



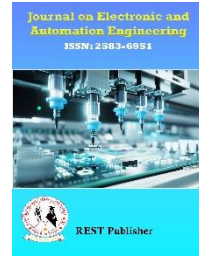
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Home Entry Automation System Using Raspberry Pi

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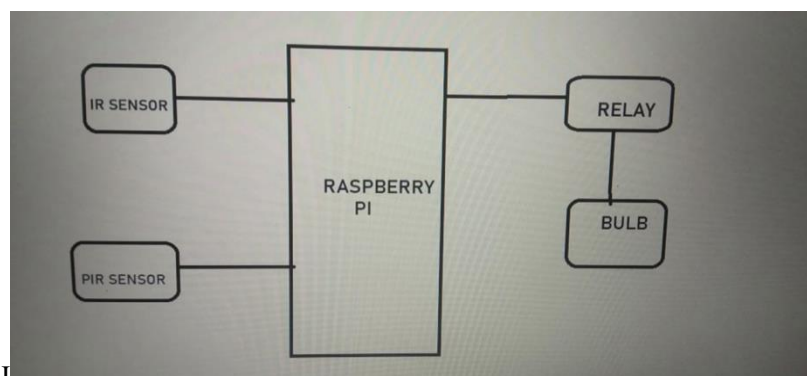
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Abstract. In today's era of Home Automation Systems, the provision of automated secure entry has become a fundamental requirement. Our proposal aims to fulfill this need by introducing a secure home entry system leveraging the Internet of Things (IoT). This innovative solution utilizes a raspberry pi controller along with various associated sensors to construct a smart and secure entry system. To enhance the overall home security system, we have incorporated message notification as a communication method in our proposal. Unlike the existing system that relies on phone number notifications, we recognize the widespread popularity and versatility of current social networks across all generations. Hence, we suggest implementing a home security system that utilizes message notifications. The use of phone numbers in this project offers several advantages. It enables the system to send instant notifications to users, ensuring prompt and secure communication between the user and the home automation system. By utilizing phone numbers, we can achieve efficient and reliable communication for a seamless user experience.

1. INTRODUCTION

In today's modern homes, the importance of home security systems cannot be understated. With the power of Internet of Things (IoT) and the versatility of Raspberry Pi, it is possible to create a simple yet effective home security solution. This project utilizes Raspberry Pi 3 and a PIR motion sensor to design a user-friendly and easily installable home security device. The Raspberry Pi 3 Model B is equipped with built-in Bluetooth (BLE) and Wi-Fi (BCM43438 Wireless LAN) capabilities, allowing it to easily connect to a Wi-Fi router for accessing cloud services. The device is designed to be installed at the main entrance of a house. It detects any motion using the PIR sensor and captures images using a Pi camera. These images are temporarily stored on the Raspberry Pi and then pushed to the Google Cloud. From there, they are sent as a message alert to the homeowner's phone number. This ensures that the user receives immediate images of any visitor, which can be conveniently checked on a smartphone. The Raspberry Pi establishes a TCP/IP connection with the Google Cloud, leveraging its on-board TCP/IP stack. This allows the Raspberry Pi 3, being an IoT board, to seamlessly connect to an IoT network. By combining the power of Raspberry Pi, IoT, and cloud services, this project presents a straightforward solution for creating a basic home security system that is accessible and efficient.

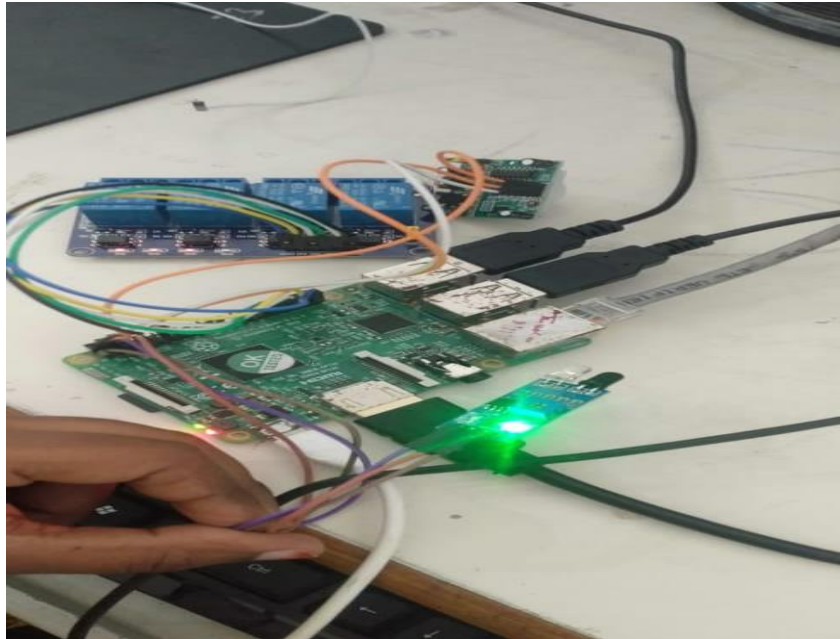
2. BLOCK DIAGRAM



3. WORKING MODEL

In this project, we have established a connection between the IR sensor and PIR sensor with a Raspberry Pi. These sensors are capable of detecting the presence of objects or human motion. Once detected, the Raspberry Pi recognizes the event and sends a notification in the form of a text message to a specified mobile number.

4. RESULT



5. CONCLUSION

This project presents a prototype of a smart home automation system using IoT. It involves integrating relays and devices with a Raspberry Pi board to enable remote control of the devices in a real-life setting. The system includes controlling and regulating lights and model fans based on the comparison of temperature and humidity values. Additionally, the door locking system incorporates manual authentication of individuals entering the house. It automatically captures a picture of any person or object near the door using IR sensors, thereby facilitating automatic locking and unlocking of the door. The utilization of Raspberry Pi proves to be a cost-effective and efficient platform for implementing home automation. The system is flexible, programmable, and supports a wide variety of peripherals and accessories. Furthermore, it can be accessed from any internet-based device, including mobile phones.

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