

Fingerprint Based ATM Transaction System

PHY1901-IIP PROJECT REVIEW 1

GROUP-5

DECLARATION

We hereby declare that the project report entitled “FINGERPRINT BASED ATM SYSTEM” submitted by our group members (mentioned below), for “Introduction to Innovative Project (PHY1901)” is a record of bonafide work carried out by us under the supervision of “Dr. ARUNAI NAMBIRAJ N”. We further declare that the work reported in this report has not been submitted and will not be submitted, either in part or in full, for the award of marks in any other schools or for any other subjects at VIT.

PROJECT REVIEW

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INTRODUCTION

Our aim is to evolve a far better guarding system by the usage of fingerprint based ATMs. The two key functions given by a biometric system are identification and therefore the other is verification.

Fingerprint processing is widely accepted these days and may be a fully developed biometric technology is effortless to develop for an advanced stage of security and safety at the fingertips.

Thus, the recognition of fingerprint is taken into account between the minimum disruption and annoyance of all biometric verification procedures. Though fingerprint images are captured at first, the pictures aren't stored anywhere in the system. Not regenerate it. Hence, mishandling of the system is not possible.



Within past few years, the algorithms that are used have fingerprint identification are regularly updated and generating the four-digit code by the authority has given the new verification method for people, the first password processing is connected with the biometric system to verify the customer's identity and succeed the use of ATM. A person's credit card is misplaced and therefore the password is theft, the culprit extracts and takes advantage of less time which can lead to lots of monetary losses to people. Many criminals' interfere with the ATM depot and steal the person's master card and word of identification by unlawful ways. Employing a master card and word of identification alone cannot really verify the customer's identity correctly. The way of keeping up is the authentic distinction to the client as it gets the main target in the present financial situation. Usage of ATM might give people with appropriate banknote dealing is extremely common. Already established ATM mechanisms work usually by the aid of mastercard and password, the tactic has some mistakes. Nowadays, the automatic self-banking has widely spread with the trademark benefaction 24 hours' service for patrons. However, the monetary crime has risen frequently in these years.



Current Authentication Systems

- ❖ Online Authentication
 - 1.Username
 - 2.Password
 3. One time password (OTP)
- ❖ Bank Authentication
 - 1.Token based identification systems,i.e Id cards.
 - 2.Signature



Issues in current ATM networks

- ❖ ATM card frauds.
- ❖ Use of ATM card duplicators.
- ❖ Card sharing by family and friends.
- ❖ Inability to trace the fraud users.
- ❖ ATM pins can be recorded on secret cameras and can be found using heat sensors.



Why use biometric ATM?

- ❖ Provides strong authentication.
- ❖ Can be used instead of PIN.
- ❖ Hidden costs of ATM card management like card personalization, delivery, management, re-issuance, PIN generation, help-desk and re-issuance can be avoided.



Why use biometric ATM?

- ❖ Ideal for rural masses.
- ❖ Flexible account access- allows clients to access their accounts at their convenience.
- ❖ Low operational costs of ATMs will ultimately reduce the total cost of ownership(TCO).



Here's what people have to say



110 *Responses*

We conducted a survey and received 110 responses on our idea of Fingerprint based authentication system.
Whoa! That's a big number, aren't you proud?

WHAT IS YOUR OPINION BASED ON FINGERPRINT ATM SYSTEM?

- **POSITIVE REVIEWS**

I choose good

It's good

It's excellent!

Its good if we have biometrics

No, this is good idea

It will make it more safer

I have chosen Excellent.

It's an efficient system indeed

They're reasonable

I believe the biometric checking system would be a game changer in safe transfer of money. It will keep the hackers and frauds at bay.

I think fingerprint ATM system is good

It would be great and very safe to verify the atm authentication using fingerprint.

- **The CRITICAL REVIEWS**

I am not sure how will that work. Will it only accept the fingerprint of the owner of the card and if so then it will be very difficult for any other family member to use it in time of need.

If it's added as an additional security to the atm pin then it's okay but if it's the only security then I guess it poses a high threat, as fingerprints can be easily forged these days.

Finger is more than enough for authentication! No PIN is needed.

