vital role so that raspberry pi could not be hacked. The coding is done using python language and installation of a telegram is done using CLI Telegram and some concept of Linux The networks security is also playing a vital role so that raspberry pi could not be hacked.
Conclusion	We have a designed a smart system which reduces the human efforts and provide the ease to operate the Smart door, can access it from any corner of the world, providing a good security.
Limitations	In the same process we can connect different sensors to monitor and control the devices.

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IMPLEMENTATION OF ADVANCED SMART HOME SECURITY ALERT SYSTEM:SHAKTHI AND ABISHIEK (YEAR: 2020)

Abstract	Smart home is a association of automation and account over a network for a exceptional aspect living. In that home security plays a major role and it becomes the important area of our lives.
Objective	The home automation system is a computer-based application that has the capability to connect different electronic devices for the sake of audit and controlling the home device. The home automation system is the field that has grabbed consideration in both the academic and business fields.
Methodology	Internet of Things is one of the mainly used technology together benefit a little country. IoT connects the physical things like vehicles, buildings, and various devices.

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Results	Smartphone application incorporated with the proposed system to advance smart motion detecting camera security system and find human faces for houses and offices. Other than the hardware composition the software's necessary should also be installed The PICAMERA has been adequately capture the pictures.
Conclusion	The real-time surveillance of the house is basic for security application. A Smartphone is the core apparatus of the system that is used via the user to get notifications with the captured pictures. With Computer Vision, we could make simpler the use of the Internet of Things in our daily time and we could build a new path to contact us with our environment.
Limitations	Security,privacy,and designing,developing, managing the system .

Any Queries???


Thank You