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Bank Locker Security System using Face Recognition: A Review

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ABSTRACT: Face recognition play a vital role in variety of applications from biometrics, surveillance, security, identification to the authentication. In this paper we design and implement a security system where access people whose faces are available in the training database. First, we are going to detect the face by detecting the human motion. Then face recognition is performed to determine the authority of the person to enter the sensitive area. At the same time, we track the coordinate of detected motion. Failing to recognize the face finally passes the estimated coordinate to anesthetic gun for targeting the intruder automatically. Experimental results demonstrate the effectiveness of proposed Bank locker security system in order to restrict the unauthorized access and enhanced reliability by use of Liveness face recognition.

KEYWORDS: Face detection, Feature extraction, tracking, Machine Learning.

I. INTRODUCTION

Human face detection is the most promising field of image processing that has a vast area of research oriented real life applications. In the real world the concept is widely used for the content annotation, access control, profiling and potential discrimination in the web world. There is always constructive scope of new inventions in the field of technology which is as vast as galaxy on its own. This leads to the better future. There has been a supportive development in the field of technology by the humans since the beginning of mankind. The motive was in rapid development and also in the advancement of technology to ensure the minimization of risk that is prone along with the new inventions which would make life easier, better and much faster. The main intention of face detection is to find out the human face in the given input. The Psychological process of locating the human face in the visual frame is also possible. It is also categorized as a special case of object class detection. The Eigen face approach is considered as a promising technique of face detection. In the field of marketing the facial image detection is playing a role of huge interest for the users. It has always been an issue of personal authentication that needs to be fixed for the purpose of access control of the info-security in the wider context via physical security. Researchers found that the face detection is an issue that needs to be taken into consideration. In terms of appearance, human face has high degree of variability, making it a dynamic object of study. Application of face detection is found in crowd surveillance, video conferencing, biometrics etc. The concept of human face detection makes it difficult for computer vision. Detected face is stored with high level of secrecy and certainty. Assuring that the data is safe, is the most important aspect under discussion. The image data consists of properties associated with, such as high level of redundancy, bulk capabilities and also high correlation between the pixels.

II. RELATED WORK

GURUH FAJAR SHIDIK 1 , EDI NOERSASONGKO 1 , ADHITYA NUGRAHA 1 , PULUNG NURTANTIO ANDONO 1 , JUMANTO JUMANTO 2 , AND EDI JAYA KUSUMA 1- In this paper, Intelligent Video SurveillanT (IVIST) is also introduced. IVIST is a prototype system with EDCAR knowledge that provides automatic support to implement related inference procedures such as object tracking and detection to trigger alarms. IVIST system has been investigated by using several target scenarios such as “steal baggage”, “crowd activity”, “unattended baggage”, and “fighting”. From investigation result, each scenario can precisely be detected using IVIST system integrated with EDCAR Framework.

Ahmed Abdel Moamen, Student Member, IEEE, Nadeem Jamali- In this study, we examine the impact of continuous mobile sensing on the energy usage of wearables and smartphones. We first examine several existing systems for serving such applications before presenting some illustrative continuous mobile sensing applications.

Syed Umaid Ahmed Hamza Khalid , Muhammad Affan - This study introduces a face-identification and face-recognition intelligent system with applications in private security, home surveillance, and person tracking. In the event of an unidentified or unknown individual, the real-time video stream is processed, motion is detected, and dual-axis pan-tilt servos track that person with a camera. This is how an automatic facial recognition solves security issues with flexibility. Additionally, video recordings of these odd acts are synced from cloud storage, and mobile notifications are generated.

AHMED ABDELMOAMEN AHMED - In this paper, we present a prototype implementation of such systems, Hawk-Eye, an AI-powered threat detector for smart surveillance cameras. Hawk-Eye can be deployed on centralized servers hosted in the cloud, as well as locally on the surveillance cameras at the network edge. Deploying AI-enabled surveillance applications at the edge enables the initial analysis of the captured images to take place onsite, which reduces the communication overheads and enables swift security actions.

