International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 04 Issue: 04 | April -2020 ISSN: 2582-3930

Real time Surveillance and Assistant for Security

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ABSTRACT:

This paper will deal with the real time surveillance and assistant for security using motion detection algorithm and face detection algorithm. Security is very important these days in office, locker rooms, banks, homes, hospitals, warehouses, and many more. The current technologies require RFIDs which are costly and hence the secur1ity domain in all becomes expensive and hence there was a need to work on this. This paper will work on lowering the cost of the surveillance system and making them more cost efficient. We are trying to reduce the memory consumption of the CCTV cameras as they are continuously recording the video resulting in more memory consumption. We are trying to get rid of this problem by using motion detection algorithm and face detection algorithm.

KEYWORDS: Motion Detection, Face Detection, Assistant.

1. INTRODUCTION:

World is growing to fast and this fast growing world also increases the risks. Security camera allows the person to monitor his property. Most of the people and the organizations using such kind of cameras to monitor their homes and the property from the illegal and terrorist activities. Surveillance cameras are getting much more smaller, reasonable and straight forward. But still there are still some cons which need to be solved. The main focus of this project is to reduce the memory consumption by surveillance cameras.

The camera also has inbuilt assistant which has some certain functionality such as, boosting the system or getting any electronic appliances ON. For example lets consider that when the user enters their cabin camera detects the user face then according to the users priority can boot system or AC automatically without making user do it manually. This will result the user use our system in very convenient way.

1.1 Benefits of Surveillance:

1.Security surveillance cameras are radially available. Initially Security cameras are only use for banks and the shopping malls. But now days in small stores we can also see the surveillance cameras and televisions with the surveillance footage. As a result, we can see security is more important in day to day life.

2. Real-time monitoring- Traditionally big organizations have always had the benefits of video surveillance manned by security professionals. In the past times, the capturing and transmission used to take time. But, modern technologies let users to check and reply to alarms immediately.[4]

2.LITERATURE SURVEY:

In [1] earlier system has many problem such as such as high cost, low intelligence, poor stability, weak security. In order to solve this problem we select better system component and operating system. This system has higher intelligent, higher stability and easy installation. But the problem is still their with memory. The cameras are still consuming the more memory which effect on the overall cost the system. With using the motion detection algorithm and face detection algorithm the problem of the memory consumption is solved resulting in the low cost surveillance system. The problem of stability is also overcome.
There is also a problem of weak security which will be overcome with the proposed system. This system will give the better security than the other security system.

In[2]the video streaming speed is slow, we are going to overcome this problem in the proposed system. With the better design and proper equipment we can overcome this problem. Currently the industry standard for clear smooth video even with moving object, and the best frame rate for security cameras is 30 fps. We are achieving that frame rate in the proposed system

hence it will lead to the smooth video capturing which has good streaming speed.

In [3] application system captures video, shares among networked systems and also alerts the controlling person with short message service alarm as required by the client. This system provides high cost and high effective intelligent monitoring system like in elevators, home security systems etc. with low power consumption.

In [4] includes Background subtraction algorithm which is later used by system for capture the movement which are going on precise environment.

Features of Background Subtraction

- Can eliminate noise in the sequence of the effectively using suitable BGS method.
- Can effectively detect the foreground provide alpha threshold is fixed.
- Motions in different challenges can be detected by subtracting issues like dynamic background.

BG Modeling Steps:

Background Initialization:

The initial aim is to build the background model. There are multiple ways to develop such kind model.

Foreground Detection:

There is a simple comparison took place between the current frame and the prepared background model. This subtraction gives the foreground which is important in motion detection.

Background Maintenance:

During the foreground detection process new images are also analyzed to update the background model which is learned at the initialization of the system, with respect to learning rate. If an object is not moving from some time then the system should consider that object as background.

Adaptive BG Learning:

In a more simple way, this can be done by setting manually a image that represents our surveillance background, andhaving zero moving object for every video frame, it's compute the absolute difference between the current frame of a video and the static image captured by camera. If absolute difference between the frames exceeds threshold value, then frame is regarded as background, otherwise it's foreground.

