Ear biometric system for secure online payment

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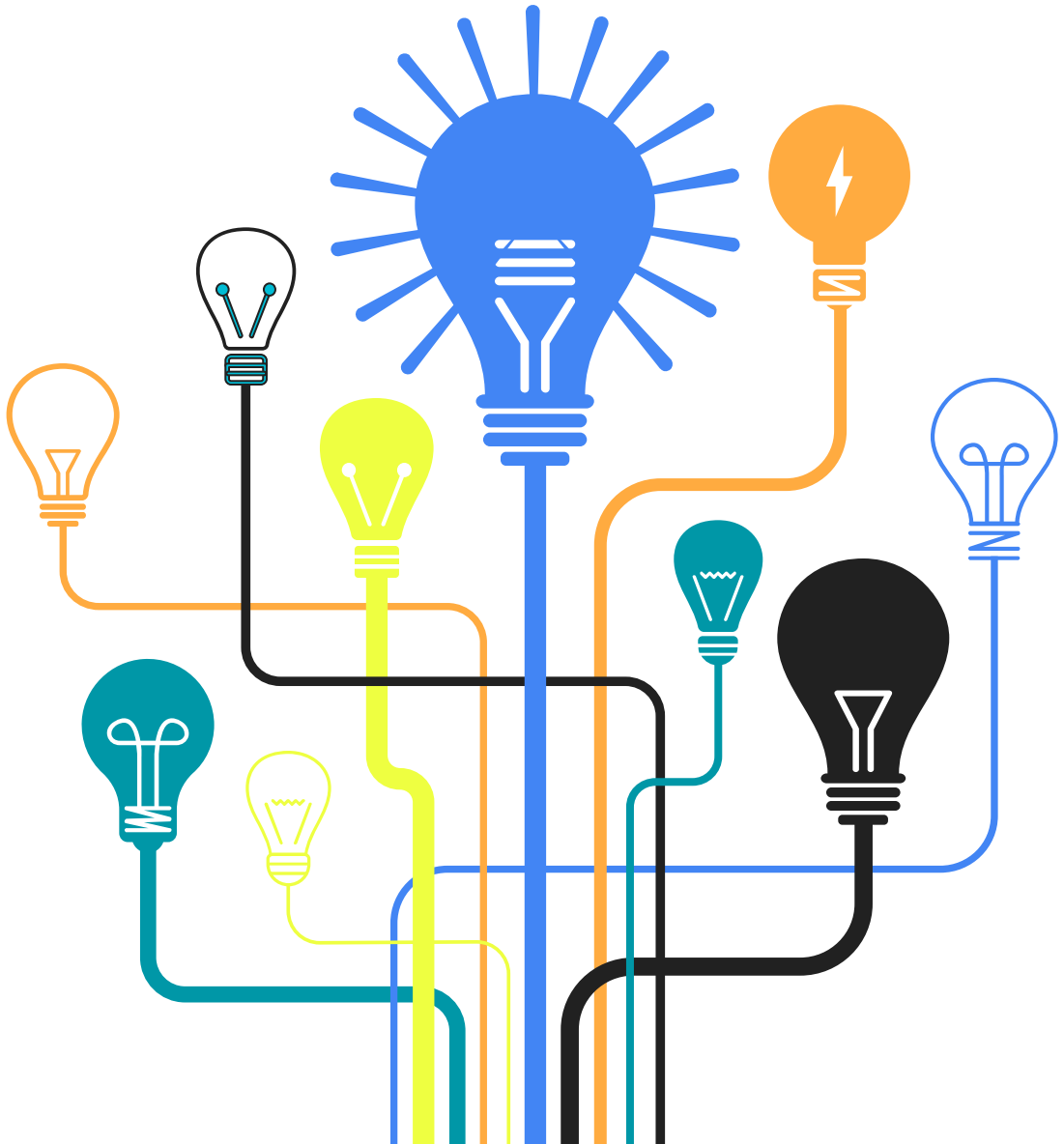
ABSTRACT

With the rising digitalization of services, we have witnessed the introduction of numerous payment and information exchange mechanisms. NFC, credit/debit card, and QR code-based payment mechanisms have grown quite popular. These strategies were designed to make transactions more secure, safe, and speedier. Although they have been successful to some level, there are a number of issues that are causing problems such as confusion, time consumption, security threats, fraud, and theft.
The proposed framework of the biometric system based on the ear is provided using CNN.