Haoren Cui, Zhihua Wei, Pengyu Zhang, Di Zhang - In this paper, we propose a multiple granular cascaded model of object tracking under surveillance video. For frames in surveillance video, we analyze the frames from different granularity levels. At the coarse level, we utilize Gaussian mixture model combined with a three-frame difference method to extract the foreground region of the frame. At the fine level, a cascaded multi-source feature fusion method is used to classify the region proposal and obtain the location of the target. Finally, we propose some optimization strategies for the online tracker updating. We conduct several comparative experiments on actual surveillance video.

Abhishek Dutta Andrew Zisserman - In this paper, we introduce a simple and standalone manual annotation tool for images, audio and video: the VGG Image Annotator (VIA). This is a light weight, standalone and offline software package that does not require any installation or setup and runs solely in a web browser. The VIA software allows human annotators to define and describe spatial regions in images or video frames, and temporal segments in audio or video

Yun-Xia Liu, Yang Yang, Aijun Shi, Peng Jigang, LiuHaowei- the monitor faces dozens of surveillance video images, which is easy to fatigue. It may not be able to respond in time to abnormal situations due to lack of concentration, and loss key information in the video. In addition, because a large amount of surveillance video needs to be stored for months or years, it will result in a large storage cost. Therefore, the intelligent video surveillance system is urgently needed to assist the monitoring personnel to use the intelligent detection technology to process, analyse and understand the video signal while retaining the original video key information, and automatically detect the target category and location information without manual intervention

Umadevi V Navalgund ,Priyadharshini.K – In this paper author described an automatic handgun detection system in surveillance videos, System controls the occurrences of crimes by detecting the guns in the surveillance videos, it will classify objects like gun or not, predict the crime occurred or not, it gives the solutions which have been compared with sliding window proposal approach, the good results are obtained by FRCNN and RCNN based models trained on dataset. This model shows a high crime prediction occurrence even in low quality videos then produces the best satisfactory results

Ya Wang, Tianlong Bao, Chunhui Ding, Ming Zhu - In this paper, we propose a method for face recognition in real-world surveillance videos by deep learning. First, a novel dataset from target real-world surveillance videos is constructed automatically and incrementally with the process of face detection, tracking, labeling and purifying. Then, a convolutional neural network with the labeled dataset is finetuned. On the testing dataset collected from the campus surveillance system, the network after fine-tuning achieves recognition accuracy of 92.1 %, which obviously outperforms the network without fine-tuning, which returns a recognition accuracy of 83.6%.

Yi Zhou, Li Liu, Ling Shao - In this paper, we present a fast algorithm: detection and annotation for vehicles (DAVE), which effectively combines vehicle detection and attributes annotation into a unified framework. DAVE consists of two convolutional neural networks: a shallow fully convolutional fast vehicle proposal network (FVPN) for extracting all vehicles' positions, and a deep attributes learning network (ALN), which aims to verify each detection candidate and infer each vehicle's pose, color, and type information simultaneously

III. EXISTING SYSTEM/OPEN ISSUES

The use of a surveillance system for image detection is becoming more important. An embedded surveillance system is frequently used in the home, office or factory for image processing of the surveillance system and also for traffic monitoring but this configuration requires a high performance core, which works against some advantages of embedded systems, such as low power consumption and low cost. Some designs propose the use of different sensors to track the sequence of the human body movement

Negative comments

Depends on Wi-Fi strength: The biggest disadvantage of a wireless camera system is that **it is completely dependent on the strength of your Wi-Fi connection**. Any interruption or weak signal can mean that you may lose connection to the system, resulting in the loss of the film, which can be critical.

IV. CONCLUSION

This study introduces a face-identification and face-recognition intelligent system with applications in private security, home surveillance, and person tracking. In the event of an unidentified or unknown individual, the real-time video stream is processed, motion is detected, and dual-axis pan-tilt servos track that person with a camera. This is how an automatic facial recognition solves security issues with flexibility. Additionally, video recordings of these odd acts are synced from cloud storage, and mobile notifications are generated.

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