Biometric databases should be shared with banks causes frequent system crashes and lag in distribution, could be tampered easily via resolution photographs, can't be accessible for family members in case of emergency, It's not an innovative idea it's just used and thrown because of its downsides

Fingerprint is distinct feature used to recognize people in govt records and can be misused

it's pretty legit and it's hard to hack a fingerprint system

eye detection may be good since no one could steal our eye but scanning eye is possible if they did we might know someone has scanned our eyes.

Most of us most of us hand are exposed everywhere,like we ride bike we use use our hand for opening the door our fingerprints are easily available for the frauds so it is much easier for others to scan it out and use for this frauds.in my point of u this is sometime more serious

The particular person can only accessing.Suppose if he is in hospital then his son/daughter/wife has to take money .In that type of situation what can we do ??

We give our cards to our family to withdraw money fingers print cannot be accessed every time

Since fingerprint act as a physical key to access our money and do transaction

Sometimes fingerprints don't work, and by this only the person whose card/account it is only that person can take out the money. And

what about (disabled people) who don't have hands . The fingerprint feature in that case should be an option whether a person wants to activate or not.

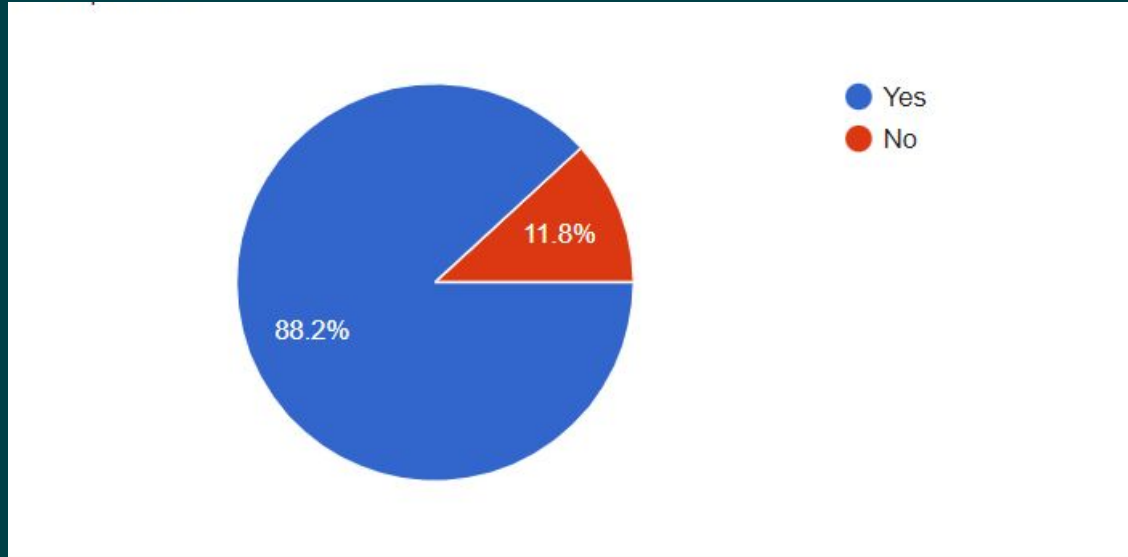
Finger print is good .but consider a case of the person is admitted in hospital and he need to withdraw money he can't walk.what he would do to take money .so if the OTP based system means he can give his mobile to his attendee to withdraw.his money .so OTP is better than fingerprint in critical.stages...

