DEPARTMENT OF
COMPUTER SCIENCE
AND ENGINEERING

KUMARAGURU
college of technology
character is life

NATIONAL CONFERENCE ON

ADVANCED TRENDS IN INFORMATION AND COMPUTING SCIENCES NCATICS'16

01st & 02nd APRIL 2016

Preface

Kumaraguru College of Technology (KCT – www.kct.ac.in), Coimbatore is a private engineering college started in 1984 under the auspices of Ramanandha Adigalar Foundation, a charitable educational trust of Sakthi Group. Located at 2 kms off the Mysore national highway (NH-209), the congenial and well-developed college campus spreads over a sprawling 150 acres of land.

Currently the college offers 13 under-graduate (B.E.,B.Tech.) and 14 post-graduate (M.E., M.Tech., MCA, MBA) programmes as an **Autonomous Institution** affiliated to **Anna University**, **Chennai**. The college has 4 Anna University approved research centers. The college is approved by All India Council for Technical Education (**AICTE**) and accredited by National Assessment & Accreditation Council (**NAAC**) and National Board of Accreditation (**NBA**).

About the Department

The department was established in the year 1987 with a B.E. programme. It is also a recognized research centre. Since its inception, the department has progressed with a vision and a strong commitment to provide quality education. The department has well equipped computing laboratories and a rich repository of software covering a wide spectrum of applications. It now offers PG and Ph.D programmes also.

Conference Objective

The conference will provide a forum for researchers and practitioners to present their contributions related to "Advanced Trends in Information and Computing Sciences". There are many real world applications / problems which are in dire need of computational resources in addition to the core knowledge in various branches of Engineering and Technology. For such applications, an innovative solution to the problem with the help of computing will provide cost effective and optimized solution. This conference addresses various issues involved in using computing for various social welfare applications and the solution to overcome it.

Papers recommended by the Session Judges having own contribution will be published in any one of the following Journals **International Journal of Latest Research in Engineering and Technology ISSN:2454-5031, South -Asian Journal of Multidisciplinary Studies (SAJMS) ISSN:2349-7858, Indian Journal of Engineering, ISSN: 2319-7757,Discovery Engineering, ISSN: 2320-6675.** In addition to this, the conference also includes "Pre-conference Workshops on Android App development and LaTeX."

Highlights of the Conference:

- Pre-conference workshops (Android & LaTeX)
- Paper Presentation(Separate sessions for UG and PG/Faculty)
- Poster Presentation
- CASH prizes for first two places in each category.

Android App development:

Introduction to Android, Setting up Android studio, Application development with Marshmallow, Layouts and Event logging. **Pre-requisites:** Java and XML

LaTeX

Introduction, Mathematics in LaTeX, Typesetting, Tables, Packages, Graphics and Preparation of Journal articles & reports

Suspicious Motion Detection using Webcam

Sindhuja.M
Computer Science and Engineering
Kumaraguru College of Technology
Coimbatore, India

Tamilarasi.N
Computer Science and Engineering
Kumaraguru College of Technology
Coimbatore, India

Aswini.D
Assistant Professor
Computer Science and Engineering
Kumaraguru College of Technology
Coimbatore, India
aswini.d.cse@kct.ac.in

Abstract— Video surveillance systems are getting more and more vital for crime investigation and therefore the variety of cameras put in publicly area is increasing. However, several cameras put in at mounted positions are required to watch a good and sophisticated space. So as to with efficiency observe such a good space at lower price, mobile robots are a pretty choice. In step with the results of moving object detection analysis on video sequences, the movement of the individuals is tracked using video surveillance investigation. The moving object is known using the Background subtraction. The Background subtraction can compare the present frame with the previous frame. The threshold value is calculated to seek out the moving image. Using threshold value the detected constituent is known. Therefore the movement of the thing is known accurately. The motion detection is done exploitation Cauchy distribution model and Absolute Differential Estimation .Absolute Differential Estimation is employed to match the background frame and incoming video frame if any changes occur in incoming video frame. Cauchy distribution Model is employed to discover the constituent of moving object within the detected incoming video frame. Whenever motion detected that image is saved on the server and therefore the server will apprize the Google server. The Google server can send a GCM responsive to the user those who registered for that application.

