

A SURVEY OF UNUSUAL EVENT DETECTION FOR ENHANCING SECURITY

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Abstract

This project considers the problem of, unusual activity detection in video surveillance system. During real time application, the challenging task is tracking target in LR video . Super resolution technique is used in existing system to enhance LR video and thus it requires high computational cost. The proposed algorithm, is fast enough and also requires low costs it processes LR frames and it recognizes the occurrence of unusual events like overcrowding and violence in the LR video without using training datasets and classifier initially. The proposed method is used to enhance the public safety.

Keywords : LR-Low Resolution, CNN- Convolution Neural Network, ML – Machine Learning, RABT– Rolling average background technique.

I Introduction

In the past few years of continuous research in the field of moving object detection significant efforts have been done, and tracking makes the applications robust, reliable and efficient such as robotics, video surveillance, authentication system, biological research, media production, etc. Although challenges have been faced while improving these applications. Challenges faced are camouflage, shadow, occlusion, illumination change, dynamic background and so on. The burdensome about these obstacles occurs when the object tracking in LR video is performed. In LR video the difficulty is to find the object of interest accurately, due to loss of discriminative details such as primitives and visual features. There is inefficiency in event detection which is the result of inaccurate object tracking. The benefits of using LR video is that it requires less transition time, processing time and low cost. In this paper, an algorithm is proposed to detect unusual event using LR video. The proposed paper serves application of enhancing public safety even by not removing LR camera's.

II Objectives

- Here we have taken the example of events occurring in the ATM. Face recognition method is being used.
- While using Atm facility, if person's face is covered face recognition will be difficult and it is considered as unusual event.
- If anyone is idle more than certain threshold time inside ATM, the alarm is beeped to inform Security guard to monitor them and take necessary action.
- When more than a single person enters the ATM it considers as unusual event, this is to avoid theft and other criminal activity.
- If the person carries any kind of weapon it is considered as unusual event using camera and the Security Alarm beeps and intimidates the respective Security Personnel and locks the door, and door can be opened only the security in charge.

III Problem Statement

This project is aiming at detecting unusual events from surveillance video, all the videos are shot using a single static camera. One such example would be detection of events where a car is breaking the traffic rule.

IV Literature Survey

<p>Real time unusual event detection using video surveillance system for enhancing security</p> <p>K. R. Vinothini V. S. Rasmi</p>	<p><u>2015 Online International Conference on Green Engineering and Technologies(IC - GET)</u></p>	<p>Low cost and is fast enough because it process LR frames. The application is to enhance the ATM security.[1]</p>	<p>The challenge which is faced here is considering video surveillance system.</p>	<p>Environmental light conditions may affect while capturing image.</p>
<p>Detection of unusual events in low resolution video for enhancing ATM security and prevention of thefts.</p> <p>R. Raghulan S. Sumanth Babu M. Kiran B. K. Prajwal M. S. Sreeharsha</p>	<p><u>2017 International Conference On Smart Technologies For Smart Nation(Smart Tech Con)</u></p>	<p>This cost again rises if we are handling with event detection. Our state of the art technique is able to detect the existence of unusual events like face masking, camera masking, fight or overcrowding in the low resolution video merely by means of standard deviation, statistical method of moving target objects.[2]</p>	<p>It is sufficient because it processes LR frames and also sends alert messages to the concerned authorities in investigation for enhancing the ATMs security.</p>	<p>Light condition should be proper . Sometimes face detection and crowd detection depends on camera resolution and light factor.</p>
<p>A Vision-based Social Distancing and Critical Density Detection System</p> <p>Dongfang Yang Ekim Yurtsever Vishnu Renganathan</p>	<p><u>The Ohio State University, Columbus, OH 43210, USA</u></p>	<p>The people are not used for the social distancing even during this pandemic. The proposed system tracks the necessary distance of 2-meters (6-feet) for social distancing between the people as well as with their environment they live in..[3]</p>	<p>When there is a breach in social distancing, an unintrusive audio-visual warning signal is released. But the signal doesn't affect the people.</p>	<p>The accuracy of the proposed system is less.</p>

<p>Face detection based ATM security system using embedded Linux platform</p> <p>Jignesh J. Patoliya; Miral M.Desai</p>	<p><u>2017 2nd International Conference for Convergence in Technology (I2CT), 7-9 April 2017.</u></p>	<p>It is implemented on credit card using Raspberry Pi with Open CV software for image processing. It is provided by the consecutive action for face detection[4].</p>	<p>Users OTP verified.</p>	<p>Wouldn't not be useful in rural & remotearreas.</p>
<p>Detecting Abnormal Events in University Areas</p> <p>Zahraa Kain AbirYouness Ismail El Sayad</p>	<p><u>2018 International Conference on conference and Applications (ICCA)</u></p>	<p>It represents a distinct surveillance system took place in crowded environment in the university[5].</p>	<p>We implement the results based on histogram of magnitude s.</p>	<p>If biometric doesn't match, processing for alternative methods is slower</p>

V Feasibility Study

The Systematic Review through which the process of Study selection takes place :

