International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056
Volume: 04 Issue: 03 | Mar -2017 www.irjet.net p-ISSN: 2395-0072

AUTOMATED SECURITY SURVEILLANCE SYSTEM IN REAL TIME WORLD

Mr.S.RAVIKUMAR[1], M.SARAVANAN[2], V.THIRUMURUGAN[3], K.VIGNESH[4]

[1]*Assitant professor, Department of information technology, Valliammai Engineering College, Tamilnadu, India*
[2] *Department of information technology, Valliammai Engineering College, Tamilnadu, India*
[3] *Department of information technology, Valliammai Engineering College, Tamilnadu, India*
[4] *Department of information technology, Valliammai Engineering College, Tamilnadu, India*

Abstract - *Image processing has major role in providing security in different fields. Instead of using manual security system The automatic system will replace the problems in manual security surveillance which brings ease* and *security in a better way because in this system we merges the work can be done by the man power which is performed by the camera itself. The camera itself assumes the bit rate of the object visible in the camera and it captures the image which is differed from the previous bit rate and store it in the client database and then the image is further send it to the server for comparison. In our project the camera checks very frames while it is running in server database. It checks the background image and the foreground image, if the foreground image is differed from the background image means it stores the frame to the local database and checks it with the admin database because the particular location can be used by the admin also. We can store up to five admin in the database. After checking it, if the image is a not authorized person means the system send the alert with the image to the admin.*

Key Words*: *image capturing, image comparison, pattern recognition, k-means clustering, alert to user.

1. INTRODUCTION

The project is to discover a new method to protect the highly Confidential areas(banks, database centers, lockers). Nowadays the sucurity cameras needs a man power to watch it every second to protect but the mistakes can be happened by man power means the working of camera is totally waste so this is entirely a newer system to find the problems in the present time.

we enhanced this to detect the any controversial events in the selected areas and its automatically initiate alarm at that location and sends the alert to the admin. The automatic system will replace the problems in manual security surveillance which brings ease and security in a better way because in this system we merges the work can be done by the man power is performed by the camera itself. The camera itself assumes the bit rate of the object visible in the camera and it captures the image which is differed from the previous bit rate and store it in the client database. And the image is further send it to the server for comparison.

In this project it reduce the man power by automation of checking difference between the frames and intimating alert to the admin . And also reduce the storage space because it wouldn't save the undiffered frame and also the authorized person's face.

1.1 Existing system

Motion human detection based on background subtracton- In this paper they usedbackground subtraction algorithm by this algorithm we can reduce the unwanted difference in the image The algorithm changes the original image into grayscale image and extracts the moving objects specifically.

1.2 Problems in existing system

- The changes in the lightings affects the accuracy of the system to obtain the image
- The change and also the movement in the trees also a change so it is difficult extract the perfect image.

2. Proposed system

The below diagram explains the proposed work to be done in this project. It consists of components that can be assembled and easily integrated to obtain the preferred outcomes.

In our system the web camera starts its activity to capture video. From that the system assumes the bit rate of the image and then it sequences the image according to the bit rate. If there is any changes in the upcoming bit rate means it leads to initiate the system to capture the image.

After that the captured images are stored in the client database. And the images stored in the client database are the foreground image. Further the images in the client databases are forwarded to the server database. The images that are stored in the server databases are the background images.

And now the comparison phases are started. In that the background images and the foreground images are compared and checked to obtain the differed images. And

then the final phase is that of the detected images are sent to the admin and alert him about the incident happened in that location.

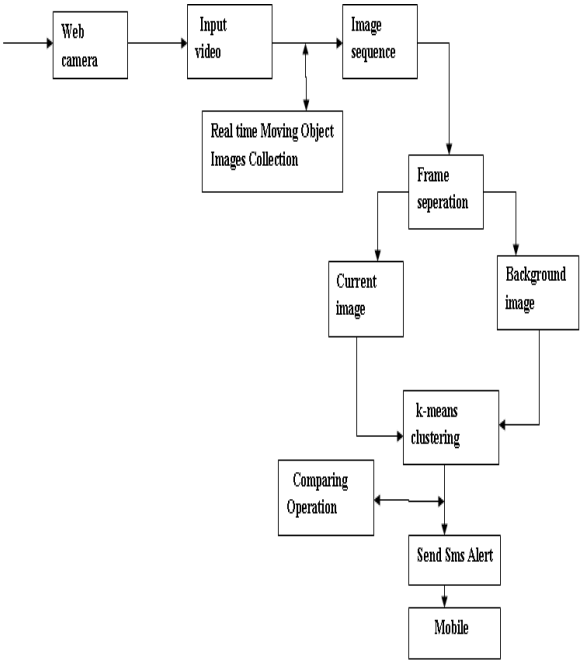

Fig-1: Architecture diagram

2.1.1 METHODOLOGY

2.1.2 Capturing images

Fig-2: CCTV camera

In this the web camera is started to surveillance the location. Afterwards the camera started surveillance and extracting the differed image by assuming bit rates. The image which is differed is captured and stored in the local database called client database. The camera must be configured to the according to the system we are going to install.