Link to survey responses

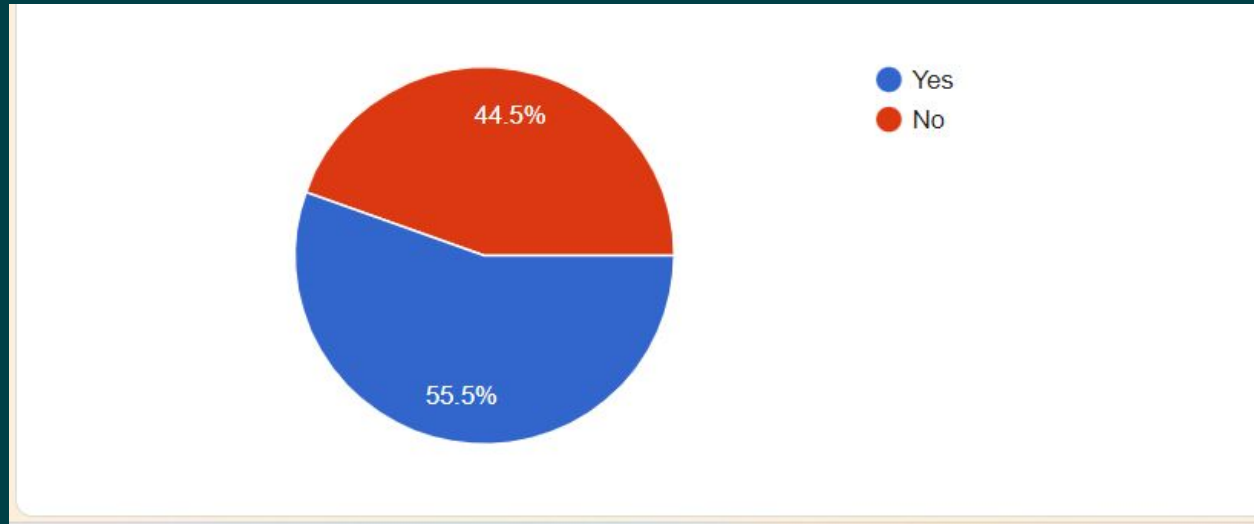
https://docs.google.com/forms/d/13lMr5C-NAxoplaEM7kvfb2fweyf0Iay2SY9VU_FE400/edit#responses



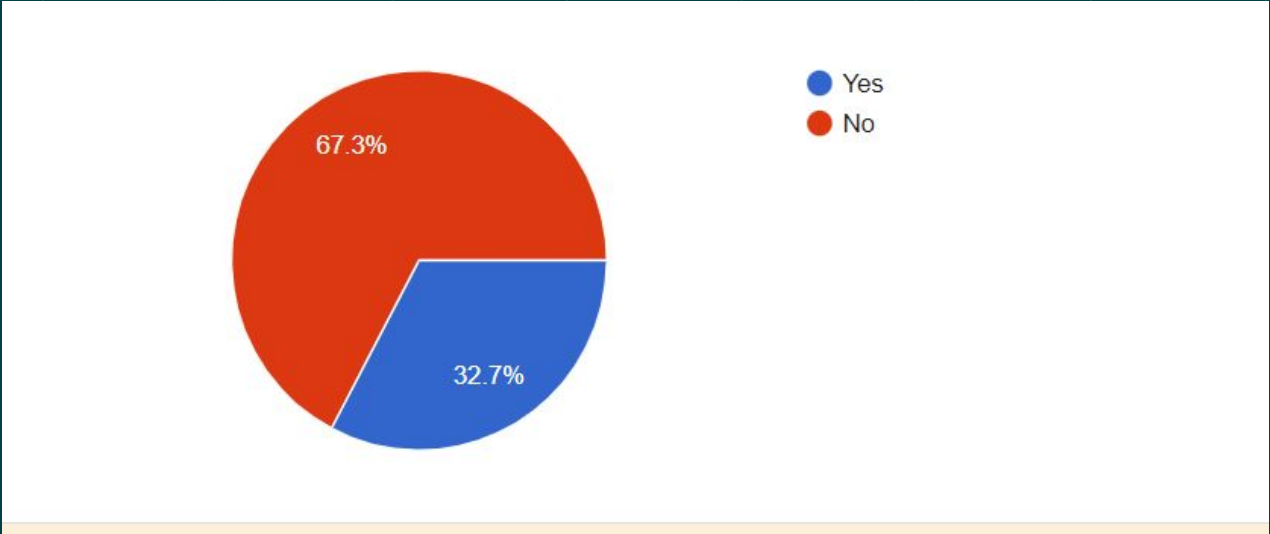
1.WILL YOU PREFER NEXT AUTHENTICATION LEVEL AFTER PIN ENTRY IN ATM?



