

**ADMINISTERING BANKING SERVICES WITH SMART CARDS****Challagundla Sagar<sup>1</sup>, Velagapudi Harshavardhan<sup>2</sup>, Sooram Anil<sup>3</sup>**<sup>1</sup>M.Tech Student, Dept of ECE, Farah Institute of Technology, Chevella, T.S, India<sup>2</sup>Assistant Professor, Dept of ECE, Farah Institute of Technology, Chevella, T.S, India<sup>3</sup>Associate Professor & HOD, Dept of ECE, Farah Institute of Technology, Chevella, T.S, India**ABSTRACT:**

The bank's commensurate huge clientele isn't inside the urban level however, inside the frequently pretermitted rural areas. The micro-bank technique is always attached to the central banking server using GSM communication. During this paper an assured handheld doorstep banking industry proven to as Micro-bank machine should certainly grant plan to totally free styles in rural areas and remote places for example communities. The micro-bank machine that will get the OTP information will record breaking speed of the feel of this message. Light tasks like acquiring away and off to the ATM and retreating cash cause humans in communities lose their operating hrs. and, consequently, miss a big live in the profit also. The look can also be operated within as well as on the far side within the regular banking hrs. The primary goal within the handheld machine should be to administer banking services like money withdrawals and money deposit while not the individual ever striving having a bank during remote areas wherever a GSM cellular association isn't possible. The BC must enter a touch screen password when using the QVGA Touch screen TFT Live View Display Screen to be able to physically unlock the screen. The BC can unlock the screen whenever he wishes, but like a smart phone, the screen will instantly get locked transporting out a set length of lack of focus.

***Keywords: Doorstep banking; Secured; Handheld; Electronicsystem.***

## 1. INTRODUCTION:

A wide range of urban and rural folks still lack use of fundamental accounts. Outstanding growth was already produced by banks towards financial inclusion. In Bharat nearly 1 / 3 from the country's population endures the far side the poverty line as well as an outsized proportion of poor folks sleeps in rural areas, wherever a GSM cellular affiliation isn't possible. The scope of my work would be that the customers will be achieved positive results because of the folks in rural and far off won't miss their operational hrs. additionally like a portion of their profit won't be lost. The primary concept of the micro-bank system would be that the bank should employ special persons who're licensed because the business correspondents (BC) to hold a micro-bank machine together. Each Business correspondents is going to be allotted to particular handheld guaranteed electronic doorstep banking system machine. This can guarantee a safe and secure, secure, seem economical use of fundamental financial services.

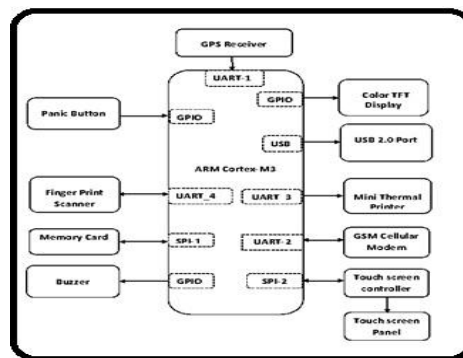


Fig.1. Block diagram of handheld system

## II. EXISTING WORK

The financial institution server will pick the appropriate micro-bank unit and can send a question message to that particular. The micro-bank machine should reply by having an acknowledge message if this sees the financial institution query. The server will dispatch a note concerning the particulars from the customer including his balance. The work and it is security measures combined with the workflow is going to be described inside a step-by-step manner within the following text. The client who needs micro-bank service must call the client care division from the bank and inform whether he really wants to withdraw/deposit money. The content also consists of a 1-Time Password (OTP) towards the micro-bank machine that's allotted for your transaction. Exactly the same OTP can also be delivered to the

