

IoT based Mobile Application for Supervision Surveillance

¹Mrs.A.Suganya

Assistant Professor

Department of computer science and engineering
Dr. Mahalingam college of engineering and technology
Pollachi.

suganyaamirtharaj@gmail.com

S.As swath, G.Puvijay, S.Hari Priya

UG Scholars

Department of computer science and engineering
Dr. Mahalingam college of engineering and technology
Pollachi.

Seenivasann1966@gmail.com, puvijay.g@gmail.com,
om,aswathpower123@gmail.com

Abstract:

The increasing rate of crime, particularly robbery and threats to people for money, is a major concern for society. Smart video surveillance technology provides a 24/7 security solution for homes and offices, utilizing surveillance cameras to send alerts to mobile phones when a stranger enters the premises. In the event of any illegal activity, an alert message is sent to the police and neighbours for prompt action. By enabling a defence system on their mobile phones, individuals can able to prevent further illegal activities and capture the perpetrators using taser guns and bola wrap techniques. This technology can lead to peaceful lives without fear of criminal activities, ultimately reducing crime rates and avoiding meaningless deaths and loss of wealth.

Keywords:

Protection, Prevent loss, Surveillance, Smart Vision, Smart Camera

I.INTRODUCTION

In this digital world we need every possible thing around us to be automatic and secure which reduces human effort. There are increasing electronic circuits that makes today's life easier and simpler. The aim of this is to make IoT BASED SUPERVISION SURVEILLANCE WITH FACE RECOGNITION SECURITY for Secured home automation. In today's world, face recognition is an important part for the purpose of security and surveillance. Hence there is a need for an efficient and cost effective system. This is an application, designed and developed for IOT based security surveillance system in buildings with Wi-Fi network connectivity. Upon detecting the face, the controller enables the camera for capturing the event, alerts the user by placing the live video of that event on mobile Application.

II.RELATED WORK

Surveillance systems have become more important for everyone and everywhere for the purpose of security. Surveillance is close observation especially of a suspected. Proposed surveillance system needs the use of both control system and information technologies to reduce the need of

manpower in authorized area, which help users to view their authorized network area from anywhere by using internet and mobile devices. The Proposed surveillance system can be controlled and operated from anywhere with the help of Internet of Things. The system can be used in school, College and transport buses, especially to predict eve teasing against women. The system uses the camera to capture images of the people those who are coming under the surveillance area and these images will be saved in the cloud for further investigation. Video streaming is also possible by using this system. The main important thing in this simple low cost intelligent surveillance system is Raspberry Pi and Raspberry Pi camera.

EXISTING SYSTEM

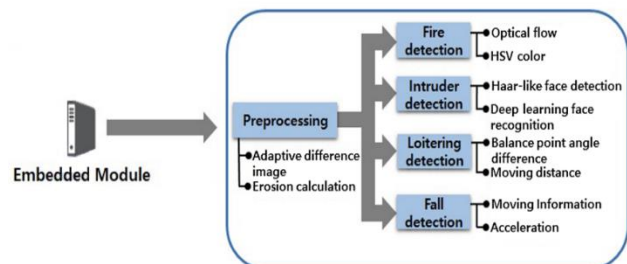


Figure.1. Block diagram of the Existing System

The existing system demonstrates the temperature, stickiness, gas spillage and nearness of human being within the house. In case the sensors level goes up over the threshold level at that point it'll controlled through transfer circuit. Transfer will be associated with the PIC microcontroller which can do the work of controlling. On the off chance that the temperature surpasses the edge level at that point the fan will turn ON automatically and it'll OFF when the temperature comes in

control extend. So also when there's a spillage of gas within the house, buzzer will raised giving the caution sound to people interior the domestic. When individual enter into the home PIR sensor faculties this movement and light and fan will be turn ON consequently. Here Raspberry Pi will be associated to the Wi-Fi which is able send this information over the Web by which the client will be able to see the information and can keep a observe on appropriate working of this framework.

