BURGLARY DISCLOSURE SYSTEM

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ABSTRACT

In today’s world of ever-growing technology security matters a lot and when it comes to personal or precious things or the family’s security it becomes even more important. So, for that very purpose we install CCTV, trap wires, sensors in order to stop intrusions or burglary. But this system has its own disadvantage and for that we propose a system which instantly gives you the output of the intrusion detected in the house or in the office or anywhere we install it. And for this we make use of piezo sensors to detect instantly and quickly any movement detected with use of IR sensor, camera and Raspberry pie. And hence when one gets the message and the image or the video clip he/she can instantly message his/her neighbour or the nearest police station in order to take action since this system will also consider the use GSM which can send message to more people so that if one ignores other might see it and hence action based on the message can be taken. We also propose a device which can be installed on the precious devices which can be tracked through GPS technology and hence the house or any other environment becomes burglary/intrusion free and hence one can now go anywhere without being stressed about the house or precious things or family. To see the image, we also make availability of APP.

Keywords - CCTV, Trap Wires, Piezo and IR Sensor, Raspberry Pie, GSM, GPS, APP

[1] INTRODUCTION

Before describing the project, we need to get introduced to why we need it when we have other technologies. So in this system when the burglar enters area under surveillance(house) he would be detected by the camera with IR sensors as well as piezo sensors which gets activated when a certain amount of pressure is sensed by the sensor so this gives an edge from other persisting technology because every time image won’t be send for even a small movement but when it would be detected by both sensor only then image or video will be sent and hence reduction of reluctant data would be done plus storage space can also be reduced. This image will be able to view on the App which will be provided with the system with a specific user-id and password. This will also send message to the authorized personnel described by the owner about intrusion being detected describing the place and time. And hence one can then inform to the police about it. And hence loss of things can be avoided in no time. We also propose to install a device on precious things which if gets stolen after all this can be tracked through GPS technology and hence the burglar can be traced. This system hence makes
house intrusion/burglar free. Even if some part of the video can be sent to the owner whole video will be stored in order to view each and every movement and action done by burglar. If we talk about other persisting technology the first one which comes to mind is the CCTV. But CCTV just stores the video and also it is comparatively expensive because it requires a whole dedicated system of computer to store the footage of it. And even though after the burglary happens one have to go through the whole footage in order get the instance of the burglary. Plus, we get to know after the intrusion has been done so it is nothing but just a surveillance system with no alerting system. The other system of trap wires just alerts but rather not takes images or store it alerts if a fluke of wind or even or small movement disturbs the wires so every time it alerts for no use even if there is no one. The system consisting of the just IR sensors detects even a small movement and sends images which are of no use. And hence disturbs the owner for no use so this technology definitely is a mixture of all this technology with some other advancement to it makes stands stronger in comparison to this technology and henceforth development in this system can definitely assure one about the burglary is happening and also provide the owner with all the information he needs/wants to get over the internet from wherever he is and hence protect belonging.

[2] LITERATURE SURVEY

The national crime record bureau report on crimes in India also states about an increase in burglary at residency places and at shops too. So, to stop these or to curb it we need this type of technology. This system consists of Raspberry pie which increases its computational strength as well processing time is also decreased which enables the system to send the image in less time and hence increases the possibility of catching the thief even more that to even the loss of the things.

Various problems related to traditional systems and their outcomes:

1) Traditional systems use a vast storage space it also requires a dedicated system to monitor all the happenings. Also finding out when the intruder entered is a very tedious job. Which requires manpower to monitor and to find out the actual time.

**Outcomes:** The system requires a less storage space and also detects the intruder without the help of manpower also notifies the police if no one responds to the image send on the app or the notification send to the user also if the things gets stolen he device can track it and hence intruder can be detected also stores video and sends a clip to the user so that he can identify if the intruder is relatives or not as in case image is not clear.

2) Conventional surveillance systems too requires human operators which can continuously monitor the surroundings and detect the intruder the main disadvantage of these technology is that it to require a manpower and hence undue use of manpower increases its cost which results in less buyers to these technology and therefore makes these system to a less popular one. This system also requires a continuous storage unit with a larger capacity and also a detected team of people and monitors to continuously monitor the surroundings from each and every angle, corner and side.

**Outcomes:** The system proposed will be an automatic one and also the detection will also be automatic without the need of human power. It includes the mechanism of notifying and capturing video, audio and sending on the app to the user who can either choose to call police or can decide to notify the neighbour and if the neighbour does not respond to the systems notification the system directly calls the police.
3) Traditional systems use different high-level sensors which results in the higher cost of the system also uses high resolution camera which are only required when the area to be covered by the system is large. Otherwise a medium ranged camera can also work properly and give expected output.