mobile towards the customer. The micro-bank product is always attached to the central banking server using GSM communication [1]. The micro-bank machine that has got the OTP information will record time of the appearance of this message. A 3 hour transaction expiry period is placed automatically. What this means is the transaction ought to be completed in this particular time period, otherwise the unit instantly cancels that specific transaction from proceeding further. The device internally runs a genuine-Time-Clock (RTC) with battery backup which comes from the satellite clock obtainable in the received Gps navigation data. The unit includes a built-in high precision Gps navigation unit to obtain precise time in addition to accurate location information. This data will be delivered to the server. Each micro-bank machine is allowed for use only inside a particular region to avoid an unlawful usage from that region and therefore the unit is locked when it comes to its position. The present location from the system is monitored from Gps navigation signals and also the position is continually verified using the region formerly shown by the server. This keeps tabs on the position of the micro-bank machine in case of misuse or perhaps a

thievery condition. A from region condition brings the unit to some halt and also the error data is delivered to the financial institution Server. On meeting the client, the BC will verify the OTP on his device with this from the customer mobile. The client must verify the OTP in the mobile from the micro-bank device. This mutual verification will authenticate both sides, and also the transaction is now able to begin. The identity of BC is first verified utilizing a built-in Fingerprint Scanner. This really is to make sure that the unit is not wound up within the wrong hands. The unit stores the fingerprint from the BC along with the entire subscriber base for the reason that region in the database. The customer is going to be requested to go in his fingerprint. It's also verified. This ensures the authenticity of every party. When the fingerprint verification is completed, BC must enter a 4-PIN secret number around the touchscreen keyboard proven within the TFT display. The client will be permitted to insert his smartcard into its slot. The unit includes a Smartcard Readers functionality that grabs the particulars like the customer ID, customer name and account number information in the smartcard and will also be verified from the server sent message. The

smartcard is really a permanent EEPROM memory that gets the customer particulars stored. Now it's the clients use enter his 4-PIN secret number around the touchscreen keyboard, much like that around the Automated teller machines [2]. When the Flag is joined and verified, the device will unlock the unit for that final part of the transaction. The client will be requested to go in the quantity to become withdrawn around the touchscreen technology and also the BC will dispatch the cash towards the customer. The client must create a confirmation by typing some-PIN secret number again. The unit inspections this and transmits a "money paid" message towards the bank server. When the customer really wants to deposit the cash, he/she must go into the amount as formerly described and also the cash ought to be paid towards the BC. The BC will go into the 4-PIN secret number again. The unit confirms this and transmits a "money collected" message towards the bank server. The unit utilizes a Small-Thermal Printer to instantly print the receipt when the content continues to be sent. The financial institution server immediately transmits a "Transaction Over" message towards the machine showing the conclusion from the entire transaction. If the

steps isn't validated correctly, the micro bank device will be sending the right error message and prevent any more transaction immediately. A Buzzer beep seems signifies message reception or transmission on GSM as well as the error conditions during verification.

### III. METHODOLOGY

The 32-bit ARM Cortex-M3 microcontroller functions because the brain from the system and also the 66-funnel Gps navigation module transmits the place data as NMEA packets, interfaced towards the microcontroller using first UART serial communication [3]. The hardware models within the handheld Micro-bank device includes the microcontroller, Gps navigation, Color TFT Display, USB, Touch Keyboard, Storage device, Panic button, Buzzer, Finger Marks Scanner, Small Thermal Printer and GSM Modem. GSM Modem is interfaced towards the microcontroller while using second UART protocol, Small Thermal Printer is interfaced towards the microcontroller while using third UART protocol and Finger Marks Scanner is interfaced towards the microcontroller while using 4th UART protocol. Four UART's can be used for

