SMART SECURITY ALERT SYSTEM

Submitted in fulfilment of the requirement of

Computer Communication Lab

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CERTIFICATE

This is to certify that Computer Communication Lab Mini Project entitled "SMART SECURITY ALERT SYSTEM**"** Submitted by "[RA2011003011185] G. Sai Harish, [RA2011003011165] M. Tarak Reddy, [RA2011003011161] G. Yaswanth, [RA2011003011160] K. Vamsi Krishna, [RA2011003011125] D . Vivek Reddy" for the partial fulfilment of the requirement for Semester IV Subject of Computer Communication Lab to the SRM Institute of Science andTechnology, is a bonafide work carried out during Semester IV in Academic Year 2021-2022.

Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Table of content

Abstract

With many cases of theft and robbery in the whole world, the number of robberies reached 57,396 during 2011 including 65 armed robberies and those numbers are increasing every year , so we decided to use Cisco Packet Tracer, to establish a high smart security alert system for homes.

Methodology- Smart Security Alert System consists of modules like Web Camera, Raspberry Pi, PIR Sensor, Alarm, Door Rules. The Web Camera captures the images of any inactivity happening at home while the user is not available at home. The PIR sensor detects any inactivity in the home and instantly sends signals. Raspberry Pi then fetches the signal from webcams and PIR sensors and sends captured images to Homeowners. Various conditions and constraints are programmed based on the smart object connected to the home gateway. Once any movement is detected, a loud alarm is produced to alert those nearby of the unauthorized entry.

Major Result- Created a smart security alert system that considers one of the most important ways of protection that majority of society seeks to own their homes and use because it is one of the latest ways of protection for homes and the most easy use has been established the system of protection of the home using Cisco Packet Tracer

Implications- The system can be connected with a smart house be associated with a government system to report by the competent authorities if there is a dangerous situation for a particular area such as earthquakes or volcanoes by sending an alert message to the homeowner's number associated with the system

OBJECTIVE:

The aim of this project is to come up with a simulation of smart security devices that can be controlled by the end-user smart device remotely and then show the concept called smart security alert home. Use of Cisco Packet Tracking Features Simulated smart security alerts home and IoT devices are monitored.This gives protection and Safety to home and reduces exposures to common hazards and theft,it alerts the user as soon as they occur.

Introduction

With the increase of thefts and the speed of their spread,people's fear and anxiety increased,concern and afraid of being psychologically or physically harmed by the robber,the developers of computer technologies began to create different and diverse protection and security system to protect and secure home by informing owners that a stranger is in their house or alarm them when danger occurs.

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MODULES

Webcam: Webcam is used in a proposed approach that captures the images of any inactivity happening at home while the user is not available at home. Webcam and PIR sensor detects any inactivity in home and instantly sends signals and captures images to Raspberry PI.

Raspberry PI: We have used Raspberry PI in a proposed approach as the main computational device. It performs signal fetching and processing, and email sending processes. It fetches the signal from webcams and PIR sensors and sends captured images to Home owners via email services. We require USB ports and GPIO pins as connectors.

PIR Sensor (Passive Infrared Sensor): PIR sensor is used in a proposed approach that is frequently utilized as a part of movement detectors by measuring infrared lights which are transmitting from the object over sensor range. For home security, we have used it for motion detection in home. PIR sensors also work in darkness, so we get more security instead of just using a camera for detection.

Alarm: A burglar alarm system consists of a series of electrical components that are connected to a property. Via sensors and contacts, they detect movement or the opening of doors and windows, upon which a loud alarm is produced to alert those nearby of the unauthorized entry.Often deemed to be a security essential, these systems are a universal fixture of most premises.

Door: Rules:Different conditions and rules are programmed based on the smart object connected to the home gateway. These steps have to be repeated for all objects.

Device Led Conversion:Device Led Conversion (DLC) : is the process where a new device or a product instance is upgraded from Traditional to Smart Licensing when registered in Cisco Smart Software Manager (CSSM). All licenses on the device automatically convert from Classic or Perpetual Right-to-Use (RTU) License to Smart License without the need for any manual conversion.