Keywords— **Video surveillance investigation, Cauchy distribution model, GCM (Google Cloud Messaging), Android phone.**

I. Introduction

Surveillance is the watching the behavior, activities, or different ever-changing information, sometimes of individuals for the aim of influencing, managing, directing, or protective. Surveillance sometimes makes positive effects, at different times negative. It's generally tired a surreptitious manner. In step with the results of moving object detection analysis on video sequences, the movement of the individuals is tracked using video surveillance. The moving object is known with the help of Background subtraction. The Background subtraction can compare the present frame with the previous frame. The threshold value is calculated to seek out the moving image. Using threshold value the detected constituent is known. Hence the movement of the thing is known accurately. Once motion is detected it'll send GCM responsive to the android mobile. The existing background subtraction ways will detect moving objects by estimating absolutely the difference between every incoming video frame and the background model. There's no accuracy in the captured image. The moving object cannot be detected properly and only SMS alert regarding the motion detected is send to the user. Image can't be retrieve at the time of motion detection. Within the projected system, the moving object is known using the image Cauchy distribution model methodology. The pervious frame is compared with the present frame. From that the moving object is known. Here we will discover the precise image of the moving object. Another advantage of this technique is once the threshold value is reaching the limit that point server detecting that as a motion. Then the system can alert the user mechanically by sending a GCM alert to user's mobile application. User uses android mobile for the retrieval of pictures from the remote place to understand whether or not those images are vital and may be unnoticed. Images are often hold on in the server and may be read at the time of motion detection.

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II. Proposed approach

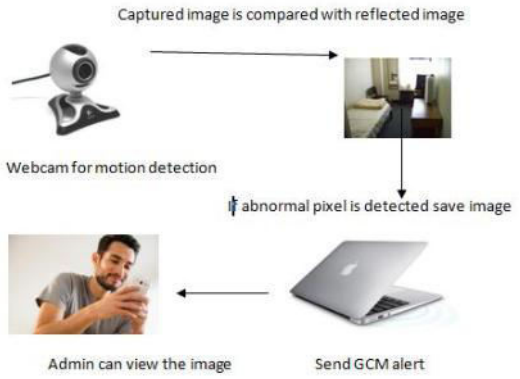
A. *Methodology*

Human pursue associate degree automatic detection system of everyday incidence cause the requirement of inventing intelligent surveillance system that will build lives easier similarly as modify us to compete with future technology and on the opposite hand it pushes us to research the challenge of the automated video surveillance investigation situations tougher in view of the advanced computing. Nowadays, it's seen that investigation cameras are

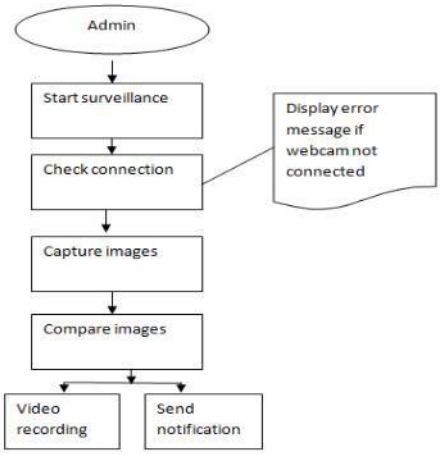
already rife in industrial institutions, with camera output being recorded to tapes that are either rewritten sporadically or hold on in video archives. To extract the most take pleasure in this recorded digital information, determine any moving object from the scene is required while not requiring any human eye to watch things all the time. A typical methodology is background subtraction. Many background ways are introduced to deal with totally different issues. One in every of the self-made solutions to those issues is to use a painted background model per constituent projected by Grim son. However, the strategy suffers from slow learning at the introducing, particularly in busy environments. Additionally, it cannot distinction between moving shadows and moving objects. Image background and foreground are required to be separated, processed and analyzed. The data found from it's then used additional to discover motion. In this project work sturdy routines for accurately detecting and following moving objects are developed and analyzed. The new methodology currently operates on video taken from a stationary camera. The standard real time problems are taken into account as well as shadow interference whereas detective work motion. An improved Cauchy distribution model discover the image by constituent, therefore user will read a transparent image.

B. *Architectural Model*

The architectural design of the system specification :



C. *Data flow diagram:*



III. Proposed System

- Motion detection using Cauchy Distribution Model
- Sending GCM Alert
- User Registration for Application
- Viewing the Detected Image

A. *Motion detection using Cauchy Distribution Model*

The Main aim of this module is to discover the motion within the specific space. The motion detection is completed with the help of Cauchy distribution model and Absolute Differential Estimation .Absolute Differential Estimation is employed to compare the background frame and incoming video frame if any changes occur in incoming video frame . Cauchy distribution Model is employed to detect the constituent of moving object within the discovered incoming video frame.

B. *Sending GCM Alert*

Whenever motion detected that image is saved on the server and therefore the server can apprize the Google server. The Google server can send a GCM Alert to the android mobile application. The alert is send only to those users mobile registered for that application. Google Cloud Messaging for mobile application (GCM) could be a service that allows you to send information from your server to your users' Android-powered device. This might be a lightweight message telling your app there's new data to be fetched from the server (for instance, a movie uploaded by a friend), or it may well be a message containing up to 4kb of payload information (so apps like instant electronic communication will consume the message directly).