3.ARCHITECTURE OF PROPOSED SYSTEM:

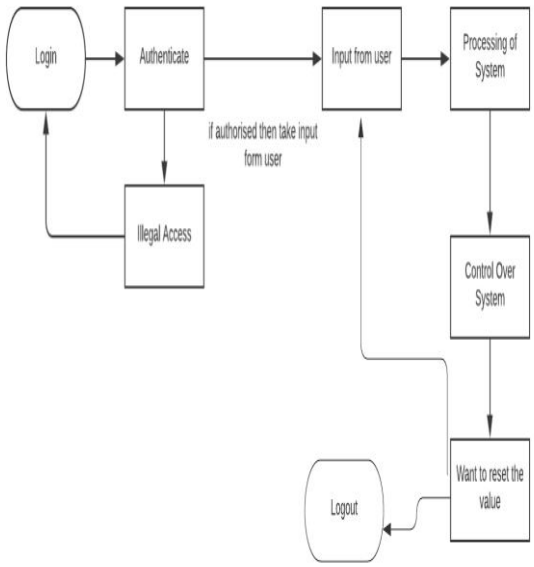
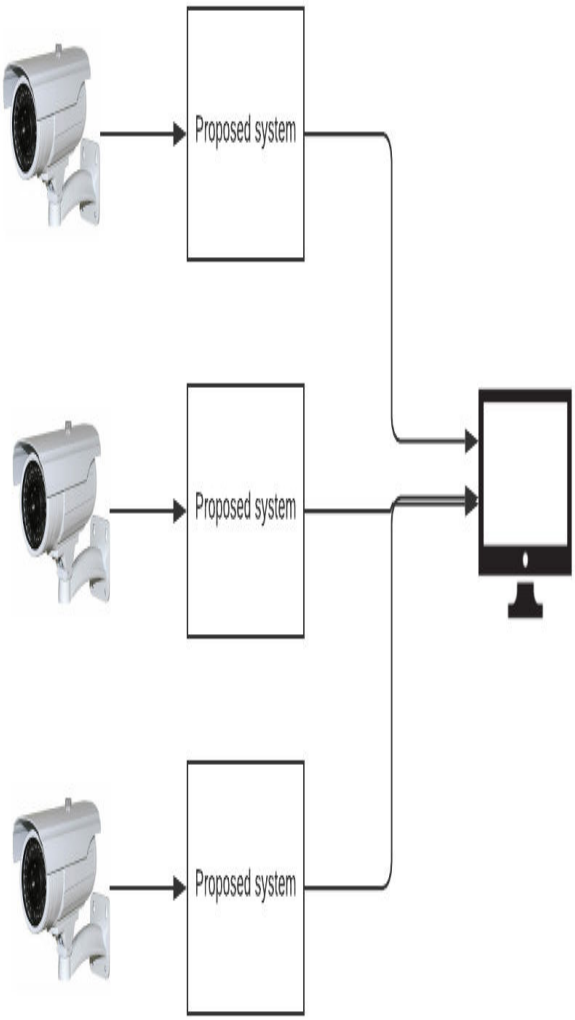
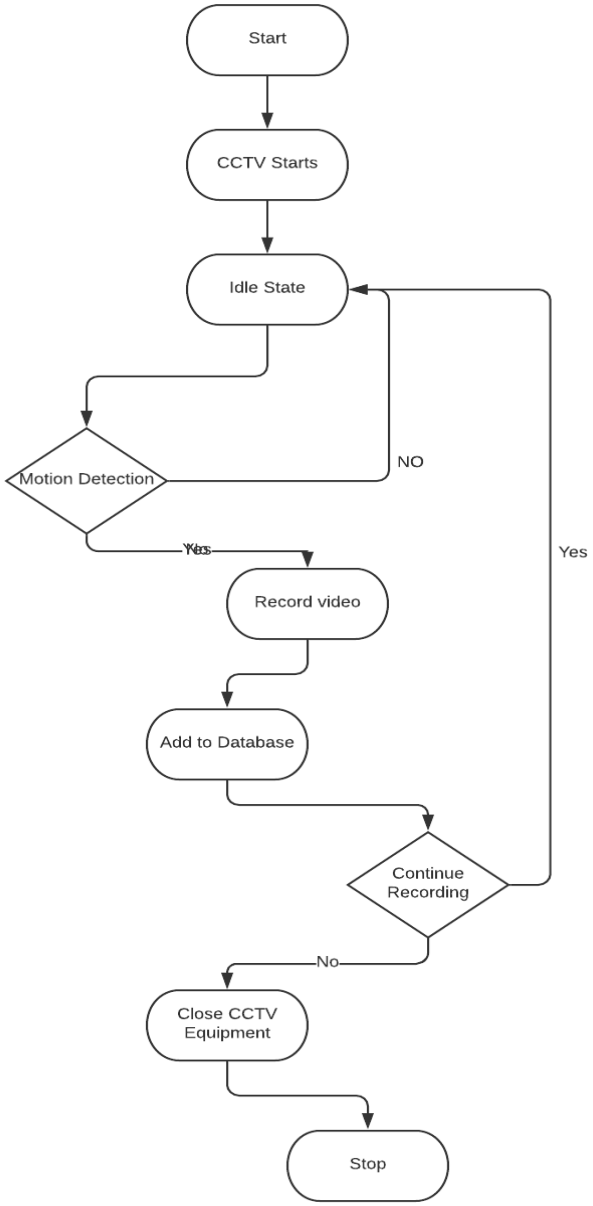