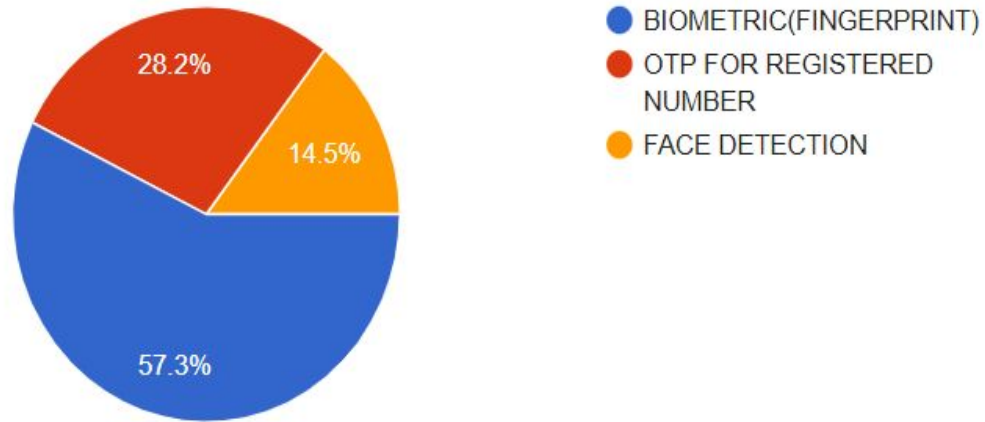
2. ARE YOU GUYS CAME ACROSS OR HEARD ABOUT CARD SKIMMING?



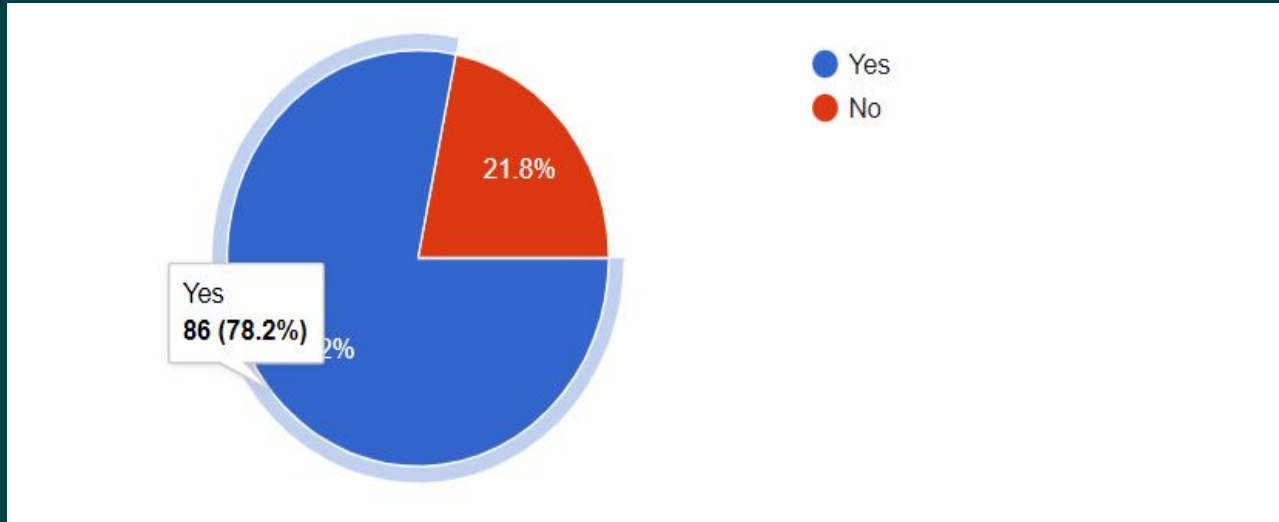
3.WHETHER YOU THINKS ONLINE MONEY TRANSFER USING APP WITHOUT ANY PHYSICAL SECURITY(BIOMETRIC) IS SAFE?



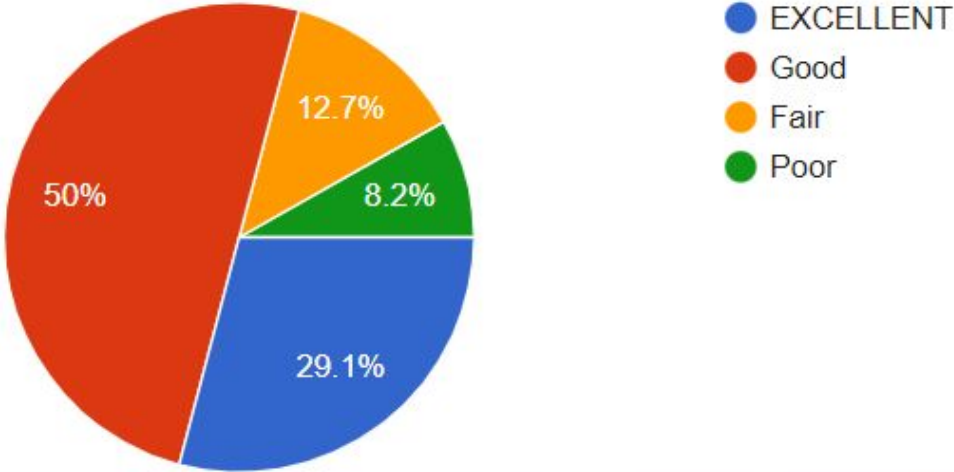
4 . AS A WISE ATM USER WHAT ARE THE ADDITIONAL FEATURES SHOULD BE INCLUDED FOR THE SAFETY?



