



# SMART Wi-Fi DOORBELL

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## ABSTRACT

Security and safety is increasing day by day and with improvements brought in the past decade and innovations to bring comfort in our lives. In today's world technology has become a part of an integrated part of the society and therefore the security of an individual's home, office or their organization had to be considered with utmost priority. Smart Receptionist with a smart lock system is therefore mainly designed and developed for security system purpose.

The smart security system is used in situation to see visitor when the main door of office or organization is closed. The purpose of this system is to control the door lock using RASPBERRY Pi. In this system whenever person enters the office door, image of person is captured by camera module and sending this image to the user MAIL. The owner can lock/unlock the door depending on the person image by sending conformation mail to the system. If the system detects wrong person, it will activate the alerts through Buzzer. here servo motor works as door.

## INTRODUCTION

Smart Receptionist with smart lock system is mainly designed and developed for security system. This smart security system is used to see a visitor when the main door of the office or Home is closed. The project aims in designing a **Smart Wi-Fi Doorbell**.

The project makes a use of raspberry pi processor is main controlling device of the whole system and it has inbuilt WI-FI, so it will send the photos to the user mail.pi camera for take the snapshot of the persons. Servo motor for operating of door. The controlling of door (open/ close) is done wirelessly through Wi-Fi. Audible alert using buzzer. Status will display on LCD display.

Wi-Fi (Short for **Wireless Fidelity**) is a wireless technology that uses radio frequency to transmit data through the air. Wi-Fi has initial speeds of 1mbps to 2mbps. Wi-Fi transmits data in the frequency band of 2.4 GHz. It implements the concept of frequency division multiplexing technology. Range of Wi-Fi technology is 40-300 feet. The Raspberry Pi is a low

cost, **credit-card sized computer** that can be used in electronics projects. It is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python. It's capable of doing everything you'd expect a desktop computer to do, from browsing the internet and playing high-definition video, to making spreadsheets, word-processing, and playing games. Raspberry Pi is the controlling section in our project. We program it using Python Language and the OS used here is Linux.

## OBJECTIVE

Development of a Smart Door Receptionist system with an integrated Smart Lock to enhance security and convenience in access control

## COMPONENTS REQUIRED

- Raspberry PI Zero W Model
- PI Cam
- ARM-11 Processor
- Buzzer
- Switch
- SD Card
- Adapter
- LCD
- Push Buttons
- Jumper wires
- Servo motor
- LEDs
- Power supply

## LITERATURE SURVEY

[1]. **"Smart Video Doorbells: A Review of Current Technologies and Features"**: This review paper provides an overview of existing smart Wi-Fi video doorbells, highlighting their key features, technical specifications, and user functionalities. It discusses aspects such as camera resolution, motion detection algorithms, cloud storage options, and smartphone integration.

[2]. **"Security Analysis of Smart Wi-Fi Video Doorbell Systems"**: This study focuses on the security vulnerabilities present in smart Wi-Fi video doorbell systems. It evaluates the encryption protocols used for data transmission, privacy risks associated with video streaming, and measures to prevent hacking and unauthorized access to the device.

[3]. **"Integration of Machine Learning Algorithms in Smart Video Doorbells"**: This research explores the integration of machine learning algorithms in

smart video doorbells for enhanced functionality. It investigates the use of AI for facial recognition, object detection, and anomaly detection to improve the accuracy of motion detection and reduce false alarms.

[4]. **"User Experience Evaluation of Smart Wi-Fi Video Doorbells"**: This paper conducts a user experience evaluation of different smart Wi-Fi video doorbell systems. It assesses factors such as ease of installation, setup process, mobile app usability, video quality, and overall user satisfaction to identify areas for improvement in future designs.

[5]. **"Energy-Efficient Design for Battery-Powered Smart Video Doorbells"**: This study focuses on the design and optimization of battery-powered smart video doorbells to prolong battery life. It explores techniques such as power management, low-power communication protocols, and motion sensor optimization to minimize energy consumption.

[6]. **"Privacy Considerations in Smart Video Doorbell Systems"**: This research examines the privacy implications of smart video doorbell systems, including data collection, storage, and sharing practices. It discusses privacy-enhancing technologies and regulatory compliance measures to protect user privacy and data security.

[7]. **"Integration of Smart Video Doorbells with Home Automation Systems"**: This paper explores the integration of smart video doorbells with existing home automation systems. It discusses interoperability standards, communication protocols, and use cases for seamless integration with other smart home devices and platforms.

[8]. **"Emerging Trends in Smart Video Doorbell Technology"**: This paper discusses emerging trends and innovations in smart video doorbell technology, such as AI-powered analytics, 4K video resolution, integration with virtual assistants, and advanced security features, to provide insights into future developments in the field.

## CONCLUSION

In conclusion, the implemented project seamlessly integrates cutting-edge technology to fortify the security and operational efficiency of our daily environment. This system not only detects but promptly alerts user against any unauthorized intrusion, ensuring the safety. The project **"Smart Wi-Fi Doorbell"** was designed an intelligent security system. The controlling device of the whole

system is a raspberry pi processor; it has an inbuilt Ethernet. LCD display, Pi-camera, servo Motor is interfaced to the raspberry pi processor. In this system whenever a person presses the calling bell, image of the person is captured by the Pi-camera and it will send the raspberry pi then the processor mail the person image to owner. Once the image is uploaded user need to check the image and take decision accordingly like access/ denies the door through mail. If the person denies the permission to open the door, door will remain locked and the system will give the buzzer alert. The status of the project is displayed on LCD display. Raspberry Pi is the controlling section in our project. We program it using Python Language and the OS used here is Linux. Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced IC's with the help of growing technology, the project has been successfully implemented. Thus, the project has been successfully designed and tested.

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