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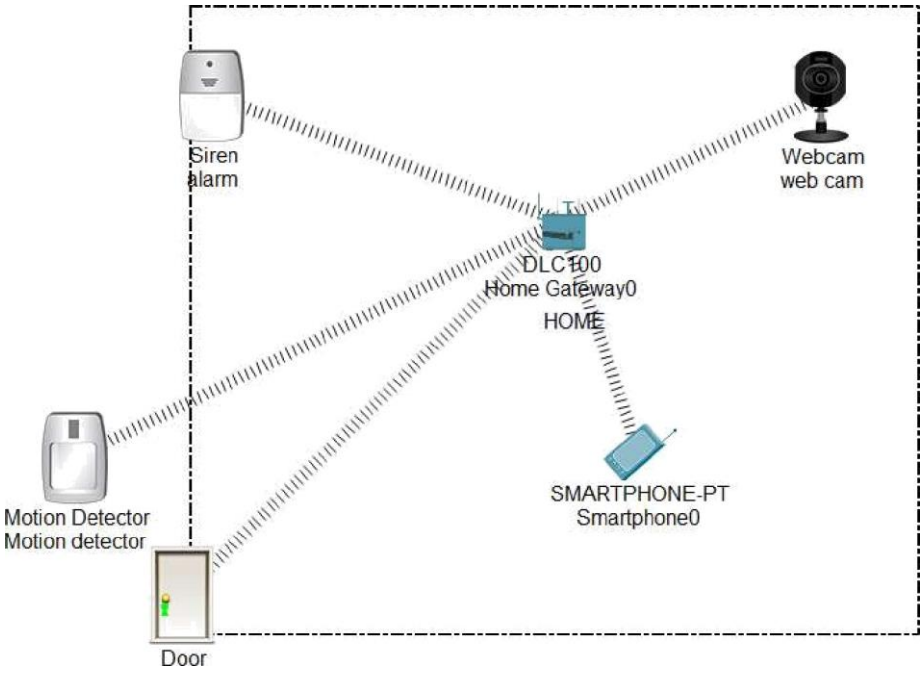
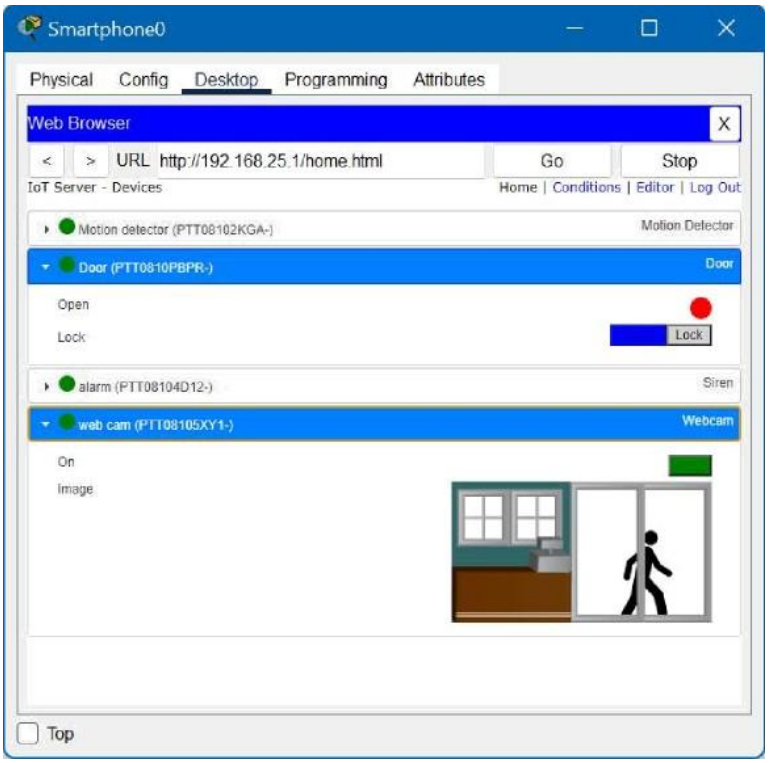
Simulation Of The Project :



OUTPUT :



Conclusion :

CISCO PACKET TRACER :

To create a Smart Home Security Alert System we have modules like Home gateway.Doors, Web cameru, Siren Motion Detector and Smartphone First select Home Gateway 100(DLC) from wireless devices from end devices select smartphone and from home select Door, Motion Detector, Web Camera and Siren. All the home devices will be connected to Home Gateway automatically. To create a better view for Smart Home Security Alert System we need to create home by making rectangle and name it as Home. Put every home components inside home box except Motion Detector. To connect home devices wirelessly to home gateway we need to follow

Steps :

-First select home gateway and click on configure and go to wireless and then name SSID as home gate way, then in authentication select WPA2-PSK set the password as get connect.
-Now we have to connect home devices to home gateway, so first select motion detector. go to configure set the display name as motion detector and set loT server as home gateway then click on advance and click on 10 configure Set the Network Adapter as PT-IoT-NM-TW then click on configure click wireless and in authentication select WPA2-PSK and enter password get connect.

-Connect other home devices to the same as the connection of the motion detector to the home gateway.

-Select smart phone click on configure then click on wireless,set SSID as home gateway and in authentication select WPA2-PSK and enter password getconnect.
-Now go to the desktop of smartphone.click on the web browser and type the URL as 192.168.25.1 and click go.

-Put Username and password as admin for both and now we can see all home devices connected to home gateway by logical connection.

-Now set conditions if any person is trying to enter or leave the house.

-If person presents at the doorstep, the motion detector is ON is TRUE Set the actions. Web camera is ON is TRUE and Alarm sound is ON is TRUE.

-If no person is present at the doorstep the motion detector is ON is FALSE Set the actions, web camera web camera is ON is FALSE and Alarm sound is ON is FALSE.

-Now verify if the person is there on the doorstep or not, so go home. click on the web camera and door set the door in lock condition.

-To enable motion detector click alt put the mouse pointer on motion detector. now motion detector is ON and siren goes ON the owner can see the web camera by using the smartphone it anyone present at the doorstep or not. According to that the owner can let the person in or not.

-Now set the door in unlock condition:
-If no person is present at the doorstep the motion detector is OFF web camera is OFF and Alarm sound is OFF.

Inference:

We designed a smart home security alert system using Cisco packet tracer and tried to make it as secure as possible by linking it to the owner of the house. All the information of anything happening in the house will be sent to the owner via text message or phone alarm.

It is one of the most important ways of protecting the majority of society that seeks to own their homes and use because it is one of the latest way for protection of homes and the most easy use has been established, the system of the protection of the home using cisco packet tracer.

REFERENCE:

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