III. THE PROPOSED MECHANISM

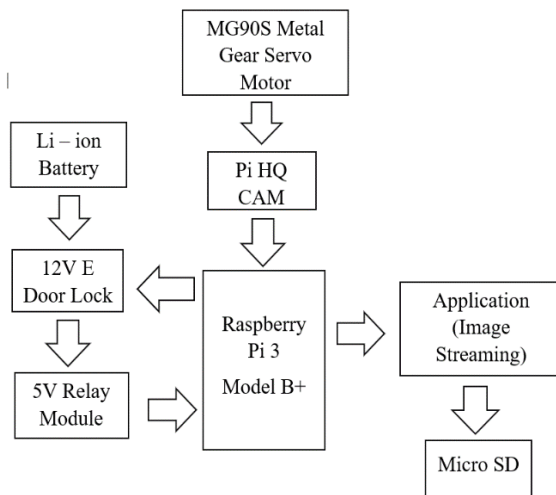


Figure.2. Block diagram of the Proposed System

The components used in the proposed system are Raspberry Pi 3 Model B+, Li-ion Battery, Pi HQ CAM, Solenoid Door lock, Relay Module, Metal Gear Servo Motor, micro SD card. Li-ion Battery acts as an input. It provides supply to the solenoid door lock. Door Lock is basically an electronic lock, designed for the basic cabinet safe for the door. It acts as an output for the microcontroller. Relay Module plays a role of switch that open and close the circuit by receiving digital output signals from Raspberry Pi 3. Both Metal Gear Servo Motor and Pi HQ CAM integrate with the microcontroller. HQ CAM is used to monitor and capture the data inside the room. Finally, the captured data is stored in the micro SD card. The Output signal is developed for the given image streaming application.

IV. PERFORMANCE EVALUATION

The first image describes the image capturing using the Pi HQ CAMERA. The second image shows the automatic door lock system. Finally we develop the IoT based mobile application for the supervision surveillance system. We intend to implement this system especially in houses, apartments, colleges and hospitals.

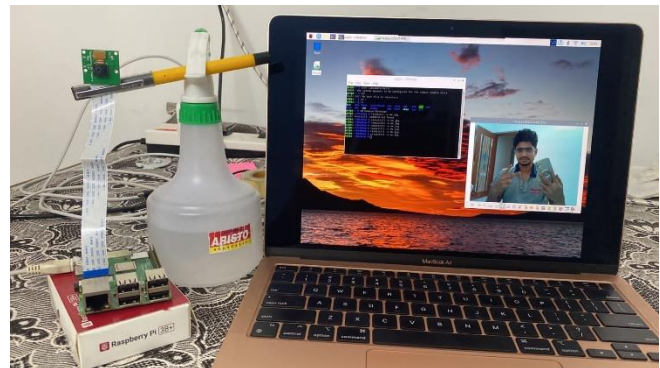


Figure.3. Image Processing

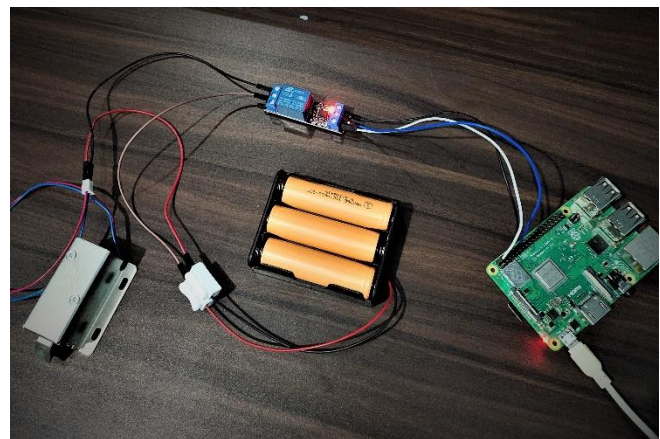


Figure.4. Solenoid Door Lock

The Raspberry Pi sends a signal to the single channel relay via one of its GPIO pins. This signal is typically a logic level signal, such as a 3.3V or 5V signal. The relay receives the signal and switches the high-voltage circuit that powers the solenoid door lock. This high-voltage circuit typically runs on 12V DC power. The solenoid door lock is energized and the electromagnetic field created by the solenoid pulls the bolt or bar into the locked position, securing the door. When the Raspberry Pi wants to unlock the door, it sends a signal to the relay again, which switches the high-voltage circuit off and the solenoid is de-energized, allowing the bolt or bar to be released and the door to be opened. Overall, this setup allows the Raspberry Pi to control the solenoid door lock via a simple electronic switch, making it possible to automate the door locking and unlocking process using software.

A PIR (Passive Infrared) motion sensor is a device that detects changes in the infrared radiation emitted by objects within its field of view. It can be used to detect the movement of people or animals, and can be connected to a Raspberry Pi to trigger events based on motion detection. The PIR motion sensor is connected to the Raspberry Pi's GPIO pins. The sensor typically has three pins: power, ground, and signal. The Raspberry Pi is configured to monitor the signal pin of the PIR

motion sensor using a script or program written in Python or another programming language.