Fig: Architecture of Purposed System

Authorized user use to login the system using credentials. The first frame and the facial data of the authorized user is stored in the database of the system. The system will check every time whenever the motion is observed. If the face is visible and if the facial data that person captured then system check in the database with the facial data. If the data matches the camera wont record any video. If unauthorized access detected in the surveillance area the camera will trigger the recording.





4.FLOW CHART:

The given flow chart talk about the execution of the project. First the camera module starts then the camera module start capturing the image. The first image is added to the buffer. Then the next frame is captured then that frame is compared with the current capture frame.

Fig: Flow Chart of System

If the difference is observed in both the frames then motion is detected. And that will triggered the CCTV camera and it will start recording until the motion is observed in the surveillance area. After that we turn of the CCTV camera if we wanted to.

5.BENEFITS:

The system is provided with the remote access that means the user can access the footage from the remote locations. Also the system provided with the motion detection and face detection algorithm that saves memory.

- In the proposed system the user will be able to login that will provide better security to the system. That means no other than the authorized person can access the footage.
- The proposed system will reduce the memory usage of the CCTV cameras. The another advantage that this proposed system having over the traditional is the system have those footage where the motion is observed other than the authorized person.
- Our system can the used at various places such as hospitals, shopping malls, college or school premises, in house for keeping any eye on the children or the house objects.
- Since the system is moving it can the capture a wide area and also it can be operated from anywhere if high range network is used.
- It is easy to operate and cost effective and like earlier days one will not be sitting on one place to monitor the video captured.

6.REFERENCES:

[1] Conference on Environmental Science and Information Application Technology-"A Wireless Video Surveillance System based on 3G Network" by Wang Liwei Yan Shi Xu Yiqiu .
[2] Conference on Environmental Science and Information Application Technology-"A Wireless Video Surveillance System based on 3G Network" by Wang Liwei Yan Shi Xu Yiqiu
[3] International Journal of Research in Computer and Communication technology, IJRCCT, ISSN 2278-5841, Vol 1, Issue 7, December 2012. www.ijrcct.org chiefeditor@ijrcct.org Page 507 "Video Frame Retrieval Using Effective Query Processing" N.Ramya Tulasi, Y Indu
[4] "ARM9 Based Real Time Embedded Network Video Capture And SMS Alerting system" M.L.V.N.B.S.Kumar, Dr.N.S.Murthi Sarma, Ch.Sridevi, A.Pravin ECE Department, BVC Engineering College Odalarevu(2012)
[5] International Journal of Emerging Technology and Advanced Engineering Website: www.ijetae.com (ISSN 2250-2459, Volume 2, Issue 8,August 2012) 138 "ARM Based Mobile Phone-Embedded Real-Time Remote Video Surveillance System With Network Camera Krishna Kishore1, B.Chinna Rao2, P.M.Francis3
[6] International Journal of Innovative Research in Computer and Communication Engineering (An ISO 3297: 2007 Certified Organization)Vol.1, Issue 8, October 2013 "IMPLEMENTATION OF EMBEDDED VIDEO RETRIEVE SYSTEM BASED ON ARM9" V. Jyothi, Prof. M.Srinivas Rao,K.Hanuja
[7] IOSR Journal of Engineering (IOSRJEN) e-ISSN: 2250-3021, p-ISSN: 2278-8719 Vol. 3, Issue 7 (July. 2013), ||V6||PP 14-1814 | P a g e "Embedded Real Time Video Monitoring System using Arm" by Kavitha Mamindla, Dr.V.Padmaja, CH.NagaDeepa
[8] "Smart Video Security Surveillance with Mobile Remote Control" by Tasleem Mandrupkar Manisha Kumari Rupali Mane(2014)
[9] "VIDEO MONITORING AND MOTION DETECTION SYSTEM BASED ON ARM-LINUX PLATFORM AND HTTP PROTOCOL WITH SMS CAPABILITY" *Nava Jeevan Raju, O. and Praveen, P.(2014) .