Augmented Reality Based ATM

[1,1]Furkan Patanwala, [1, 2]Girish Mahind, [1, 3]Akshay Dhokad,
Vidyalankar Institute of Technology, Wadala, Mumbai
Under the Guidance of Kanchan Dhuri

ABSTRACT:The current Automated teller machine (ATM) is the standard cash dispensing machine with a traditional card swipe and pin system. However, there is a lot of contacts involved between your hands and machine and considering the current situation preventing the spreading of COVID- 19 is very critical to flatten the curve. Research has found that the COVID-19 virus can transmit through public objects used frequently for example ATM keypads. Also, the existing ATM cabins have cameras installed for security purposes but in advancement in hacking these cameras may be misused also the ATM pins can be leaked by screening the fingerprints.

The proposed system overcomes the contact of hands involved in the process and the model has software, which is based on Augmented Reality where everything can be done via a smartphone camera, and no other special hardware or software is required. Also, the system is highly capable to maintain the confidentiality of the ATM pin as no intruder/ hacker has an eye on the pin. Thus, no physical contact is needed to type the pin or select any other options in the system. Also, these touchless Augmented reality-based ATM systems are easy to use as it eliminates the risk of cards being skimmed. And consideringthe current COVID-19 situation it is a great step to reduce the spread of the virus.

KEYWORDS:augmented reality, mobile application, mobile banking, user experience.

I.   INTRODUCTION

The Covid-19 epidemic has created the need for technology that allows us to avoid touching devices. Studies have found that the COVID-19 virus can be transmitted through commonly used public substances. Before the epidemic, the world had a difficult time understanding the importance of intangible technology, and yet, this situation was not considered.

II.   LITERATURE SURVEY
A.   Mobile Application:

Discovery-based technologies approved for research need to date have not been popular without research labs. The global epidemic, however, has changed that view; today, the average person can enjoy the need for seamless communication. This technology is extremely important not only for health care professionals who communicate with medical equipment, but also for the rental of ATMs, sales equipment, and learning devices. There are many problems within the look, development, and acceptance of such technologies that need to be addressed soon. Non-contact communication is possible with augmented reality technology, which uses sensory control sensors and communications to create a bridge between the physical and the real world. Intangible communication technologies have also been tested in the following areas of research:

- Non-touch technology in the provision using touch-based technology.
- The use of weak sensors in touch-based interactions with medical imaging.
- Non-surgical interactions using Kinect and Leap Motion devices.
- Examined academically as a non-movement-based learning game using Kinect.
- Highly educated, these technologies have been developed to allow for physical contact, but it is also possible to avoid physical contact with digital devices.

Therefore, we would like technology that can help us use the keypad without having to physically touch it. At the same time, we can choose to consider the cost of the latest program or upgrade. Using the unpopularity of taxpayers, we see; we can insert a visual keypad into a digital image in real-time. no additional hardware or camera is required. All we are talking about is a mobile app powered by the unpopularity of taxpayers that we see in reality.

A mobile application could be software that's created or developed for digital devices such

as smartphones and other handheld devices. Mobile applications help meet user needs and have interactive features with users. the most differences between desktop software and mobile application are that a mobile application can integrate the hardware, functionality, and interfaces to a broader spectrum.

As mobile applications gradually become a vital part of our life, the number of available apps within the app stores and their level of complexity is increasing. The users of mobile applications are laid low with the appliance performance, stability, resource consumption, and usage experience failure to realize the customers' expectations of a mobile application could lead to brand tarnish or application abandonment.

B.   Mobile Banking:

Mobile Banking is one of the significantly effective innovations of technology within the banking sector. Not only does it improve the financial literacy of banking customers, but it also improves bank – customers relationshipsin the future. The bank or other financial organizationto assist customers to conduct financial transactions remotely from their smartphone provides Mobile Banking services.

