Bank Locker Security with Face Recognition

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Abstract

With the stable progress in the technological world, concern for safety also enlarge day by day. Protection like keys can be simulated quite easily. This paper aims to avoid theft and crime at bank locker. A smart security system with the use of Raspberry-Pi microcontroller, piezo-Electric, PIRSENSOR, Camera Module and a buzzer is proposed. The security system be based on a "secret knocking pattern" which can be install to a 'safe' or any other similar object which wants protection. The lock unlocks only when a certain secret knocking pattern is implemented and a mail alert is sent by detecting their face if anyone tries to sneak into contents by knocking differently. This concept eliminate the fear of duplication as there is no physical unlock object to start with. Thus, the smart 'Knock Based Security System' is added protection in our everyday lives. Raspberry-pi board which act as a microcontroller unit. The piezo sensor takes the knocking input as well as facial recognized input and then passes it to the pi board where the input pattern and face detection is compared with the original Secret pattern. Using IOT, mail will be sent to the required person.

Keyword: *Dead renocking; LSTM;*

1. INTRODUCTION

This document is in a situation where there may be excessive degree of theft there may be want for higher protection device. To comfy it in opposition of theft, crime, etc a powerful protection system is needed not most effective to detect but also pre-emit dangers. In this paper alerting buzzer with low power consumption are located in the bank locker. Here the locker is opened with the help of face recognition. If unauthorized person tries to open the locker then with the help of camera it captures the face and through mail it sent to the person who handles the locker. Then buzzer is used to alert the surrounding people nearby. On the other hand this security gadget stays in idle function and performs nothing if nobody comes near the locker.

2. EXISTING SYSTEM

One of the ways of securing something is a combination of a 'lock and key'. Modern locks and the locking system are far more complex and often use a dotted mechanism on the key which provide a greater security but the disadvantage is that it's the same 'lock and key' mechanism, meaning, the key can always be replicated with some effort and this security system. The locking system can be visible to others easily though it is safety guarded. To overcome this same by establishing the secret knocking pattern. ARM 7 is used along with fingerprint but it is not well safe secured. Power consumption is more. Finger print and password can be easily hacked by others. Power consumption is more. Security is an issue.

3. PROPOSED WORD

In order to overcome from the existing system we are providing the standard security level face recognition is used in this project along with buzzer in Fig 1.Face recognition is biometric device. And all the process will be carried out by the raspberry pi 3. The secret knocking pattern comprises of Raspberry pi, PIR sensor, piezo-electric, camera, buzzer and uses a secret knocking pattern which can be viewed only by owner for security purpose. The secret knocking pattern is observed by piezo-electric and at same person face is also detected through camera if knocking pattern and face detection matches the door will unlock and if any misread pattern or unknown person tries to enter a mail will be to the owner.

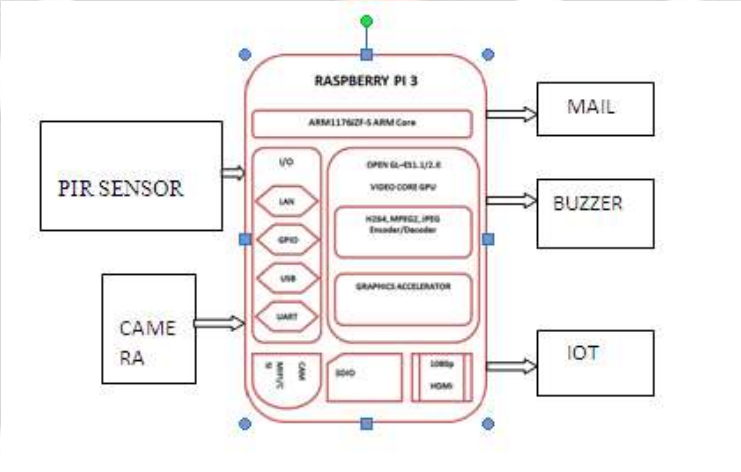

Figure 1: Block Diagram of proposed system

4. HARDWARE COMPONENTS

IOT

The next wave in the age of computing will be outside the realm of the conventional desktop. In the Internet of Things (IoT) concept many of the substance that surround us will be on the network in one form or another. This product in the generation of massive amounts of data which have to be store processed and offered in a seamless, efficient, and easily interpretable form. This model resolve consist of services that be commodities and deliver in a manner alike to traditional commodities. Although the definition of 'Things' have changed as technology evolved, the main goal of construction a computer sense information with no the aid of human intervention vestiges the same. A radical fruition of the in development Internet into a Network of interconnected substance that not only harvests information from the environment and interact with the physical world but also use existing Internet standards to provide services for in order transfer, analytics, applications, and communications. Fueled by the reputation of devices enabled by open wireless technology such as Bluetooth, radio frequency identification (RFID), Wi-Fi, and telephonic data services as well as embedded sensor and actuator nodes, IoT has stepped out of its infancy and is on the threshold of transforming the current static Internet into a fully integrated Future Internet. The Internet revolution led to the interconnection between people at an unparalleled scale and pace. The next revolution determination be the interconnection between objects to create a smart environment.

