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A REVIEW ON RISK-BASED ANALYSIS USING STATIC AND DYNAMIC IDENTIFIERS

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Abstract*:* It is critical to protect the safety and security of persons at private events such as parties, conferences, and social gatherings. This project proposes to develop a cutting-edge system that uses face and object identification algorithms to proactively identify and mitigate potential threats in private meetings. By evaluating real-time video feeds from surveillance cameras, the system employs advanced algorithms to detect suspicious actions and items that may endanger the participants' safety. The main purpose is to increase security procedures and provide an additional level of protection during private meetings.

Keywords: Face recognition, Object detection, YOLO, Image Processing

I. INTRODUCTION

It might be challenging to safeguard the atmosphere at huge gatherings or events by inspecting every single individual. Therefore, with the aid of pre-defined data and real-time object identification, the crowd may be continually watched using artificial intelligence and machine learning. Any type of unwanted movement or dangerous machinery may be quickly found with this data. Monitoring and controlling crowds is one of the important uses of object recognition, particularly during huge gatherings or events where it is challenging to keep the area secure by individually screening each attendee.

AI-powered devices may continually scan crowds for any type of undesired movement or dangerous equipment with the use of pre- defined data and real-time object detection. The benefits of object recognition in crowd management are immense.

II. LITERATURE REVIEW

Face detection is challenging because of age differences and facial pattern changes in adults, [1]describes the training undertaken to improve significant facial recognition in adults and improvement of algorithms for unusual facial angles.
Deep face recognition techniques consist of different aspects such as historical development various approaches challenges and future direction as explained in [2] it describes a focus on deep learning-based methods published in the survey of IEEE Transactions on Pattern Analysis and Practitioners interested in face recognition using deep learning techniques.
Face recognition is a challenging task due to the variability of human faces [1], illumination, and occlusion. Deep learning has shown an upper hand in face recognition, but it is sensitive in image quality as explained in[3]
The image processing technique can be used to improve the quality of face images [2], thus leading to improved performance of deep face recognition systems. The image processing technique is the perfect tool to enhance the quality of the image and to recognize human faces. The required steps and the important key factors and components have been explained by Taskiran in [4] application areas.

Object detection is a computer vision technology that detects and locates objects in images or movies. Object detection algorithms frequently employ machine learning or deep learning to produce relevant findings. Object detection, as detailed in [5] covers traditional methods such as R-CNN, fast R-CNN, and faster R-CNN, as well as other deep learning-based approaches such as SSD.

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In [6] they emphasize YOLO's advantages over conventional approaches, such as its real-time processing speed, capacity to recognize objects of varied scales and aspect ratios, and the absence of the requirement for area proposal networks.

The authors offer a new strategy for improving real-time object detection accuracy and speed in [7]. YOLOv8-PP is a promising solution for real-time object detection that could be applied in a wide range of applications.

The benefits and user application of the YOLO algorithm are explained in [8]. The benefits and drawbacks of YOLO and make some recommendations for future research [7]. Some of the major applications of YOLO include Video surveillance, Self-driving cars, Medical imaging, Retail, Manufacturing, etc..,

The object detection whether it is real-time or using input video the objects are detected and displayed inside the bounding box and for training the images also bounding boxes and pixels of images should be taken into consideration as in [9]

For object recognition, there are plenty of algorithms but YOLO is one of the fastest and most accurate ones [10] YOLO can run at real- time speeds on a GPU while maintaining cutting-edge accuracy on object identification benchmarks.

In [11] artificially expanding the size of the training dataset, a technique known as data augmentation is explained. Data augmentation can assist enhance the accuracy of object detection [5] models by making them more resistant to changes in input data can be performed

III. SUMMARY

Overall, the papers provide a thorough overview of the use of deep learning in facial recognition and object identification. These papers explain the many deep learning models that have been employed for these tasks, as well as the various performance evaluation criteria. The papers also describe the various obstacles that these tasks confront, as well as the various ways that have been taken to overcome these challenges. And different models and algorithmic selection and optimization to increase the ability and accuracy.

IV. CONCLUSION

Overall, the papers provide a comprehensive overview of the face and object detection model and algorithms to improve performance and accuracy.

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