5. ARE YOU SCARED OF ATM FRAUDULENTS AND HACKING OF ONLINE TRANSFER?



6. WHAT IS YOUR OPINION BASED ON FINGERPRINT ATM SYSTEM?



Advantages of Fingerprint based ATM Transaction system:

- Helps in case of emergency situations for account holder as it gives authentication for recommended users to use.
- User as well as recommended users can make transaction using their fingerprint at any place , any time, they need not have to carry ATM card.
- User can transfer money to various accounts by mentioning account number in case of emergency.
- The system can be used in various Banks.
- Fingerprint based ATM System is more secure than ATM card.



- Moreover Biometrics has no risks of forgetting it, getting it stolen, getting it Copied and being used by anyone else(apart from recommended users).
- High accuracy and security (identification & verification).
- It is one of the most developed biometrics.
- It is highly standardised.
- Enhance traditional methods (PINs, Passwords).
- User- friendly and easy to use.
- It is the most economical biometric PC user authentication technique.
- Performance can be increased in case of speed.



Approach

We are using a software named **Figma** to design a prototype of our FingerPrint Based Authentication System



User: Account Holder

Beneficiary people: The people added by the user as his/her recommended user to access the account.

ENROLMENT:

- ❖ If the user is a existing user, he has to enroll the fingerprint with Aadhaar as database.



- ❖ If the user is new, then the fingerprint will be added on the day of opening the account. Each user is advisable to enroll 2-4 beneficiary fingerprint which can be fingerprint of any people known to him.
- ❖ While enrolling the beneficiary fingerprint, the user must also include their fingerprint to grant permission of the beneficiary member which prevent the fake registration. The beneficiary person has to be a member of the same bank, where the user opens the account.



- ❖ Each user and his beneficiary have to enroll 2 fingerprints. One for the withdrawal. Another one for safety purpose which will be useful in the case of robbery in the atm
- ❖ Each user and the beneficiary must enroll their unique PIN as it will be identified which person withdraws the amount or changes the information.



AT ATM:

- ❖ Once the ATM card is inserted, the fingerprint mode will be enabled. Then it will ask for the fingerprint. Then it will compare with the database fingerprint and asks whether you are the respective person or not. If yes, it will ask for the PIN number.
- ❖ In the fingerprint it will verify, if the person's fingerprint has blood flow or not with the help of the sensor present in it to avoid misuse of the fingerprint. As the scenario can be, like the person can be met with an accident and his finger can be cut off and third party can access the account with his finger.



- ❖ It also checks the thickness of the fingerprint to avoid the theft of the fingerprint with the help of the silicon gel.