Previously, mobile banking is generally focused on transaction and money handling activities. However, now it moved from transaction handling to giving better experiences for their customer. A mobile banking application made it possible for his or her customer to do transactions, account monitoring, and also to search out ATMs locations from their smartphone. Although, mobile banking application incorporates a challenge it must be overcome to form a snug user experience for his or her customer when using the application. After all, the application is employed through a smartphone that may have a small screen,an uncooperative keypad, etc.

C.   User Experience (UX) of Mobile Application:

A good User Experience (UX) could be a necessity for a mobile application. It helps the mobile application to remain competitive with other similar mobile applications. User Experience of an application or product, covers the full application,

product, and services accepted by the shoppers. A user experience aspect could include many aspects like usefulness, easy use, touch performance on the mobile screen, the layout of the application, and other aspects.

User interface (UI) and User Experience, are the primary thing that interacts with an application user Not just for an application but also for all devices, work progress, and product. For devices, application, product, or services that have internet or internet-based review, a nasty or good review from users regarding their experiences could affect their grades. to forestall and overcome the matter caused by these reviews, the developer must fix the problems, innovate the merchandise, and implement changes to the application or products.

D.   Augmented Reality (AR):

Augmented reality is far quite just an enhanced viewing device. Augmented reality supports our day–to–day activities by increasing our perceptions and communications; it helps by providing intuitive and visual assistance in completing tasks. Augmented reality integrates a computer graphic into the 000 worlds, the standard of an augmented reality effect the UX of the users. Augmented reality differs from Virtual Reality (VR), an augmented reality computer graphic is shown as a true image within a true space also allows the users some mobility or to be mobile. Augmented reality is one of the 2 visualization methods that are booming during this digital era, and also the other visualization method is computer games. The Augmented reality method has provided a simpler thanks to delivering information about destinations with the appearance of Mobile Augmented Reality. Nowadays, augmented reality technology exists in some domains of our life
:
1. Healthcare
2. Entertainment
3. Education
4. Retail and Marketing
5. Automotive
6. Military and Art.

At now, Augmented reality is principally used for Video games, 360 videos, Live events, design, architecture engineering, construction also commercial realty.

III.   PROBLEM STATEMENT

In the current ATM system, there is a lot of contacts involved between your hands and machine, and considering the current situation preventing the spreading of COVID-19 i
incredibly crucial to flatten the curve. Research ha found that the COVID-19 virus can transmit

through public objects used frequently for example ATM keypads. Also, the existing ATM cabins have cameras installed for security purposes but in advancement in hacking these cameras may be misused also the
ATM pins can be leaked by screening the fingerprints. So, we need technology that can help

us operate the ATM without physically touching it. At an equivalent time, we'd like to think about the confidentiality of information in addition to the price of a recent system or improvement.

IV.   PROPOSED SYSTEM

The proposed system overcomes the contact of hands involved in the process. The model has software, which is based on Augmented Reality where everything can be done via a smartphone camera, and no other special hardware or software is required. In addition, the system is highly capable to maintain the confidentiality of the ATM. Thus, no physical contact is needed to type the pin or select any other system options.

System Flow and Architecture:
Here we first logintothe AR-based ATM app and open the AR Cam. Then scan the AR image and enter the pin to enter the system. After you Enter the amount you want, it will trigger the money dispensing machine and the cash is dispensed. In the end, you have the choice to log out.

