Abnormal and Deviant Behavior Identification Via Surveillance Systems

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***Abstract*— As violent criminals, such as child sex offenders, tend to have high recidivism rates in modern society, there is a need to prevent such offenders from approaching socially disadvantaged and crime-prone areas, such as schools or childcare centre's. Accordingly, national governments and related institutions have installed surveillance cameras and provided additional personnel to manage and monitor them via video surveillance equipment. However, naked-eye monitoring by guards and manual image processing cannot properly evaluate the video captured by surveillance cameras. To address the various problems of conventional systems that simply store and retrieve image data, a system is needed that can actively classify captured images in real-time, in addition to assisting surveillance personnel.**

***Keywords*— face detection, image processing, real-world conditions, face recognition .**

I. INTRODUCTION

Security plays a vital role in monitoring a building in the absence o presence of people. Theft refers to the crime involving the taking of a person's property without their permission. Most of the theft happens by door break-ins. 75% of theft occurs during night time. The thief may take off the fuse, so they cannot be easily identified and if they caught, they can be easily escaped. Bluetooth is mainly used to provide the message and the application which is used to conserve the power when the system is not in use. This will also give alert to the owner through a mobile phone. In this industrialized world, stealing valuable and prosperous things has become a serious concern for police and common people. Theft may mentally affect the people because their hard work for years'.

A.CONVOLUTIONAL NEURAL NETWORKS (CNNS)

CNNs are a specialized type of neural network designed for processing grid-like data, such as images and videos. They leverage convolutional layers to apply filters to input data, capturing spatial hierarchies of features. CNNs have revolutionized computer vision tasks, achieving remarkable accuracy in image classification, object detection, and segmentation. Applications of CNNs span diverse domains, including autonomous vehicles, medical imaging, and surveillance systems.

B.RECURRENT NEURAL NETWORKS (RNNS)

RNNs are another class of neural networks designed to process sequential data, such as time series and natural language. Unlike feedforward neural networks, RNNs incorporate recurrent connections that enable them to retain memory of previous inputs, making them well-suited for tasks requiring temporal dependencies. Applications of RNNs include speech recognition, language translation, and sentiment analysis.

II. PROPOSED MEASURE

The proposed method aims to address the limitations of conventional surveillance systems in effectively identifying and responding to the presence of violent criminals, particularly child sex offenders, in socially disadvantaged Maintaining the Integrity of the Specificationsand crime-prone areas such as schools and childcare centers.While existing systems rely on manual monitoring and image retrieval, they often fail to provide real-time classification of captured images, hindering timely intervention by surveillance personnel. To overcome these challenges, this paper proposes a novel video surveillance system based on composable deep face recognition technology.

III. EXISTING SYSTEM

Video detection of smoking behavior based on DETR and its variant models has received widespread attention. However, the computational complexity of Transformer is too high, which leads to serious hardware consumption and low detection efficiency. In this work, we propose a smoking behavior detection method that combines the human key point detection algorithm BlazePose and DN DETR, which improves the detection efficiency by clearing redundant frames in surveillance videos and arrived detection accuracy of 94% for AP50 . BlazePose ensures that the video frames transmitted to DN DETR contain people.overall prediction. This method performs best when it is used

with a compact camera and focuses on every student. Monitoring students during exams is a tedious task, with rapid

IV. MODULE DESCRIPTION

A. MODULES

- CAMERA SETUP: Install surveillance cameras in the desired locations to capture video footage of the monitored area. Ensure that the cameras provide adequate coverage and resolution for effective monitoring.
- VIDEO FEED ACQUISITION: Set up a system to acquire video feeds from the surveillance cameras. This can be done using video capture hardware or software that interfaces with the cameras and streams the video footage to the system.
- PREPROCESSING: Preprocess the video feeds to enhance the quality of the footage and prepare it for analysis. This may involve tasks such as noise reduction, image stabilization, and frame rate normalization.
- OBJECT DETECTION: Utilize computer vision techniques, such as object detection algorithms (e.g., YOLO, SSD, Faster R-CNN), to detect and track objects within the video feeds. Train the object detection model on a dataset that includes examples of both normal and abnormal activities.

V . ABBREVIATIONS AND ACRONYMS

YOLO - YOU ONLY LOOK ONCE

MAP - MEAN AVERAGE PRECISION

CNNS - CONVOLUTIONAL NEURAL NETWORKS

RNNS - RECURRENT NEURAL NETWORKS

GANS - GENERATIVE ADVERSARIAL NETWORKS

CUHK - FACE SKETCH DATABASE

DETR - DETECTION TRANSFORMER

HOG - HISTOGRAM OF ORIENTED GRADIENTS

LBP - LOCAL BINARY PATTERNS

VI .CONCLUSION AND FUTURE ENHANCEMENT

The pressing issue of preventing violent criminals, particularly child sex offenders, from accessing socially vulnerable and crime-prone areas like schools and childcare centers necessitates innovative solutions beyond traditional surveillance methods. While governments and institutions have invested in surveillance technologies, existing systems often fall short in actively classifying captured images in real-time, leaving blind spots for criminal activity. To bridge this gap, this paper proposes a novel video surveillance system leveraging composable deep face recognition technology. By detecting faces of criminals in real-time from surveillance camera footage and employing a scoring method based on face tracking, the system enhances accuracy and confidence in identifying potential threats

