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Biometric Recognition Technique for ATM System

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Abstract— In 1930's, Mr. Luther G. Simijian initiated building first of kind and not so successful version of Tellering machine. He did register related patents. He initially came up with an idea of machine fixed in a wall called as "Hole in the wall machine." It would allow customer to make financial transaction without entering the bank. John S. Barron had an idea in the late 1960's for 24/7 cash dispenser. He was M.D. of De La Rue Instruments. De La Rue today manufactures cash dispensers. You can say that Shepherd Barron invented the ATM system, then the world's first ATM was installed outside North London. It was installed in a branch of Barclay's Bank in 1967. The first bank to introduce ATM in India was HSBC in 1987, Mumbai. The existing self banking system has got very high popularity with 24 hours service. Use of ATM (Automatic Teller Machine) is helpful for money transaction. ATM is activated by placing the card, then entering the pin number of the particular card. But this system is not safe to use because anybody can access the system if they have the card and pin number like we share our card and pin number to our friends who may miss use it. This is the main disadvantage of existing system. Traditional ATM systems authenticate the method has some defects. Using ATM card and password cannot verify the client's identity exactly.

Keywords— Biometric Recognition, Fingerprint module, Face Recognition, ATM system, Card less ATM

I. INTRODUCTION

The existing self-banking system has got very high popularity with 24 hours service. Use of ATM (Automatic Teller Machine) is helpful for money transaction. ATM is activated by placing the card, then entering the pin number of the particular card. But this system is not safe to use because anybody can access the system if they have the card and pin number like we share our card and pin number to our friends who may miss use it. This is the main disadvantage of existing system.

Traditional ATM systems authenticate the method has some defects. Using ATM card and password cannot verify the client's identity exactly. In recent years, the algorithm that the fingerprint recognition continuously updated, which has offered new verification means for us, the original password authentication method combined with the biometric identification technology verify the users identity better and achieve the purpose that use of ATM machines improve the safety .

In the proposed system we are trying to remove disadvantages of existing system. So security over money Transaction is our prime concern. In traditional system client has to carry debit or credit card with him to verify his identity. This identity card may lose, so instead of traditional identification we are using biometric identification. Fingerprint recognition has got continuously updated algorithm in recent years which mean perfect biometric identification. The aim of the project is to design a model to give high security while transactions in the ATM's. Main objective of this project is to develop a system by which the authentication is being provided by making use of unique code and Face Recognition.

II. PROPOSED WORK

A. Comparison between traditional ATM system and proposed system

In traditional ATM systems customer has to carry ATM card with him all the time for transactions. In our proposed system there absolutely no need to carry ATM card.

There is possibility of fraud/hacking in the traditional system if the secret pin code is known to other person than user. In our system the possibility of fraud is highly reduced.

Our system is 3 times more secure than traditional ATM system.

In case the user has multiple accounts in different banks then in traditional system the user needs to carry different ATM cards for various banks, but in proposed system there is no such need, as the user does not to carry the ATM card at all.

By single authentication user can access multiple accounts, which is advantageous compared to traditional system.

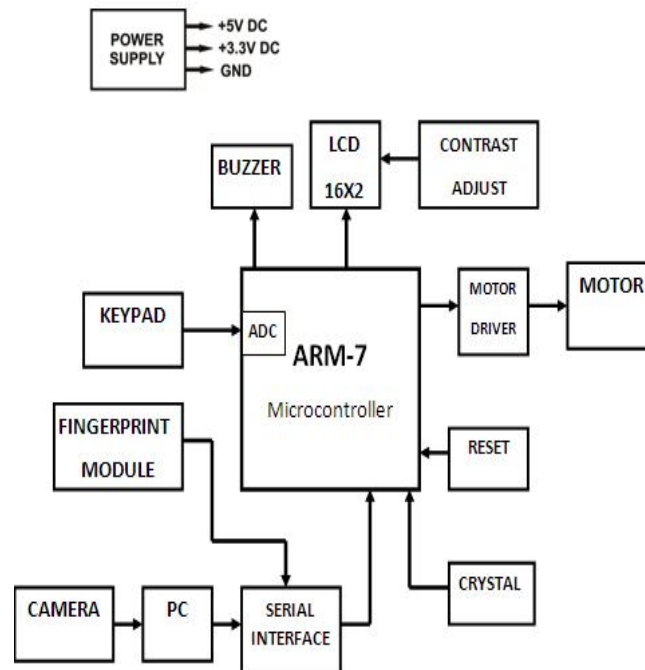# International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Fig 1. Block diagram of biometric recognition technique for atm system.

III. FACE DETECTION

Facial recognition (or face recognition) is a type of biometric software application that can identify a specific individual in a digital image by analyzing and comparing patterns. facial recognition systems are commonly used for security purposes but are increasingly being used in a variety of other applications. The Kinect motion gaming system, for example, uses facial recognition to differentiate among players. Most current facial recognition systems work with numeric codes called face prints. Such systems identify 80 nodal points on a human face. In this context, nodal points are end points used to measure variables of a person's face, such as the length or width of the nose, the depth of the eye sockets and the shape of the cheekbones. These systems work by capturing data for nodal points on a digital image of an individual's face and storing the resulting data as a face print. The face print can then be used as a basis for comparison with data captured from faces in an image or video.