OPEN CV

Intel is where the library was born and deserves great thanks for supporting this project the whole way through. Open source wants a champion and enough development support in the beginning to attain critical mass. Intel gave it both. There are not many other companies where one could have started and maintained such a project through good times and bad. Along the way, Open CV helped give rise to and now takes advantage of Intel's Integrated Performance Primitives, which are hand-tuned assembly language routines in vision, signal processing, speech, linear algebra, and more.

PIR SENSOR

PIR be electronic devices which are worn in some security alarm systems to detect motion of an infrared emitting source, frequently a human body. The pyroelectric sensor be comprehensive of a crystalline material that generate a surface electric charge when bare to heat in the shape of infrared radiation. When the amount of radiation remarkable the crystal changes, the amount of charge also change and can then be deliberate with a sensitive FET device built into the sensor.

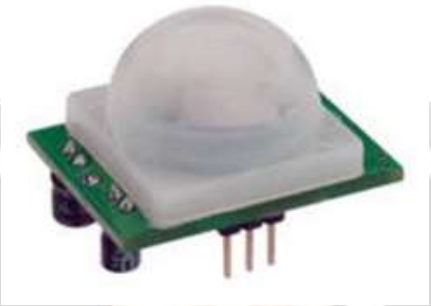

Figure 2: PIR sensor

WEB CAMERA

A Webcam be a video camera so as to feed or stream its image in genuine time to or from side to side a computer to a computer network. When "captured" by the computer, the video stream might be save, viewed or sent on to other networks by means of systems such as the internet, and e-mail as an accessory.When send to a remote location, the video stream might be saved, viewed or on sent there. Unlike an IP camera, a webcam is generally connected by a USB cable, or similar cable, or built into computer hardware, such as laptops. The term webcam might also be use in its original sense of a video camera linked to the Web continuously for an indefinite time, rather than for a particular session, usually supplying a sight for anyone who visits its web page over the Internet. Some of them, for example, those worn as online traffic cameras, be expensive, rugged professional video cameras.

Figure 4: web camera

RASPBERRY PI

Raspberry Pi board is a tiny marvel, stuffing considerable compute power into a trail no larger than a credit card. It's capable of some amazing things, but there are a few things you're going to need to know before you plunge head-first into the bramble patch.

Figure 5: Rasberry PI

Buzzer

A buzzer or beeper be a signalling device, typically electronic, classically used in automobiles, household appliance such as a microwave oven, or game shows. Initially this device was based on an electromechanical system which was indistinguishable to an electric bell without the metal. Piezo buzzers are worn across many major industries as a means for capable of being heard identification or alert. From extremely compact 4 mm SMT buzzers to larger, high decibel models, this product family is well suited to address the needs of the most challenging audio alert applications.

Figure 6: Buzzer

5. SOFTWARE DESCRIPTION

PYTHON

Python be an interpreter, object-oriented, high- level programming language with active semantics. Its high-level build in data structures, collective with dynamic typing and dynamic binding, make it very prominent for Rapid Application Development, in addition to for use as a scripting or glue language to connect existing components mutually Python's simple, easy to learn syntax emphasize readability and consequently reduces the cost of program maintenance. Debugging Python programs be easy: a bug or bad input will never cause a segmentation mistake. In its place, while the interpreter discovers an error, it raise an exception. When the program doesn't catch the exception, the interpreter print a heap trace. A source level debugger allow inspection of local and global variables, evaluation of arbitrary expressions, setting breakpoints, stepping from side to side the code a line at a time, and so on. The debugger is written in python itself, testify to Python's introspective power. On the other hand, often the quickest way to clear up a program is to add a few print statements to the source: the fast edit-test-debug cycle makes this simple move towards very effective. Python is uncomplicated to learn. The number of description in the language itself is modest, require relatively little investment of time or effort to construct one’s first programs. Python sentence structure is intended to be readable and straightforward. This effortlessness makes Python an ideal teaching language, and allows newcomer to pick it up rapidly. Developers use up additional time thinking about the problem they are trying to solve, and less time thinking about language complexities or deciphering code left by others.

6. RESULT

Here the project becomes efficiently finished by face recognition totally on the bank locker. Face recognition is matched on domestic utility the camera is used to capture the face and relate with the matched one if it is matched then the locker is opened or it send as a mail to the owner who handles the locker if unauthorized person tries to open it.

7. CONCLUSION

In advanced world, autonomous system is gaining rapidly so the advancement in latest technology is continuously and rapidly made on different latest automatic lock security system. Face recognition offers a solution for protective the privacy for user. The system has successfully overcome some of the aspects existing with present technologies, by the use of face recognition as the authentication technology. Face recognition is used for better security and accuracy. Also if the unauthorized person attempts to open the locker then camera is detected and captures their face and through mail their face is sent to the owner and the buzzer will be turn ON to give an alert information to the surrounding people. Thus the method is very much secured. This technique can be greater to higher level so as to further improve the security. From the consequences received it is far clean that proposed approach provides very excessive accumulator.

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