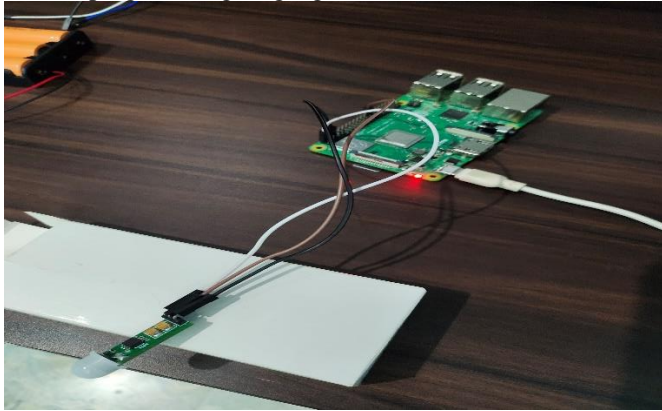


Figure.5.PIR motion sensor

When the PIR motion sensor detects motion within its field of view, it sends a signal to the Raspberry Pi via its signal pin. This signal is typically a logic level signal, such as a 3.3V or 5V signal. The Raspberry Pi's script or program detects the signal from the PIR motion sensor and triggers an event, such as sending a signal to a relay. The relay receives the signal from the Raspberry Pi and switches the high-voltage circuit that controls the device which is connected to the relay.

V. CONCLUSION

IoT-based surveillance systems have the potential to enhance security and safety in various environments. With the integration of sensors, cameras, and other devices, these systems can detect and respond to security threats in real-time. However, there are also concerns about privacy and data security that need to be addressed when implementing such systems. To ensure the success of IoT-based surveillance systems, it is important to carefully design and implement them, taking into account the unique requirements and constraints of each environment. Additionally, it is important to provide adequate training and support to the user responsible for operating and maintaining these systems. Integrating IoT-based surveillance systems with other security systems such as access control systems and fire alarm systems can provide a comprehensive security solution.

REFERENCES

[1] Liang Yuan "Fall detection in indoor environment with kinect Sensor Systems" Proc. IEEE Int. Conf. Parallel Distribution., vol. 12, no. 23, 2019, Art. no. 4517.

[2] Zhan Zhang "A Survey of Cloud Storage Systems", in Proc. IET Chennai 3rd Int. Sustain. Energy Intelligent. Syst., 2021, pp. 356-361.

[3] Liang Yuan "A fall detection system based on human body silhouette." Energies, vol. 12, no. 23, 2019, Art. no. 4517.

[4] S. S. Ahmed, "Personalizable smartphone application for detecting falls" J. Computer. Theory. Nanoscience., vol. 13, no. 8, pp. 5037-5045, 2019.

[5] F. Ahmad, "Review of Caching Mechanisms in Content Delivery Networks" Proc. IEEE Int. Conf. Parallel Distribution. Grid Computer 2022.

[6] S. M. Azam, "A Survey on Distributed Caching Strategies in Cloud Computing" IEEE Internet Computer., vol. 16, no. 1, pp. 69-73, 2021.

[7] Y. Guo "Security architecture for cloud computing" in Proc. Int. Conf. Computer. Intelligent. Communication. Network., 2015, pp. 727-730.

[8] T. Y. Lin, "A Survey of Cache Partitioning Techniques for Multicore Systems" IEEE Trans. Inf. Forensics Secure., vol. 9, no. 10, pp. 1667-1680, Oct. 2014.

[9] N. Vlastic, "A Survey of Network-Attached Storage" Hershey, PA, USA: IGI Global, 2015

[10] S. K. Roy "A comparative Study of iSCSI and FCoE in Storage Area Networks" in Proc 14th ACM Conf. Computer. Communication. Secure., 2007, pp. 598-609.

[11] Yan Xu, Hong Zhong, Long Ding and Jie Cui, "A Privacy-Preserving Cloud Storage Auditing Scheme for Data Sharing", in IEEE system journal, volume.15, no.03, pp.37303739.setp.2021

Authors Profile



I am A.Suganya. I am passionate in teaching. Now I am working in Dr. Mahalingam college of engineering and technology, Pollachi. My research areas are Digital VLSI Design, Embedded systems and IoT. I am honest, punctual and self-motivated person.



I am an enthusiastic, self-motivated, responsible, hard-working person and adaptable to all challenging situations. I can work well both in a team environment as well as using my initiative. I am a nice fun and friendly person, I'm honest and punctual. I have a creative mind and am always up for new challenges. I am well organised and always plan to make sure I manage my time well.



I'm PUVIJAY I have completed my secondary state board examination of TamilNadu. I'm currently doing my bachelors in computer science and engineering with great interest in different forms of art such as photography ,programming, projects and I have done few projects like building a static website using open element application and published on the year 2022 and developed few applications like Online shopping app with database connectivity.



I am S. Hari Priya. I am pursuing in the discipline of computer science and engineering at Dr. Mahalingam college of engineering of technology, Pollachi. I am basically statistical and logical thinker. I have more interested in exploring ideas and aptitude skills. I have more tendency to help others and also do my needful to them.