

SMART BANKING SYSTEM USING LabVIEW

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Abstract—Time and security are the most precious things to everyone in current scenario. Now day's customer wants to wait in queue for a long time to have their customer services in places like banks, hospitals. The Queue management system is the existing system which makes the customers to lose their patience sometimes like at the time of emergency cases which shows the inefficient customer service. The proposed system helps to save the waiting time for getting token as well as for verification process using LabVIEW. The goal of the project is to reduce the crowd and waiting time for verification process by eliminating challan filling process. As a result token is received through mobile phones along with the date, time and barcode. Here the verification process is done automatically after sending the corresponding customer's details with the help of main database stored in the server. The stored database is accessed by LabVIEW to display the details of the respective customer. In addition to verification process, it also provides an authentication scheme using LabVIEW 13.0 version (32 bit) by comparing the data which is stored in database. The authentication scheme like iris recognition is obtained and verified within few seconds and barcode verification is also done at the time of entering into the counter. After the completion of verification process, the transaction is done. It has many advantages like quick access, more securable, low cost implementation, better customer satisfaction delivery system compared with other systems.

Keywords—LabVIEW database, iris recognition, image authentication scheme, queue management system.

1. INTRODUCTION

India is one of the fastest developing economic countries in the world and also the home for more than one billion people. More than 70% of India's population lives in rural areas. Almost most of them depend on the public services offered by the government for their subsistence. Often the number and capacity of the centers providing these services are limited which results overcrowd. People may have to spend a lot of time at the establishment and the lack of transportation facilities in the rural areas only worsens the condition.

Conventional crowd managing in these public places involve the customers standing in long queues until they get the required service. This method often proves inefficient customer service which makes the customers frustrated and discontented. The technique followed in recent days as follows.

A. Queue Management System

Queuing is one of the great drawbacks in stores, hospitals, banks and government institutions and a structured approach to queuing is being expected by a large number of customers and citizens. A queue management system is used to control queues [3], [2].

B. Objective

Smart banking system using LabVIEW helps to overcome those crises which results the increased efficiency of customer service as well as customer satisfaction.

The system discussed here helps the customer to have the flexible time based on their availability to avoid the queue management system which is a traditional system followed in recent days.

II. BLOCK DIAGRAM & DESCRIPTION

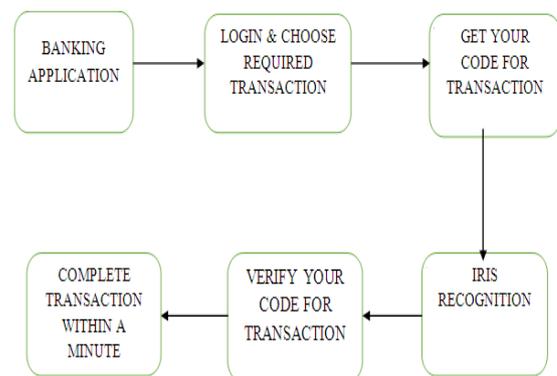


Fig.1. Process of Smart Banking System

The working principle involved is to access the respective service page with the help of login id which verifies our account details and customer wants to select the time from the available time. Those details are stored in server where the database is maintained. The stored database is accessed in the LabVIEW to display the details of the respective customer on that particular time customer can have his/her transaction where there is no need to wait in the queue for customer service. It also has the options

like to create an account and sends the transaction process through the LabVIEW. The authentication scheme also provided in this system to avoid the fake person.

III. IMAGE BASED AUTHENTICATION

A. Barcode Reader

It is a machine representation of readable data which shows unique code of object by varying widths and spacing of parallel lines which is available in many forms like one dimensional, 2-D, QR codes [9]. It is scanned by barcode reader, smart phones and other devices. In this system it helps to get the details of account holder by scanning the mobile phone at the counter.



Fig.2. Barcode Reader

B. Iris Recognition

Iris recognition is one of the lowest error rate authentication systems compared with other biometric technologies [4]. It helps to verify the person when accessing the system. The main four stages of this biometric verification system are image acquisition, image preprocessing, normalization, template matching and authentication [5]. The original images are temporarily stored in the Database at the time of creating the account and it is linked to the system by (SQL TOOLKIT version 2 by NI.).The image analysis is done with help of IMAQ (IMAQ Vision 6.01) and SIGNAL PROCESSING TOOLSET by NI. After the image has been captured it starts to compare with all details of iris like radius, colors, etc. and it uses a circular edge detector to identify and locate the boundary between the white portion of the eye (Sclera) and the iris and proceed further to distinguish the boundary between the iris and the pupil.NI Vision Assistant 2013 module is used to proceed the process [7].

During pre-processing the sample image corresponding to each iris image are created and a template database is generated. Template matching compares the user template with templates from the database using a matching metric. The matching metric will give a measure of similarity between the two iris templates [7]. Finally, a decision with high accuracy level is made to identify whether the user is authentic or imposter.

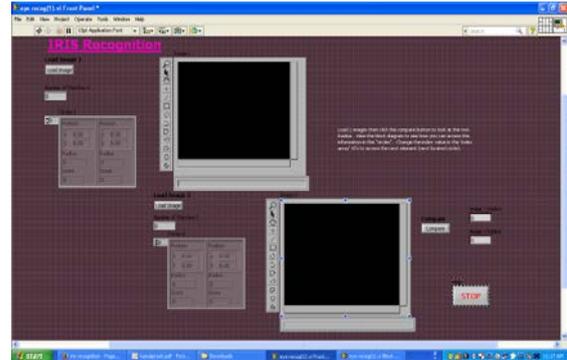


Fig.3. Iris Recognition

IV. LabVIEW TOOLS TO BE USED

A. IMAQ Create

First creates a temporary memory location for the input image. **Image Name** is the name associated with the created image. **New Image** is the **image** reference that is supplied as input to all subsequent (downstream) functions used by NI Vision. Multiple images can be created in a LabVIEW application.