C. *User Authentication for Application*

User authentication could be a means that of characteristic the user and verify that the user is allowed to access some

restricted service .The main aim of this module is to manifest the user to application to look at the motion detected image. This module embrace username and password for authentication to application. The validation is based on internet service in server.

D. *Viewing the Detected Image*

Android application can receive the notification (GCM) supported project id that is registered in Google account. Application id can distinctive for each application once receiving the GCM alert from the server to the appliance and therefore the user needs to manifest for the appliance The image are often viewed using the URL address that is received from the GCM alert.

IV. Flow of the Proposed System

The figure IV.1 shows the flow of our system and therefore the processes concerned. Flowchart of the projected system the administrator starts the video surveillance system. As

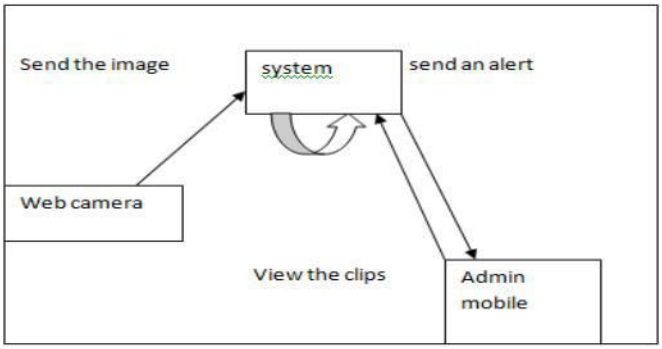


Figure:- IV.1

presently surveillance system is initialized, the system checks if the web camera is connected or not. If the web camera isn't connected to the system then it'll show a slip message. Otherwise, the system unendingly starts capturing pictures. A customary image is already stored in an exceedingly separate file. The captured pictures are continuously compared with this customary image and are checked for any intrusion. In case of intrusion, a SMS are going to be sent to the administrator/owner for acceptable action to be taken. User will then login to the surveillance web application to look at the foremost recent videos. The system waits for that quantity of your time for response commands (SMS) from any of the owners, once that it takes necessary action itself. It will store mobile numbers for all the administrators/owners who have to be compelled to be contacted just in case of emergency. The system keeps track/log of all the activities. Hence elaborate record of messages sent and received is maintained. Administrator will send commands to manage switch on/off of the device. User also can send a series of command sequences scheduled for a later time the commands are going to be executed mechanically at the server once the time arrives System receives commands from administrators. The commands might embrace Activating/deactivating setting etc. The system solely responds to owners mobile numbers. SMS received from the other mobiles are going to be rejected. Furthermore the communication via SMS is password protected. Therefore the other user cannot control the system from one in every of the owner's mobile number. The whole good surveillance investigation is formed remote using this design.

V. Evaluation of the Proposed System

In the projected system, the moving object is known with the help of the image Cauchy distribution model methodology. The pervious frame is compared with the present frame, the moving object is identified. Here we will discover the precise image of the moving object.

VI. Benefits of Proposed System

1. This system permits user to look at videos withstanding even he is at some remote place. The system provides the practicality of on-line video streaming in order that user will read the videos from applications program.
2. This system provides a code answer for image matching and intrusion detection. We do not need use of any further hardware for this purpose.
3. This system uses image matching technique, so it offers a lot of precise and correct results.
4. Entire good surveillance systems are often created remote using this design. User will even manage the system easily.
5. This system provides real time monitoring. The user is notified as presently once the intrusion is detected. Thus, the user will take acceptable action while not any delay.
6. Surveillance system is integrated with intelligent video movement detection analysis systems mix with SMS, GCM alarm notification system.

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VII. Conclusion

This project introduced an approach for effective video surveillance investigation within the current system; this overcomes the standard measurement wherever Human intervention is required and has got to watch keenly for keeping track of the whole system. But now with this project we've got introduced a novel technique that could be a Major advantage to the previous system. Here usage of android Smartphone's is essential, so as to effectively captures the image. This project conjointly incorporates a distinctive feature during which it sends a GCM alert directly there's any variety of variation within the captured pixel. Conjointly we are in intent to dedicate this project to several vital Surveillance Areas in order that several unwanted things can be prevented.

VIII. Future Enhancement

Though this project has several extra advantages, in future wish to upgrade this into following level that is not solely by simply viewing the captured image, will conjointly read the whole clip of what happened and what has been captured. All this will be done simply at the spontaneous moment, within seconds of the action been happened at the site.

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