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Home Security System using ESP32-CAM and Telegram Application

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Abstract: *This chapter deals with the implementation of our own monitoring system with home security. The system is designed using IoT modules and uses ESP32 microcontrollers. The chapter describes the design of the system, its hardware components, software implementation, security solutions, communication, the collecting and monitoring of processed data, as well as the quantification of costs for the production and deployment of this system. The proposed system secures a house by detecting an intruder in the building, triggering an alarm and capturing it all with camera images and then sending data to the owner's smart mobile.*

Keywords: Home Security

I. INTRODUCTION

In this project we've build a Home Security System using ESP32-CAM Which notify us on Telegram App about any Intruder trying to break in our house by capturing and sending his photo to us. For that we've used motion and Door Sensors. We've also implemented Fire, Smoke and Gas Leak Alert system in this project.

II. LITERATURE SURVEY

IoT has been applied in previous researches in smart home technology to remotely control and monitor various appliances, namely fire, gas, water, air conditioner and fan. Some research also focuses on efficiency to lower energy consumption Some of research like the following, have been done about home security system. From the literature review that have been discussed, there are few researchers that discusses the IoT, home security system, and remote door. Therefore, we make research that can monitor and control the door remotely, receive alerts when a movement is detected near the door, grant a door access to people who are trusted to control the door, view the door access history log and user access, get a notification that the door is still open after a certain limit time. The big differences between the related works and the system we proposed are that our program can give access to other users and the owner of the house can see the log history of door's activity such as who has opened or closed the door and, when the activity happen. In this project we've build a Home Security System using ESP32-CAM Which notify us on Telegram App about any Intruder trying to break in our house by capturing and sending his photo to us. For that we've used motion and Door Sensors. We've also implemented Fire, Smoke and Gas Leak Alert system in this project.

III. PROBLEM STATEMENT

People nowadays are busy with daily activities. Recently, the number of break-in and attack of these easy targets is increasing. Sometimes if the gas, smoke or fire catches means we get to know about that some amount of time. If we detect this earlier means we can take an action.

IV. PROPOSED SYSTEM

- To overcome these problems there is a need to install a home security system which can detect intrusion and trigger alarm. A home security system is one line of defence a home can provide intrudes. Such systems can also help to protect a home from fire and gas leakage by bringing a home's smoke detectors under its control.
- To Interact with our security system and get notified about all the alerts we need to create Telegram Bot on Telegram Application in our smartphone.

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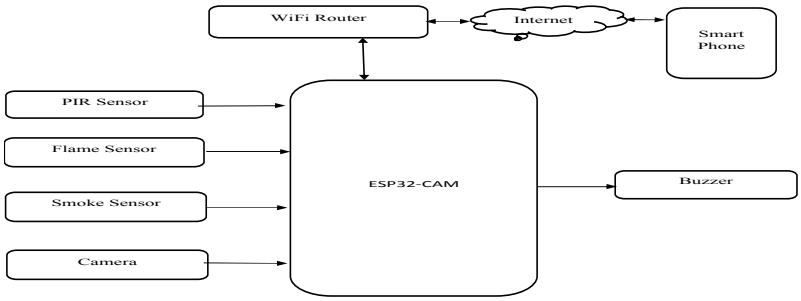
- Using this Telegram bot, we can Engage/Disengage (Arm/Disarm) our Home Security System and All the alerts. On Telegram app, we can also take/get live photos of our monitoring area where we have installed our ESP-CAM.

V. METHODLOGY

The home security system composes of sensors which can monitor the home conditions. The sensors used in this paper are flame sensor, MQ6(Gas sensor), magnetic sensor. ESP32-CAM is used to connect all the sensors, and it has camera to capture the intruder photo and acts as main controller. The telegram app is used to monitor the house conditions.

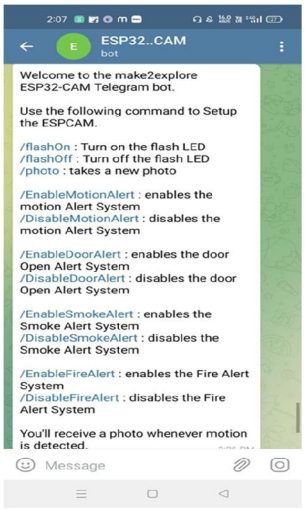
VI. DESIGN OF PROPOSED SYSTEM



- All sensors connected to ESP32-CAM Development board. ESP32-CAM is Wi-Fi enabled so it connects to our Wireless router which is further connected to Internet.
- To Interact with our security system and get notified about all the alerts we need to create Telegram Bot on Telegram Application in our smartphone.
- Using this Telegram bot, we can Engage/Disengage (Arm/Disarm) our Home Security System and All the alerts. On Telegram app, we can also take/get live photos of our monitoring area where we have installed our ESP-CAM.
- If all sensors and alerts enabled, then system will give alerts on telegram about whenever any security related event occurs.

For Example: Fire or smoke alert. You can operate from anywhere in the world, you just need Telegram application with Authorized bot and Internet connectivity to your phone. Only allowed/Authorized users (who's Chat ID is registered) will be able to interact with this Bot.

VII. RESULT



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VIII. CONCLUSION

In a intense study of Internet of Things, we found it to be hypothetical based on its purpose of application. It means IoT provides a lot of automation by connecting things. Connecting things has been made easy by the various sensors and the devices. In our instance of application with telegram messenger, we have used bots to communicate with the connected things in a house. Later by the statistical report given by the bot any user can take the decision on automation of house. With the emerging technologies, we have been successful in exploring the connectivity of various things in a house and also as a network specialist we also reported the pros and cons of connecting things

REFERENCES

[1]. Ch. Manohar Raju, N. Sushma Rani. An android based automatic gas detection and indication robot. In International Journal of Computer Engineering and Applications. 2014; 8(1).

[2]. Zhao Yang, Mingliang Liu, Min Shao, Yingjie Ji Research on leakage detection and analysis of leakage point in the gas pipeline system. In Open Journal of Safety Science and Technology; 2011

[3]. Dokic K, Martinovic M and Radisic B. Neural Networks with ESP32 - Are Two Heads Faster than One? Conference on Data Science and Machine Learning Applications, CDMA 2020. DOI: 10.1109/ CDMA47397.2020.00030.

[4]. https://www.hackster.io/make2explore/home-security-system-using-esp32-cam-and-telegram-app-dce4f8

[5]. https://www.instructables.com