EXISTING SYSTEM:

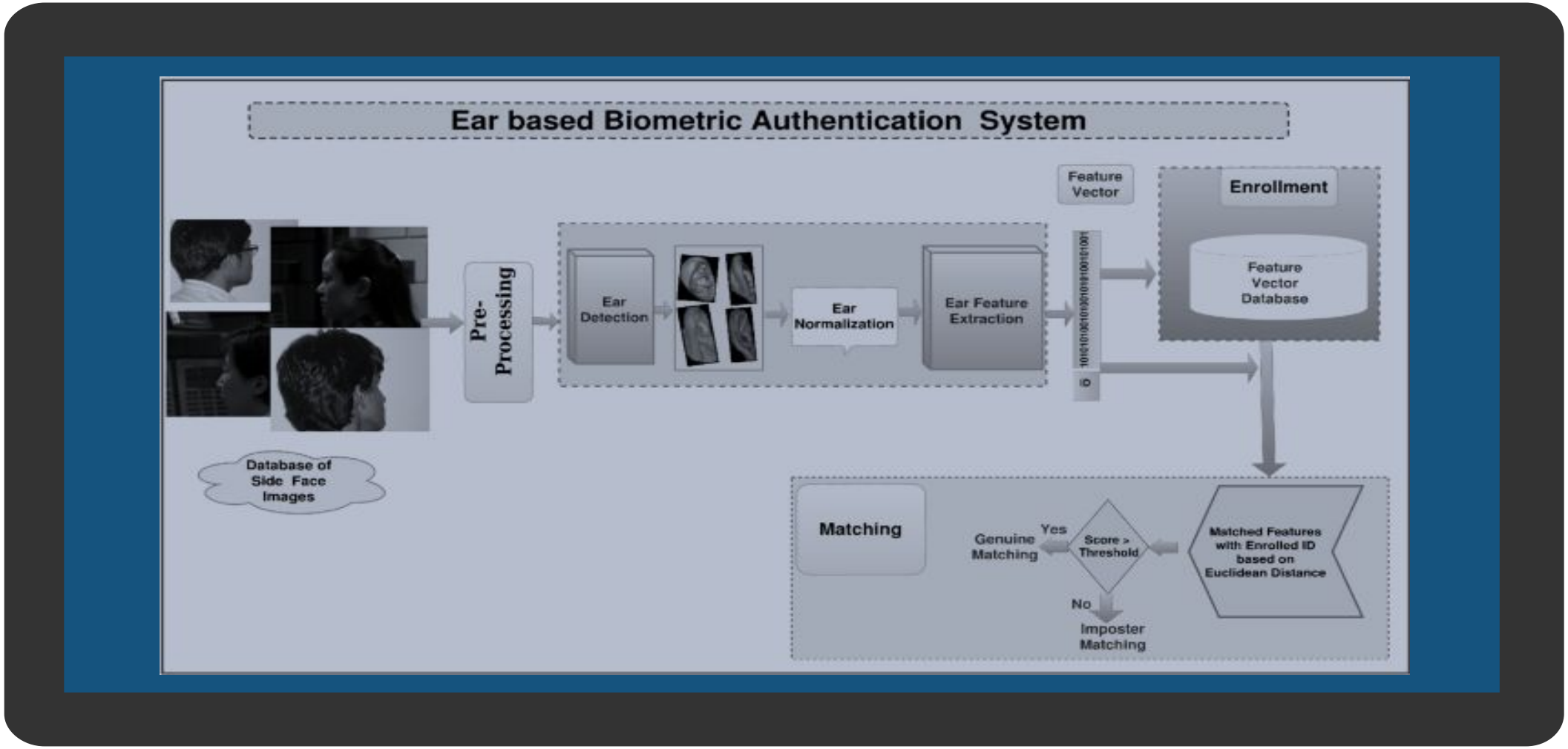
In two-step verification,
The first step is OTP verification followed by facial recognition. The system uses an online interface in order to interact with a user. The interface is used to get card details from the particular user. After the OTP verification, the user will be authenticated using facial recognition. A deep neural network-based face image recognition is suggested, and a convolutional neural network is employed to extract facial characteristics.
The system uses a CNN in order to verify the user by comparing the real time captured
image of the user against the images associated with the users account.