2.1.2Bit rate assumption

Bit rate, the name implies, describes the rate at which bits are transferred from one location to another. In other words, it measures how much data is transmitted in a given amount of time. The Bit rate is commonly measured in bits per second, kilobits per second, or megabits per second. For example, a connection may be able to download data at 768 kbps, while a Fire wire connection can transfer data up to 800 Mbps.

The bit rate is the number of bits per second. For 30 seconds mono audio at 44.1 kHz, 8bps, that's 1,323,000 bytes. For stereo, that's two channels, so double it.

The bit rate is calculated based on the configuration of the camera. And the system figures the image which is under surveillance. The bit rate is calculated according to the color, size, clarity, pixels of the image. And then the bit rate is stored and processed for further process until the net assumption taken.

2.1.3Client and server database

The client database is that it acts as the local database. After the bit rate assumption the differed images are calculated according to the bit rate which is previously assumed.

And if there is a change in the bit rate means it captures the image and then send it to the local database. The obtained image, which is detected as different image in a bit rate assumption.

Fig -3.client system

The images sequenced in the client databases are forwarded to the server database. The server database is used to compare and contrast the images which are sent by the local database. And

the server database only performs work of giving alert to the admin.

2.1.4 Comparison of images

2.1.5 Pattern recognition

The ease which we recognize a face, understand spoken words; read handwritten ripe by its smell belies the astoundingly complex processes that underlie these acts of pattern recognition. Pattern recognition in raw data and taking an action based on the "category" of the pattern has been crucial for our survival, and characters, identify our car keys in our pocket by feel, and decide whether an apple is over past tens of millions of years we have evolved highly sophisticated neural and cognitive systems for such tasks.

2.1.6 k means clustering

The techniques that can be used to simplify the computation and accelerate convergence, we shall briefly consider one elementary, approximate method. From it is clear that the probability $p(w_i|x_k,0)$ is large when the squared Mahalanobis distance $(x_k-\mu i)^t\Sigma_i^{-1}(x_k-\mu_i)$ is small. Suppose that we merely compute the squared Euclidean distance $\|x_k-\mu_i\|^2$, find the mean μ_m nearest to x_k.

$$\hat{P}(\omega_i|\mathbf{x}_k,\hat{\boldsymbol{\theta}}) \approx \begin{cases} 1 & \text{if } i=m \\ 0 & \text{otherwise.} \end{cases}$$

Then the iterative application of Equation leads to the following procedure for finding $\mu_1....\mu_c$(Although the algorithm is historically referred to as k-means clustering, we retain the notation c, our symbol for the number of clusters).

Algorithm 1 (K-means clustering)

1. begin initialize n, c, μ1, μ2,..., μc
2. do classify n samples according to nearest
3. recomputed μi
4. until no change in μi
5. return μ 1 , μ2,..., μ c
6. end

3. Alert to the user

After the comparison takes place the differed image is obtained from the result of comparison. The comparison is to compare the background image from the foreground image. And then the differed image is obtained means, it is stimulated to send an alert. The alert system uses the GSM module to send the image and an alert to the admin.

Fig -4: GSM module

3.1 SOFTWARE AND HARDWARE SPECIFICATION

Software requirements include JAVA language for technical computing. It combines JVM and JMF in an easy-to-use environment where problems and solutions are expressed in familiar mathematical notation.

Hardware requirements include web camera Pentium Dual Core 2.00GHZProcessor.Hard disk of 500 GB and RAM of 4GB minimum.

3.2 OUTCOMES

The expected outcome of the project is:

- Proposed system extends to detect human-like motion patterns instead of appearance patterns, making the detection more robust to difference in appearance due to environment.
- The proposed method recovers both pose, orientation and position in the image but is computationally heavier
- Very efficient
- Low memory management
- Less power consumption
- Low maintenance

CONCLUSION

In this system we merge the work can be done by the man power which is performed by the camera itself. The camera itself assumes the bit rate of the object visible in the camera and it captures the image which is differed from the previous bit rate and store it in the client database and then the image is further send it to the server for comparison. In our project the camera checks very frames while it is running in server

database. It checks the background image and the foreground image, if the foreground image is differed from the background image. After checking it, if the image is a not authorized person means the system send the alert with the image to the admin.

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