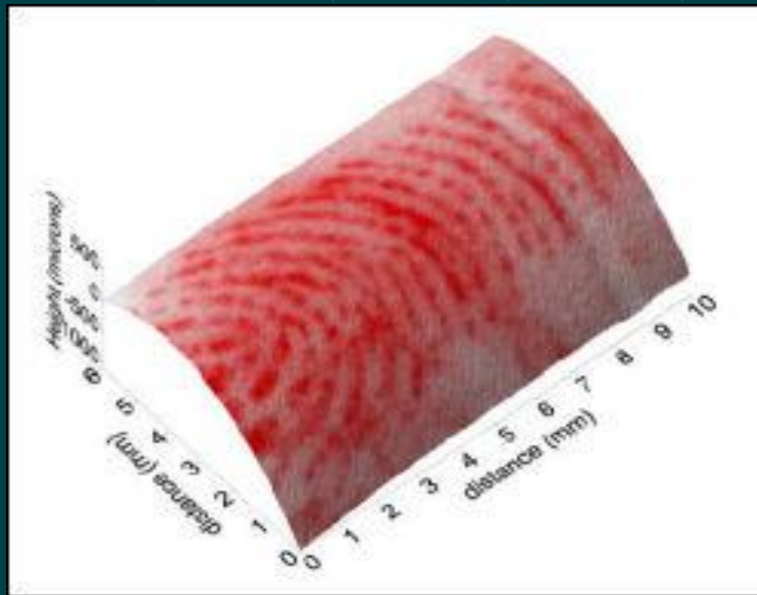
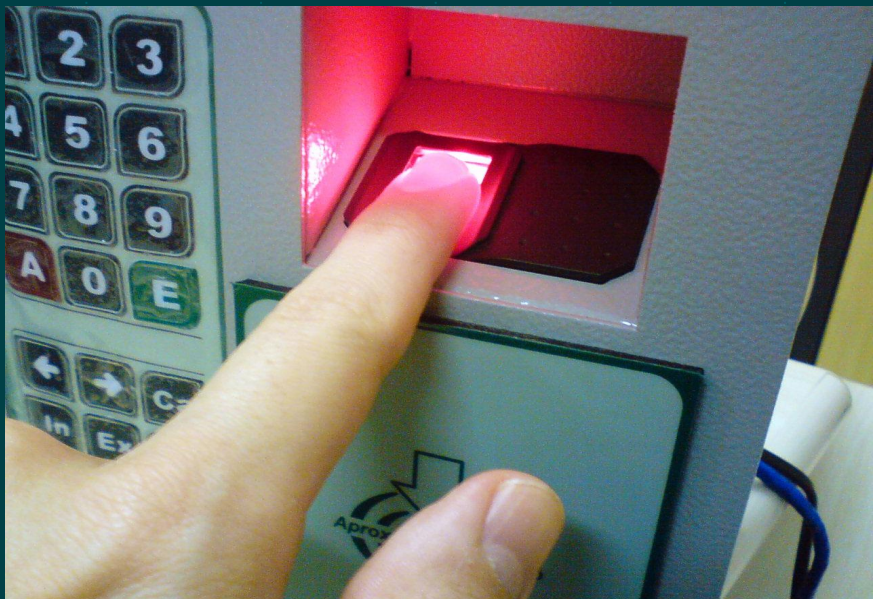
- ❖ If the number of invalid attempts of the fingerprint or the PIN reaches more than three. A warning message will be sent to the user's mobile number, telling that the account is being accessed by some person and this will alert the user.



- ❖ If the first fingerprint is used, then the withdrawal will be smooth and can get the required cash. After the transaction, the user will be informed with the balance amount and also if any beneficiary withdraw the money, it will be intimated with the beneficiary person's name
- ❖ If the used fingerprint is the second fingerprint, which was mentioned in the ENROLMENT topic. It means, if the user is caught by a thief and he threatens to give money. In that case, he should give his second fingerprint, which gives the desired money and also, send the alert message to the nearby police station in all four directions with the location of the ATM and also 2 mins video record of the ATM for proof and identification.



REMOVAL OF FINGERPRINT



- If the user or the beneficiary has lost their hands after the enrollment due to accident or health issues then the certificates must be provided to the respective bank and they can remove their enrollment. If the user has lost his hands then he can switch to PIN format. If the beneficiary people has lost their hands then they can also switch into PIN method and all these must be under the permission of the user.



AFTER THE REMOVAL OF FINGER PRINT: -

The atm will ask for only PIN access or finger print access . According to that, it will ask for the PIN number. If the person clicks the PIN option, it will check the respective PIN entered by the user with the database of the PIN number list. It will get a confirmation with the user by sending OTP to the respective person whose OTP belongs to as it prevents the fraudulent. It will accept the PIN only once from fingerprint enrolled user the even the PIN is right and the reason is that fingerprint enrolled users can only use through the fingerprint.

Why is it not implemented yet ?



-> As per the government order, first of all the plan of syncing the mobile number with the debit card is not yet fully completed in all the states. Even though, the new age accounts are opened with mobile number as inbuilt but the olden accounts of more than 10,00,00,000+ were opened without the mobile number since the mobile are not used by all at that times.

-> Since the mobile was spreaded among all the citizens and also the cyber crime was spreaded, the government decided to merge phone number with the account and it is not completed yet because the people of the rural areas are still not aware of that. Once all the accounts are linked with their respective mobile number talks will be started on next step of development that is fingerprint authorization.