PROPOSED SYSTEM



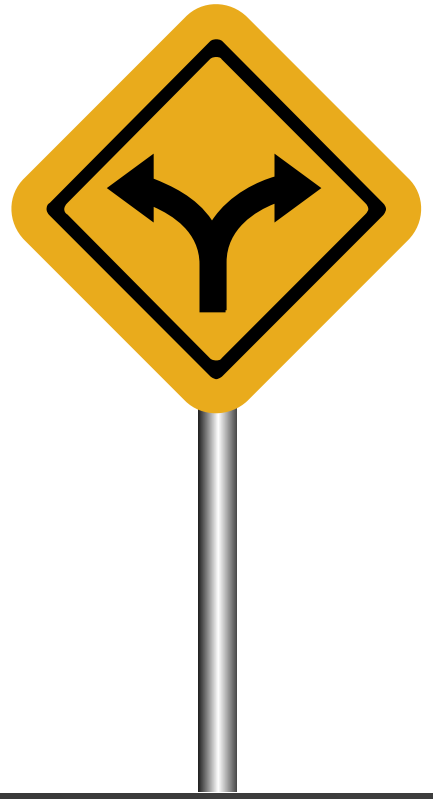
In recent years, there has been a lot of interest in the process of precisely recognizing persons by their ears. It is a significant step forward in biometric research, particularly as a supplement to facial recognition algorithms, which have difficulty in real-world scenarios. This is due to the wide range of shapes, changing lighting circumstances, and shifting profile shape, which is a planar depiction of a complicated entity. To identify a person given an input image, an ear recognition system based on convolutional neural networks (CNN) is developed. When tested against clean images, the proposed method equals the performance of existing traditional approaches.

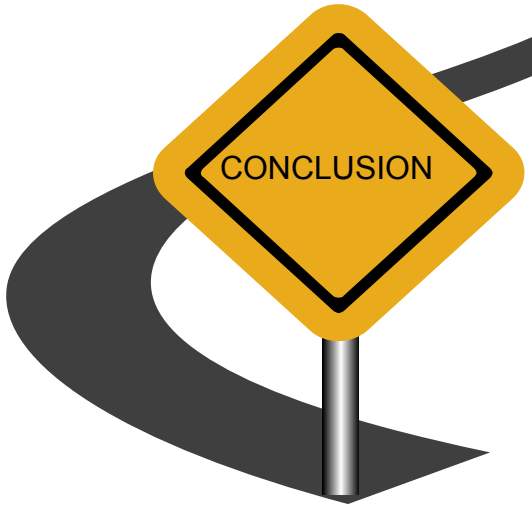
STEPS INVOLVED



RESULTS:

This study was designed to determine whether it is possible to employ deep neural networks in the recognition of persons by their ears through photographs. The average of the confusion matrix for the data training and testing is encouraging in preliminary results. On the AWE dataset, the best ear detection gets an IoU score of 96.13 percent.





We investigated the problem of training CNN-based models for ear recognition with limited training data in this paper. By successfully recognising and authenticating authorised users, the system improves the security of online transactions.Any application that requires online payments can use the system as a payment gateway. Ecommerce websites, internet banking, and mobile banking are examples of these. The system is accessible via any web browser on any operating system. In the future, iris identification could be added to the system to improve transaction security.

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