

# REAL TIME SMART ATTENDANCE SYSTEM USING FACE RECOGNITION TECHNIQUE

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**Abstract** – The human face is an important entity which plays a crucial role in our daily social interaction, like conveying individual's identity. Face recognition system is also able to recognize the person from a distance without touching or any interaction with the person. Currently, face recognition applications are deployed in social media websites like Facebook, in the entrance of Airports, Railways Stations, Bus Stop, highly secured areas, advertisement, and health care. The purpose of these applications is to minimize criminal activities, fake authentication, tracking addictive gamblers in casinos, whereas Facebook is using face recognition system for automatic tagging purpose. For face recognition purpose, there is a need for large data sets and complex features to uniquely identify the different subjects by manipulating different obstacles like illumination, pose and aging. In this project we propose a deep unified model for Face Recognition based on Faster Region Convolution Neural Network. Design a group-based face attendance system based on the proposed deep unified model. In our proposed system, we have a number of class rooms of a specific institute in which we setup our face recognition system for making a smart class room's. Several images from different smart class room Buffys are being sent simultaneously for processing, in order to take the attendance.

## 1.INTRODUCTION

The human face is an important entity which plays a crucial role in our daily social interaction, like conveying individual's identity. Face recognition is a biometric technology that extracts the facial features mathematically and then stores those features as a face print to identify the individual. Bio- metric face recognition technology gained a lot of attention during the past few years due to its wide range of applicability Stations, Bus Stop, highly secured areas, advertisement, and health care. The purpose of these applications is to minimize criminal activities, fake authentication, tracking addictive gamblers in casinos, whereas Facebook is using face recognition system for automatic tagging purpose. For face recognition purpose, there is a need for large data sets and complex features to uniquely identify the different subjects by manipulating different obstacles like illumination, pose and aging. During the recent few years, a good improvement has been made in facial recognition systems. In comparison to the last decade, one can observe an enormous development in the world of face recognition. Currently, most of the facial recognition systems perform well with limited faces in the frame. Moreover, these methodologies have been tested under controlled lighting conditions, proper face poses and non- blurry images.

Machine learning on edge computing nodes is also gaining popularity and likely to rise up even more with the passage of time. Edge computing is defined as the technology that enable the data processing at the edges of the network. The edge computing is

helpful in many ways such as; to reduce the traffic, cloud computing, and storage resources over the network. It is also helpful in reducing the response time and data latency and making the data transmission more safe and secure.

## 2. Body of Paper

**Existing System :** In the Fingerprint based existing attendance system, a portable fingerprint device need to be configured with the students fingerprint earlier. Later either during the lecture hours or before, the student needs to record the fingerprint on the configured device to ensure their attendance for the day. The problem with this approach is that during the lecture time it may distract the attention of the students. In the RFID based existing system, the student needs to carry a Radio Frequency Identity Card with them and place the ID on the card reader to record their presence for the day. The system is capable of to connect to RS232 and record the attendance to the saved database. There are possibilities for the fraudulent access may occur. Some are students may make use of other students ID to ensure their presence when the particular student is absent or they even try to misuse it sometimes.

**Proposed system :** Propose a deep unified model for Face Recognition based on Faster Region Convolution Neural Network. Then Proposes an algorithm for face detection and recognition based on deep Convolution Neural Networks (CNN). Our proposed system not only detects the appropriate number of faces from the frame, but also recognizes the detected faces. Face detection purpose, Region Proposal Network (RPN) draws anchors and outputs the one which most likely contains the objects. Deep convolution neural network architecture is developed for the recognition. The edge computing processes the data at the edges of the nodes, here edge is a computing device and network resource along with the dedicated path of generated data sources and cloud data centers.

## 3. CONCLUSIONS

This System proposes an algorithm for face detection and recognition based on deep Convolution Neural Networks (CNN), that outperforms the traditional techniques. Automatic attendance system has been anticipated for the purpose of minimizing the human errors which take

place in the conventional attendance taking system to validate the efficiency of the proposed algorithm. The basic aim is to automate the system and implement the smart class room which is useful for educational organizations. Faster Region Convolution Neural Network along with the Edge Computing techniques are utilized to achieve the state\_of\_the\_art results. The system managed to recognize 30 faces out of 35 detected faces, the achieved accuracy can be more enhanced by taking clearer image of students. Although the system is achieving higher accuracy, but the main limitation of the system is distance, naturally as a distance increases, the picture becomes blurry, so the system produces false results on the blurry faces in some cases.

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