Algorithm -
1. Start.
2. LoginintoourappusingOTPsenttotheregistered mobilenumberandopenCam.
3. NowscantheimagefromARCamandmatchitwith ARCaminput3Dimageinthedatabase.
4. Ifa matchisnotfound, thengotostep3.
5. Ifa matchisfound,thendisplaytheHomepage ARuserinterfaceandwaitforuserinput.
6. Nowmatchtheinputpinfromthe userwiththe database.
7. Ifa matchisnotfound, thengotostep5.
8. Ifa matchisfound,thendisplaythe amountpageandwaitforuserinput.
9. Sendinstructionstodispensethe amountofmoneyselectedbythe usertothe moneydispensingmachine.
10. Askthe userifhe/shewishestomakemoretransactionsorlog out.
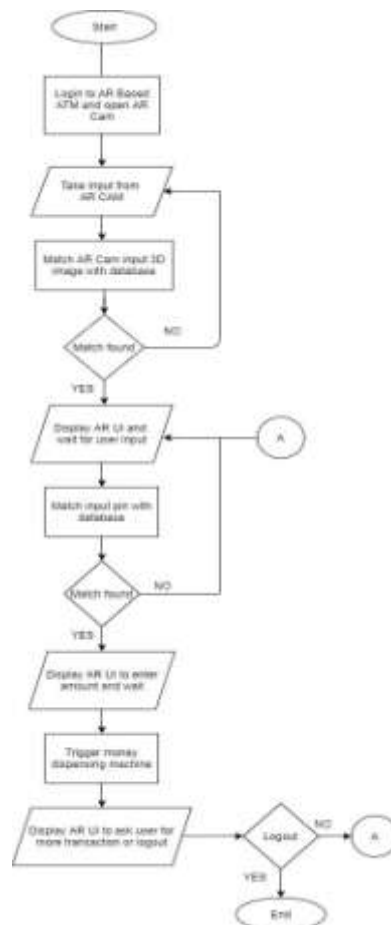11. Iflogoutisselectedthen end,elsegotostep5.

Fig 1. Proposed System for Augmented Reality Based ATM

V. AIM AND OBJECTIVE

The projected program aims to eliminatethe risk of the unfolding of the COVID-19 virus and toimprove the communication system. The model hasReality-based software package quality that we tend to seewhere everything is through with a smartphonecamera and no different special hardware or software package isrequired. Augmented Reality could be a sort of video gamethat aims to duplicate the physical atmosphere on acomputer. it's thought of as a media that provides newattractions and experiences for users.

Based on previous research, it has been suggested that the use of Augmented Reality in Banking brings a tangible feeling to users in the process. The mobile app can be considered as one of the ways to promote AR, due to the interaction and experience that the user can send money from an ATM without touching the keypad. The goal of Augmented Reality is to create a system where the user will not be able to see the difference between the real world and its actual addition. Also, the system is very capable of keeping the ATM pin secret as there is no intruder/eye attacker. Therefore, no physical contact is required to type a pin or select any other options in the system.

Some more goals and objectives:
- Promoting AR technology in the best possible way.
- The COVID crisis has taught everyone to respect all available cents and to spend money on essentials with caution. The proposed system will prevent ATM pins from being smoked which will lead to secure financial transactions.
- Prevent frequent contact with the ATM keypad and thus break the chain of transmission. This way one will be safe from the plague.
- Our project will not only protect human life but also money.

VI. FUTURE SCOPE

In the future, there can be a proper note counting and exact amount dispensing mechanism module that can be added to increase efficiency.

In the authentication part, the security can be improvised further by adding a face id or iris scanner module instead of the pin to increase the security of the system and make it more futuristic.

In the mobile application, more modules can be added like an e-receipt generator and UI changes in the future. This concept of the contactless system can be adopted in any type of vending machine to make it a contactless vending machine.

REFERENCES

[1]. David Andersson, "A survey on contactless payment methods for smartphones" Faculty of Computing Blekinge Institute of Technology SE–371 79 Karlskrona, Sweden.

[2]. "Towards Understanding ATM Security – A Field Study of Real-World ATM Use" Alexander De Luca1, Marc Langheinrich2, Heinrich Hussmann1 1Media Informatics Group, University of Munich, Amalienstr. 17, 80333 Munich, Germany {alexander.de.luca, hussmann}@ifi.lmu.de 2Faculty of Informatics, University of Lugano, Via G. Buffi 13, 6904 Lugano, Switzerland langheinrich@acm.org.

[3]. Ramya N, D Sivasakthi, M Nandhini "Cashless transaction: Modes, advantages and disadvantages" Coimbatore, Tamil Nadu,India.

[4]. https://www.agsindia.com/pdf/newsletter/AGSTTL_Newslet ter_digital_29Aug20.pd