VII .FIGURES AND TABLES

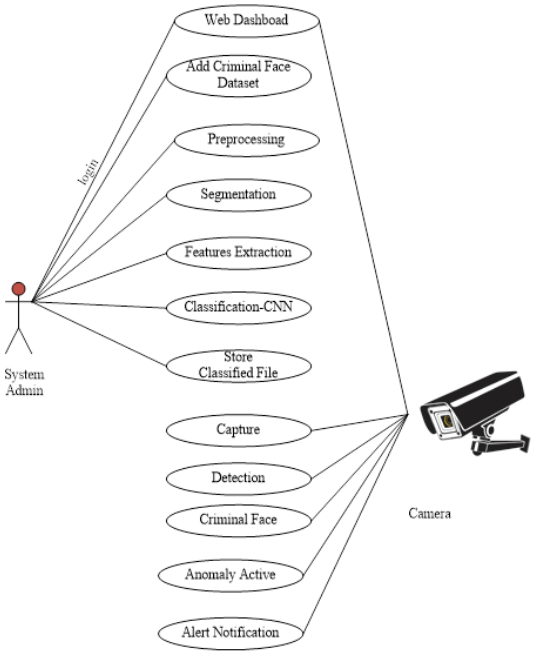

Fig no : 1 USECASE DIAGRAM

CLASS DIAGRAM

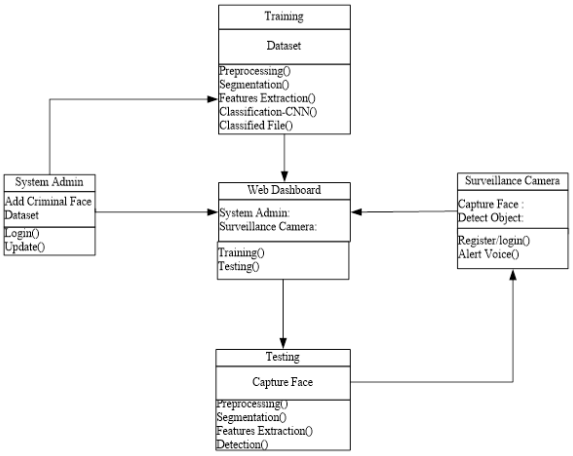

FIG NO :2 CLASS DIAGRAM

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IX . REFERENCES

[1] Z. Zhang, J. Yan, S. Liu, Z. Lei, D. Yi, and S. Z. Li, “A face antispoofing

[2] database with diverse attacks,” in Proc. 5th IAPR Int. Conf. Biometrics

[3] (ICB), Mar. 2012, pp. 26–31.

[4] I. Chingovska, A. Anjos, and S. Marcel, “On the effectiveness of

[5] local binary patterns in face anti-spoofing,” in Proc. BIOSIG Int. Conf.

[6] Biometrics Special Interest Group (BIOSIG), Sep. 2012, pp. 1–7.

[7] N. Erdogmus and S. Marcel, “Spoofing in 2D face recognition with

[8] 3D masks and anti-spoofing with Kinect,” in Proc. IEEE 6th Int. Conf.

[9] Biometrics, Theory, Appl. Syst. (BTAS), Sep. 2013, pp. 1–6. in Proc. IEEE/CVF Conf. Comput. Vis. Pattern Recognit. (CVPR),Jun. 2019, pp. 10015–10023.

[10]AK T. Senthil Prakash, Vandana.C.P, R.B.Dhumale Auto-metric graph neural network for paddy leaf disease classification-2024

[11]T Senthil Prakash, V CP, RB Dhumale, A Kiran Auto-metric graph neural network for paddy leaf disease classification -2023

[12] TS Prakash, Deep convolutional spiking neural network fostered automatic detection and classifcation of breast cancer from mammography images - 2023

[13] TS Prakash, Municipal Solid Waste Prediction using Tree Hierarchical Deep Convolutional Neural Network Optimized with Balancing Composite Motion Optimization Algorithm-2023.

[14] TS Prakash, Enhanced Elman spike Neural network optimized with flamingo search optimization algorithm espoused lung cancer classification from CT images- 2023

[14]R. Senthilkumar, B. G. Geetha, (2020), Asymmetric Key Blum-Goldwasser Cryptography for Cloud Services Communication Security, Journal of Internet Technology, vol. 21, no. 4 , pp. 929-939.

[15]Senthilkumar, R., et al. "Pearson Hashing B-Tree With Self Adaptive Random Key Elgamal Cryptography For Secured Data Storage And Communication In Cloud." Webology 18.5 (2021): 4481-4497

[16]Anusuya, D., R. Senthilkumar, and T. Senthil Prakash. "Evolutionary Feature Selection for big data processing using Map reduce and APSO." International Journal of Computational Research and Development (IJCRD) 1.2 (2017): 30-35.

[17] Farhanath, K., Owais Farooqui, and K. Asique. "Comparative Analysis of Deep Learning Models for PCB Defects Detection and Classification." Journal of Positive School Psychology 6.5 (2022).