How will it be implemented ?



-> Once the mobile numbers are linked with the account, the aadhaar card details and the fingerprints in the aadhaar card will be merged with the account. The person has to tell which fingerprint should be used for the authorization and which is for the police call in case of emergency. The person who don't want fingerprint method after the registration of the aadhaar card can remove their fingerprint with the necessary certificates and can continue with normal PIN and OTP format .

-> Those people who want to re-register their fingerprints who are not satisfied with the aadhaar ones can apply for re-registration and get updated with the new ones. The ATM machines should be accessible for fingerprint scanner in which the sensor checks whether the fingerprint matches the fingerprint in the database of the particular debit card record. In these ways the fingerprint authentication can be brought into implementation.



The future with biometric technology

➤ cloud-based biometric technology is the latest innovation for secure authentication which involves in offer all the advantages of biometric technology while increasing security and addressing identifying theft. Biometric information is not transmitted or stored in a centralized server. They are stored on a cloud which authenticates the credentials and shares only authentication with a device.



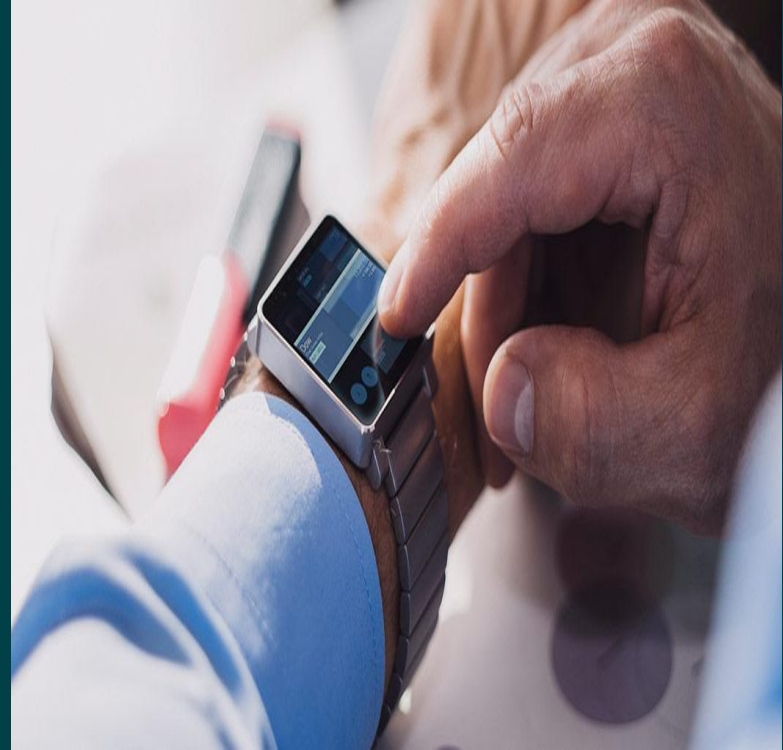
- Rise of e-commerce, online payment leads to lot of threats. So it is being proposed that instead of accessing the user account through credentials, the use of Fingerprints, iris, and facial recognition can go long way in ensuring a secure log in.

Moreover, it will save the store managers from numerous queries Forgets his/her account.



- Wearable devices is currently witnessing a boom and is highly based on biometrics. Almost all wearables measures the biological characteristics of the individuals like sweat, brain activity and heart rate.

Such data could be easily detected to identify valuable information regarding the health of the person wearing that device.



Conclusion

ATM machine increase the reliability of the bank organization by providing the easy access to the cash transaction. We can withdraw the cash anywhere and anytime without waiting in queue. Hence, ATM card is used wildly but we have to face the fraud related to the ATM transaction . To make ATM transaction more secure we are using biometric scanning machine to identify the account holder. Finger is unique identity of each person so the use of Biometric Fingerprint scanner we can avoid ATM related fraud. The Security feature enhanced stability and reliability of owner recognition .The whole system designed by using technology of embedded system which makes the system more secure, reliable and easy to use.



LINK FOR PROTOTYPE PRESENTATION: -

<https://www.figma.com/file/Xj2W0OtdWZVyOqZ37sHhMf/IP-team-library?node-id=0%3A1>





THANK YOU!