The process of Study selection of the review was taken place according to the chosen and endorsed reporting items for the meta-Analysis PRISMA statement as well as the review to be held systematically. Through the following four steps, the approaching technique or the Methodology of the review process successfully was accomplished for the purpose of process of study selection as well as to obtain error-free outcomes. The steps are : 'recognition, 'televised, 'qualification'. In the first step, we searched for the papers, articles, books related to our problem statement by selecting feasible and potential. The keywords include 'video surveillance', 'ATM', 'CCTV', 'DVR', 'robbery', 'burglary', 'mask', 'scarf', 'sunglass', 'helmet', 'covered face' 'peeping', 'facial feature', 'unusual posture', 'illegal object', 'fight', 'overcrowd' or 'security'. In sources such as websites, video documentaries, newspapers and databases like Google Scholar and Science Direct, the records were searched. Also for only documents in English, the Manual searching was done. For a thorough and a comprehensive valuation, the 22 articles were included in the review in accordance with the Searching strategy. The 22 included articles imply the project existing on the detection of crime in ATM using the Digital image processing of integrated closed-circuit camera.

The Detection of Abnormality :

Some activities such as “thieves hiding their faces with caps, mufflers, masks, sunglasses”, etc are considered as abnormalities in ATMs by Researchers. Further to find user ids and passwords, the spy cams are attached by the robbers to ATM machines. Also one common ATM crime is card forgery using skimming device installation. Sometimes, the AT users are attacked by thieves and withdrawn money is snatched from them. (and also their ornaments like gold chain, ring, earring etc.). Different researches concentrated on different abnormality issue in time of solving problem. Hence we classified the selected researches into 4 classifications with respect to the detection of abnormality such as “occluded or covered face detection”, “both occluded face and user abnormal activity detection” and “illegal object detection”. A number of equipment can be used to hide face during an ATM theft. Many of the investigations discovered and confirmed “occlusion with common accessories like caps, helmets, masks, sunglasses, mufflers, and scarves” was the first to taken care of face hiding with multiple equipment. Nevertheless to find common accessories, the research study faces much difficulty. On top of that, the earlier researches did not take care of the accessories like hijab, niqab etc. The researches found out a diverse collection of abnormal activities such as password fraud, fight, overcrowding, abnormal eye-gaze point, robbery. Besides, was the first that figured out distinct and miscellaneous normal and abnormal actions such as walking, resting, meeting, browsing, fighting, and running, hitting nearby ATM done by a one or more persons,.

IOT Based Systems :

Proposed System will depend on safety will take the input between several sensors like GSM modem vibration sensors , slope sensors and temperature sensors. This sensors outstrip value sound is untangled and awake will be sent between email and safety calls are build to authority.

Human Action Recognition :

Machine learning and Deep learning are used to recognize human actions. This proposed technique is depends on various cases using different responses as example. Videos will be divided into numerous segments for small examples. A characteristics with each 16th frame will be caught. Accuracy of 75.41% will be provided.

Features :

Researchers used some characteristics for detection. About eight studies utilized skin color, however between them merged facial components, merged the egg faced shape, and merged both egg faced omega (Ω) and shape and head-shoulder shape with the skin color attribute.

VI Methodology

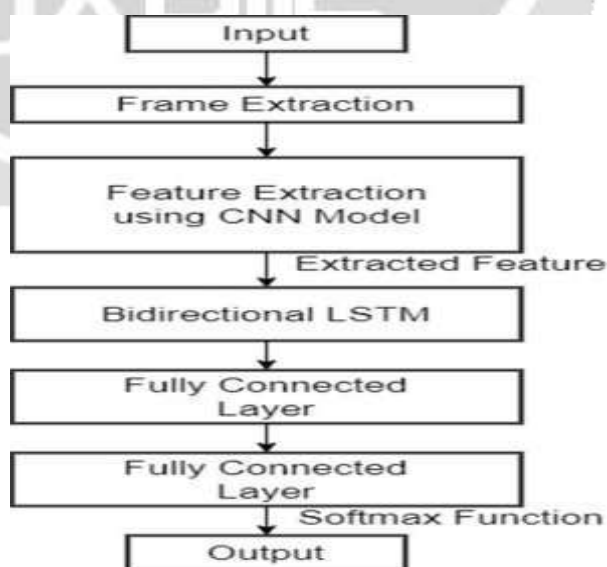


Figure : Flow of the System

Data is important for successful grouping of abnormal behavior. Periodic neural network is used to prepare consecutive data. LSTM is used in present model. In this model fixture from these video is withdrawn. In feature introduction, fixture is directed to CNN.

For face observation camera records live video. The qualified Haarclassifier to expose abnormal project work as method. Alert message will be given when abnormal activity is detected. when the abnormal activity not observed then client can arrange the usual pin confirmation steps. Once the boundary match the client they can do ATM confirmation .The system make use camera of the laptop . Camera will flow the video into system preparing the caught photo fixtures to notice abnormal event. After noticing abnormal event monitoring system have been programmed spontaneously common monitoring room so that compulsory step will be taken.

VII Conclusion

It is understandable that the advanced current fixture work will be intelligent to disclose abnormal incident such as crowded circumstance and brawl around the distinct ATMs. This is required for developing a safety to increasing number of doubtful steps . This prepared fixture work would helps to increase safety. The outcome exhibit algorithms is well organized relevant on LR video and no need for utilizing instruction datasets and high calculational plan will increased the LR videos by SR methods.

VIII References

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