Facial recognition systems based on face prints can quickly and accurately identify target individuals when the conditions are favorable. However, if the subject's face is partially obscured or in profile rather than facing forward, or if the light is insufficient, the software is less reliable. Nevertheless, the technology is evolving quickly and there are several emerging approaches, such as 3D modeling, that may overcome current problems with the systems. According to the National Institute of Standards and Technology (NIST), the incidence of false positives in facial recognition systems has been halved every two years since 1993 and, as of the end of 2011, was just .003%Currently, a lot of facial recognition development is focused on smartphone applications. Smartphone facial recognition capacities include image tagging and other social networking integration purposes as well as personalized marketing. A research team at Carnegie Mellon has developed a proof-of-concept iPhone app that can take a picture of an individual and -- within seconds -- return the individual's name, date of birth and social security number.

Facebook uses facial recognition software to help automate user tagging in photographs. Here's how facial recognition works in Facebook: Each time an individual is tagged in a photograph, the software application stores information about that person's facial characteristics. When enough data has been collected about a person to identify them, the system uses that information to identify the same face in different photographs, and will subsequently suggest tagging those pictures with that person's name. Facial recognition software also enhances marketing personalization. For example, billboards have been developed with integrated software that identifies the gender, ethnicity and approximate age of passersby to deliver targeted advertising.

The human face plays an important role in our social interaction, conveying people's identity. Using the human face as a key to security, biometric face recognition technology has received significant attention in the past several years due to its potential for a wide variety of applications in both law enforcement and non-law enforcement. As compared with other biometrics systems using fingerprint/palm print and iris, face recognition has distinct advantages because of its non-contact process. Face images

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can be captured from a distance without touching the person being identified, and the identification does not require interacting with the person. In addition, face recognition serves the crime deterrent purpose because face images that have been recorded and archived can later help identify a person.

A. Features

Fast & accurate face recognition:
PCA based multiple-matching face detection

Combination of eye-zone extraction and facial recognition
Recognition based on neural network technology
Short processing time, high recognition rate
Recognition regardless of vantage point and facial changes (glasses, beard, and expression)Reliable matching
Extraction of similar facial areas
Identification and authentication based on individual facial features

IV. FINGER PRINT DETECTION

This is a figure print sensor module with TTL UART interface for direct connections to microcontroller UART or to PC through MAX232 / USB-Serial adapter. The user can store the finger print data in the module and can configure it in 1:1 or 1: N mode for identifying the person. The FP module can directly interface with 3v3 or 5v Microcontroller. A level converter (like MAX232) is required for interfacing with PC serial port. Optical biometric fingerprint reader with great features and can be embedded into a variety of end products, such as: access control, attendance, safety deposit box, car door locks.

A. Features

Integrated image collecting and algorithm chip together, ALL-in-One

Fingerprint reader can conduct secondary development, can be embedded into a variety of end products

Low power consumption, low cost, small size, excellent performance

Professional optical technology, precise module manufacturing techniques

Good image processing capabilities, can successfully capture image up to resolution 500 dpi.

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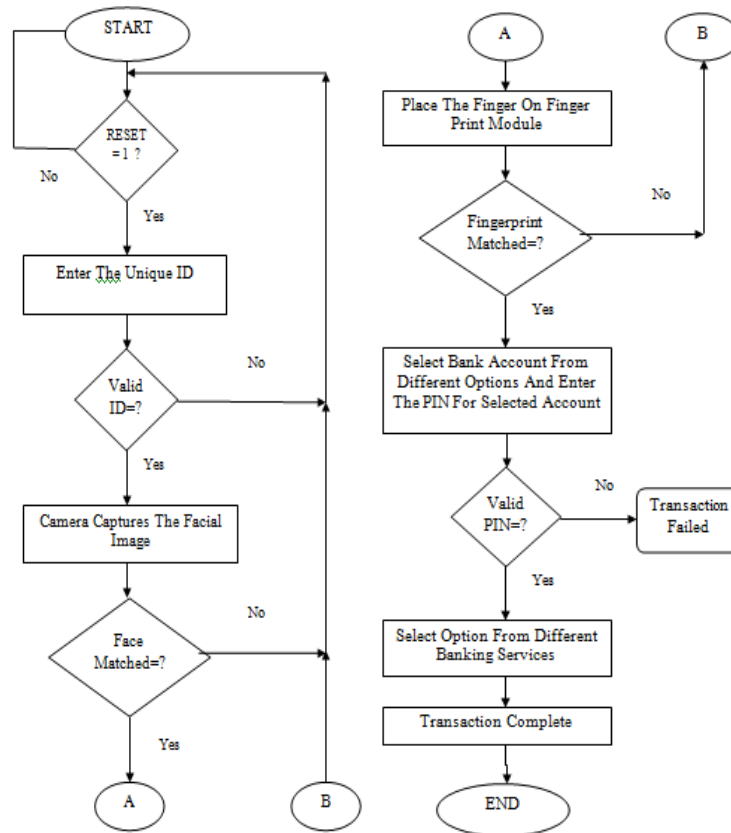
fig 2. finger print module

V. FLOWCHART

fig 3. flowchart

VI. CONCLUSION

The biometric recognition technique makes the ATM system more secure. The biometric recognition algorithm has been developed for facial scan as well as for finger print scan with the help of unique identification code. This system will replace the current ATM card system and will definitely make the ATM system more flexible, secured and reliable. As facial recognition technique is non intrusive and it also cost effective it helps to reduce overall cost of the project. The finger print scan provides very high accuracy to the system. It is one of the developed biometrics. It is easy to use so it will simplify the system at greatest extent. Biometric algorithm standardizes the system.

VII.   ACKNOWLEDGEMENT

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