**Outcomes:-** The system uses a medium ranged camera and a low costs sensors which are easily available and also the system is cheaper than any other systems available in the market so the overall cost of acquaintance and installations reduces and hence this system can become popular among users who want their house to be safe.

**B) The planned system can be divided into various smaller modules like:**

1) Module 1: - capturing and detecting the burglar:
   In this phase the intruder will be detected and his image will be taken with the starting of the video capturing this will be done with the help of various sensors when all this sensors gets activate at same time then only this capturing will start and hence unnecessary data capturing and will be reduced hence the system can also be saved from doing any unnecessary computational work.

2) Module 2: - Processing the image:
   Here the image will be processed from the video taken cleared and the photo of the intruder and the place where he was found will be send to the owner with a message reaching the owner first in case if he does not have his/her Internet on he/she can on it henceforth view it this message will also reach every user mentioned by the owner with a call to the police if the owner commands so.

3) Module 3: -Viewing of the video:
   Since the video can be stored in universal serial bus (USB). This will be available to the user for viewing and hence he can see each and every thing done by the burglar at his residency since this video will start from the detection of burglar no time will be wasted in finding the time. And hence a strong proof will be available with the police to arrest the burglar and hence he can be punished.

4) Module 4: - If the things get stolen:
   The most common things that get stolen includes Money, jewellery, electronic appliances. So if the tracking device can be kept with it will be possible to trace the burglar and the appliances/items. And hence even though the burglar tries to run taking some items from the house he can be traced with the photo and GPS tracker fitted with things. And hence the items at home are fully secure from burglary.

[3] **Planned System**

The block diagram of the proposed system is demonstrated below which consist of various hardware and software components whose details are specified. The camera in the diagram captures the image and the video of the intruder. When the IR sensor and the piezo gets high(activated) then only this camera captures the image. On which then the image processing is done which is then send to the owner to view it online and also a message regarding an alert that intruder has been detected. USB storage is used to store the video to be viewed by the owner and police which can be used as proof against the intruder and also to extract a clear
image of the intruder in order to find him. The image or a video clip can be viewed in the app shown in the diagram.

Fig. 1. Circuit diagram of the discussed or proposed system.

A) Hardware Required:

1) Raspberry Pi 3 - The Raspberry Pi 3 Model B is a tiny size computer. As the Raspberry Pi 3 supports HD video, you can even create a media centre with it.

2) Camera Module - A camera module is an image sensor and can be connect to the Raspberry Pi.

3) IR Sensor - This Infrared obstacle/object detection sensor is easy to use. It detects obstacle with infrared.

4) Piezo Sensor - A sensor that utilizes the piezoelectric effect, to measure changes in pressure, and force by converting them into electrical charge is called as a piezoelectric sensor.

B) Software Required:

1) OpenCV - OpenCV is a cross-platform library using which we can develop real-time computer vision applications. It mainly focuses on image processing, video capture.

2) C++/C - C is a general-purpose programming language that is extremely popular, simple and flexible. It is machine-independent, structured programming language which is used extensively in various applications.
3) Windows/Linux Operating System – For operating Raspberry Pie.


![Architectural Flow of System]

Fig. 2. Architectural Flow of System.

[6] Conclusion

The project “Burglary Disclosure System” it demonstrates on how to build a system which can help one to secure its area of personal interest and also places like locker rooms, offices, file
cabins etc can be made intruder free when it comes to top secret documents of the government this system can be used to protect the document and henceforth find out the culprit. This system is easy to implement and is tried to make more secure with available technology also this system can be merged with fields like AI, ML so that this system becomes an AIOT system wherein machine can adapt to the changing situation around it. With the usage of various camera installed at each and every important place in the area one can ensure to cover large area and make come such area under surveillance and hence larger coverage enables greater security and no loop holes for the intruder to intrude the place. And hence at the end we can conclude that this system is a mixture of various traditional technology covering their advantages and masking their disadvantages.

[7] Future Scope

These final section describes that though these system is tried to be fully secure still there are areas wherein changes can be made like with respect to the operational, processing speed computational speed of the system also changes can be made to the system with respect to the customer demands as they are the one who will use it and hence system can be said to be adaptive in nature. There is a lot of scope for future in this system other development in sensors can also be included to make it more resistant to other type of intrusion/burglary. Artificial intelligence can also be used in order to classify the image in a more precise way and capture a clearer image. And hence for the time being this system stands out but in future can become obsolete and hence there is a window for improvement in these systems also.

REFERENCES


