


Chapter 7

AI-Based Motorized Appearance Acknowledgement Scheme for an Attendance Marking System


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ABSTRACT

Staff attendance exists as the greatest historical overwhelming chore in each institution. Existing presence scheme is typically grounded in RFID, IRIS, impression, and uniform notepad. Those schemes necessitate corporeal communication. One and all must wait until the preceding worker goes through the queue. The authors develop an appearance acknowledgement-based staff presence scheme by means of AI. With the help of deep learning and datasets, the scheme senses the position and recognizes which appearance goes to which ID and marks attendance in the datasheet. Then it is exported as an Excel sheet. All resemblance and datasets are protected.

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INTRODUCTION

Attendance marking is a crucial task in an educational institute and in a workplace. Many organizations are using some automatic systems such as punch cards, RFID cards, and fingerprint scanner and to some extend face recognition. The most traditional method of marking attendance is through roll calls. But this roll call method is now used only in schools and some colleges, since most of the colleges have moved towards digital methods such as swipe or punch cards to get the job done. Both the methods got some drawbacks. Roll call method is time-consuming and prone to human errors. Mistakes such as marking the present person absent and vice versa can occur in this method.

Digital methods such as swipe and punch cards can overcome the drawbacks in the previous mentioned method, but it also gives rise to new issues. Swipe cards are less time consuming but it doesn't check for the presence of the person while swiping the card, which may lead to another person marking proxy attendance of the absent person. Also, another concern is that if a person loses his or her swipe card, then he or she may have to wait sometime before getting a new card.

The other method used for attendance marking is by RFID. In this method the person has to register the attendance using RFID on the card reader. The drawback of this method is that it can lead to fraudulent entry since available persons can put entry using the ID of unavailable persons. So an absent person can be marked as present. Using biometric can help to overcome the issues existing in previous techniques. Biometric-based attendance system is used in a number of places. Biometric systems rely on a person's unique physical features in order to identify them. Fingerprint, palm print, iris, retina, face is some of the biometrics that a system used to uniquely identify a person.

Using Face recognition reduces error to a great extent, the unique identifier in a face recognition-based system is a person's face, therefore the risk of losing that unique identifier is next to zero. No human interaction is involved and is less time-consuming (Borkar & Kuwelkar, 2017, pp. 249 – 255.)

Artificial Intelligence is additionally machine insight which is meant by machines, in software engineering it is characterized as clever operators which sees the earth by taking activities and accomplishing the objectives. This paper is under the area of Artificial Intelligence and it is moderately connected with security segment (Adam Santoro et al., 2021, pp. 1-24)

Artificial intelligence is wide ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. AI is an interdisciplinary science with multiple approaches, but advancement in Machine learning and Deep learning. AI is a broad field and it is concerned with getting computers to do tasks that require human intelligence. However, there are many tasks like complex arithmetic which computers can do easily. Conversely, there are many tasks that people will do without thinking like recognizing a face which are extremely complex to automate. AI is concerned with these complex tasks which seem to be sophisticated reasoning process and knowledge.

AI is a field that overlaps with computer science rather than being a strict subfield. Different areas of AI are more closely related to psychology, philosophy, logic, linguistics and even neurophysiology. Making us to develop with an AI based application that extraordinarily distinguishes an individual by analyzing designs dependent on facial surfaces. It is a discerning assignment where our objectives are to automate the entire work. Ordinary activities are progressively asking to deal with by machine, as an option of pencil and paper or up close and personal improvement in electronic exchanges which result in extraordinary interest for quick and definite client recognizable proof and verification.

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