

IOT Based Smart Vision Security System

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Abstract: This project deals with implementation and design of Smart Vision Security System using Raspberry. And is proposed along with the face detection technique. It uses wireless technology to provide essential security and captures information and transmits via a WIFI to a static IP, which is viewed through telegram. Telegram bot controls the video camera for surveillance. It receives images, 10 sec video from system as soon as intruder is detected. The camera automatically initiate recording when intruder is detected and Raspberry pi device stores it in a secured folder.

Keywords: Internet of things, Raspberry pi, pi camera.

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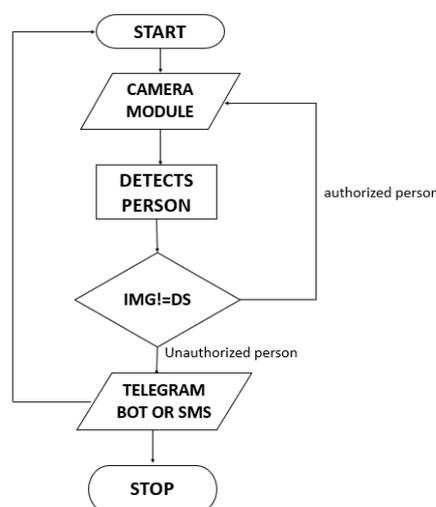
1. INTRODUCTION

Nowadays security is a major concern from houses to workplaces, shopping malls to banks, organizations to warehouses. So surveillance security systems are essential to provide security to our homes or workplaces specially when we are not at home or away from workplace. Security and surveillance has become a common facet of business. There are dangers in the world: some are personal dangers, others are dangers or risks associated with assets. While there has been much recent debate about the appropriate use and amount of surveillance, it is fair to say that some amount of security and surveillance is necessary in today's world.

So our proposed system provides security using IOT. We have implemented a system which provides both face detection and face recognition with the help of Raspberry pi 3 which is a credit card sized minicomputer and a Pi camera which is made especially for the raspberry pi 3. Thus, when dealing with the real-time image processing, Open source computer vision (openCV) software, a powerful library of image processing tools, is a good choice. With the help of a smart vision security system, we have achieved a system that can record the event, detect and recognize the person. Telegram bot is used to send images, 10 sec video stating the person is an intruder. The system is highly reliable and consumes very less power in comparison with existing system. The smart vision security system based on some camera connected to the raspberry pi and the output for this is in real time with the minimum delay in the operation. The objective of this paper is IoT based smart vision security system. Images of authorized person is stored in the data base and when some human encounter the camera, camera will capture the image and compare that with the data base. When the image matches with the data base there is no action and if the image does not match the data base it sends a message as intruder detected to our mobile using a dedicated app.

2. DESIGN

We have implemented a system which provides both face detection and face recognition with the help of Raspberry pi 3 which is a credit card sized minicomputer and a Pi camera which is made especially for the raspberry pi 3. Thus, when dealing with the real-time image processing, Open source computer vision (openCV) software, a powerful library of image processing tools, is a good choice. With the help of a smart vision security system, we have achieved a system that can record the event, detect and recognize the person. A Telegram bot is used to send a message stating that the person is an intruder if the person is unauthorized. If the person is authorized, then no action will be taken, however if it is a stranger an alarm is generated to indicate that there is an intruder.



3. FIGURE

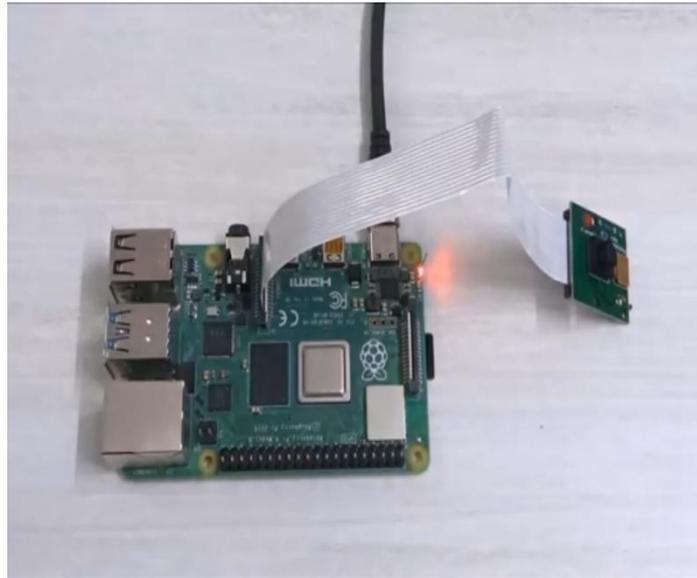


Figure: Raspberry pi setup



Figure: Intruder detected notification through telegram bot

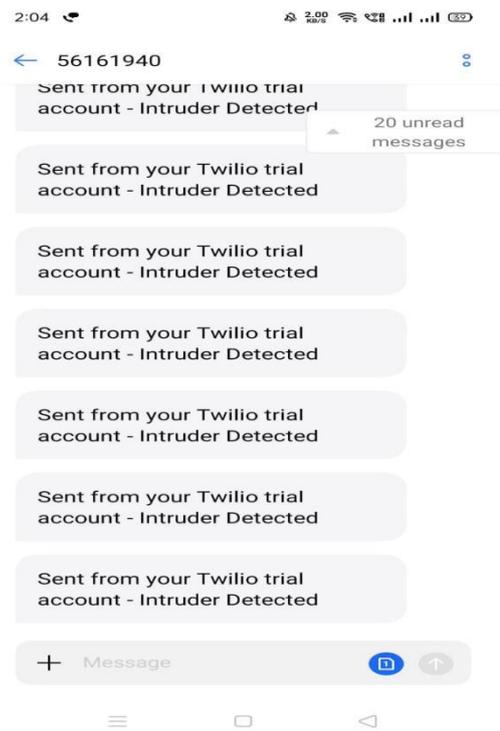


Figure: Intruder detected notification through Twilio.

4. ANALYSIS

Here our system is used for security and protection. When a person comes under the range of pi camera connected to a raspberry pi it finds the encodings and detects the face. This is done through face detection .Then it compares with the date set. If the person is authorized it it does not notify us and if the person is unauthorized it notifies us as Intruder Detected. This whole process can be accessed through telegram bot.The bot helps to start the process use the commands like /recordvideo, /stopvideo, /callpolice.And finally we can take the required action when an unauthorized person is detected.

5. RESULTS

We got the better results by making some of the test cases. The smart vision security system is very effective in a way that it provides security by reducing the alarming raise of crime at home. The Face of the human being is detected easily with the help of the face detection

6. CONCLUSIONS

The Smart Vision Security System has been designed and developed in such a way that it can be used in different scenerios and multiple environments. It has countless applications and the authorized user can monitor from any place without human intervention. Thus Smart Vision Security System removes the need of manpower and reduces the cost by providing efficient security

7. REFERENCES

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