serial communication on the computer or perhaps a peripheral device serial port. The storage device is linked to Arm cortex-M3 while using first serial peripheral interface protocol and also the Touchscreen while using second serial peripheral interface protocol. Serial peripheral interface controller is really a synchronous, serial data link that works entirely duplex mode. Buzzer offers an audible alarm which signifies the content processing condition and connected from microcontroller while using GPIO protocol. The 66 funnel Gps navigation receiver is interfaced via NMEA protocol. The little antenna can track as much as 66 satellites at any given time. Panic button is linked to microcontroller while using GPIO protocol as an amount of protection for that Business correspondent. The world population has 24 Gps navigation satellites which a minimum of 4 will always be visible. The Gps navigation receiver calculates the place while using Triangulation method. Gps is utilized to obtain the latitudinal and longitudinal position from the handheld micro-bank device. The micro-bank machine includes a genuine-Time-Clock with battery backup produced from the satellite clock available inside the received Gps navigation

information. Just in case of stealing, the present location from the system is verified using the Gps navigation information received as well as the error out condition brings the unit to some halt as well as the information is passed towards the bank server. The Worldwide System for Mobile Communications (GSM) is really a specialized kind of electronics that accepts a Sims and works on the subscription to some mobile operator, much like a mobile. The hand held micro-bank product is always attached to the central banking server through GSM communication and also the message transmission and reception happens on GSM. Secure digital card is really a type of detachable flash storage device or non-volatile storage device employed for storing information and interfaced via SPI protocol. A USB drive to aid to put the storage device within has been utilized. A 2GB fat 32 storage device is utilized to keep the huge volume of data collected along the way. Fingerprint recognition or authentication is among the techniques of verification for that banking transaction to occur. Fingerprints are among the great shape of biometrics accustomed to identify people and verify their identity. The identity from the Business correspondent, customer is verified through

this scanner for bank transactions. ADS7843, an electronic resistive touchscreen controller can be used within this project. The resistive touchscreen could be touched by a port stylus or finger touch. The storage capacity from the fingerprint scanner is within more than 250, but could be extended to greater than 1000 if needed. A QVGA TFT Liquid crystal display is really a thin film transistor live view screen display which utilizes thin film transistor technology to enhance image characteristics for example addressability and control [4]. The hand held device utilizes a small Thermal printer to instantly print the receipt because the message is caused by the server. Thermal printing is digital printing that creates an itemized image by selection heating covered thermal paper, when the paper passes within the thermal print mind. The coating turns black inside the areas wherever it's heated, manufacturing an image.

#### IV. CONCLUSION

Cumulatively, these leads to savings can similar to around rupees in countless million each year. We contended the functionality within the handheld device which can be completely operated in Offline mode that

functions with no GSM unit. During this paper, we reported a method which provides the appropriate banking services to large area of the country and may save wage inadequate rural people roughly Rest 150 to 200 per bank branch visit. Thus our results show both your hands held products may be operated in remote places where even banks aren't available plus places where GSM isn't achievable. We considered the occasions once the BC has gone out while using the cash. Just as one immediate avenue for further work, once everyone in India can get the Adhere card, we're able to include Aadhaar card as being a criteria for security.

#### REFERENCES

- [1] Mr. John Mashurano<sup>1</sup>, Mr. Wang liqiang<sup>2</sup>, "ATM Systems Authentication Based on Fingerprint Using ARM Cortex-M3" International Journal of Engineering Research & Technology (IJERT) Vol. 2 Issue 3, March - 2013 ISSN: 2278-0181 1 www.ijert.org
- [2] Di Ma; Coll. of Eng. & Compute. Sci, Univ. of Michigan-Dearborn, Dearborn, MI, USA ; Saxena, N. ; Tuo Xiang ; Yan Zhu, "Location-Aware and Safer Cards: Enhancing RFID Security and Privacy

via Location Sensing,” in Dependable and Secure Computing, IEEE Transactions on (Volume:10 , Issue: 2 ).

[3] 66-Channel LS20031 GPS Receiver Module, [http://www.megachip.rupdf/-POLOLU/66\\_CHANNEL.pdf](http://www.megachip.rupdf/-POLOLU/66_CHANNEL.pdf), 2011

[4] <http://www.emsysedukits.-com/sim300-gsm-gprs-modem-p-189.html>



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