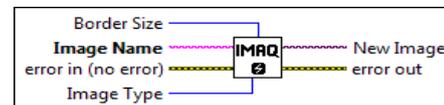


Fig.4. IMAQ Create

B. IMAQ Read File

Reads an image file which converts automatically into the image type and destination image is given to **Image Out**.

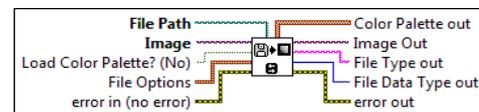


Fig.5. IMAQ Read File

C. IMAQ Get File Info

Obtain the information regarding to the content of the file. **File Path** is the complete pathname helps to examine about the file. **X Resolution** specifies the horizontal resolution of the image **Resolution** specifies the vertical resolution of the image.

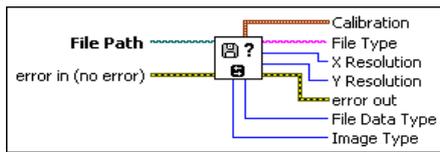


Fig.6. IMAQ Get File Info

D. IMAQ Unwrap

It helps to store, retrieve and compare the image captured by web cam for iris recognition where src refers to source image, Dst is destination image and annulus is cluster of parameters.

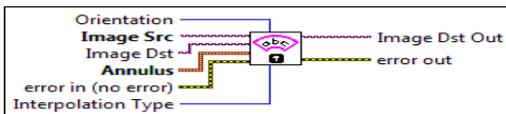


Fig.7. IMAQ Unwrap

V. PROPOSED WORK

Stage 1

Login page is created as shown in fig.8 to access the page. It is initial step to access the account to get the token.

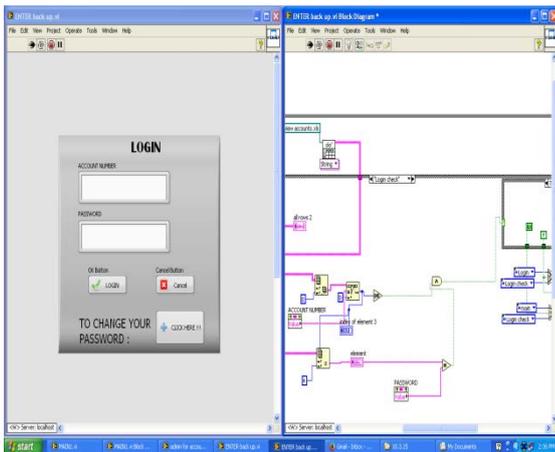


Fig.8 Login page

Stage 2

After login, it searches for account holder details. Here Customers details are stored in Database which helps to retrieve with help of LabVIEW. There is also a facility to change the customer's details.

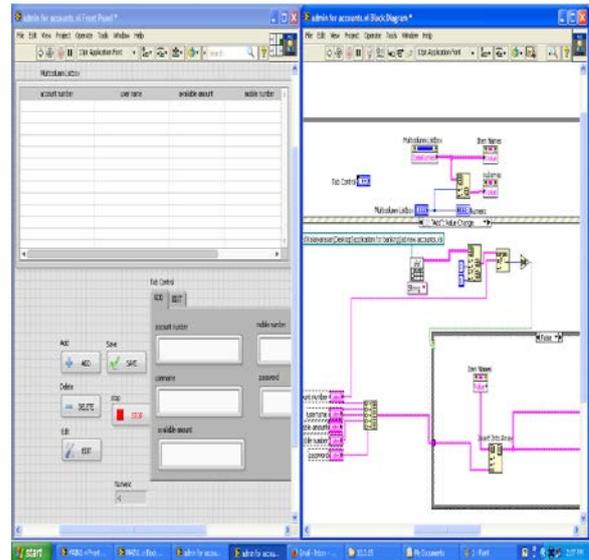


Fig .9 Admin Login page

Stage 3

After the process of accessing the transaction option is displayed as shown in fig.10, which helps the clients to choose the required services.

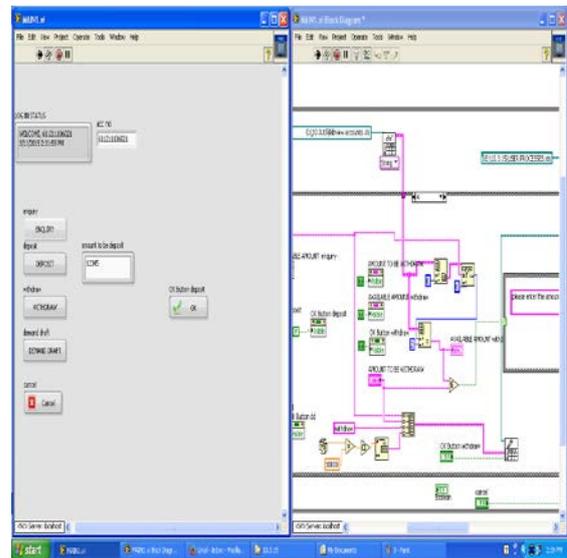


Fig.10 Transaction menu

Stage 4

If the client needs to deposit the amount in his/her account he/she can prefer deposit option, the following page will display as shown in fig.11. This page requires the total amount, which the client wants to deposit.

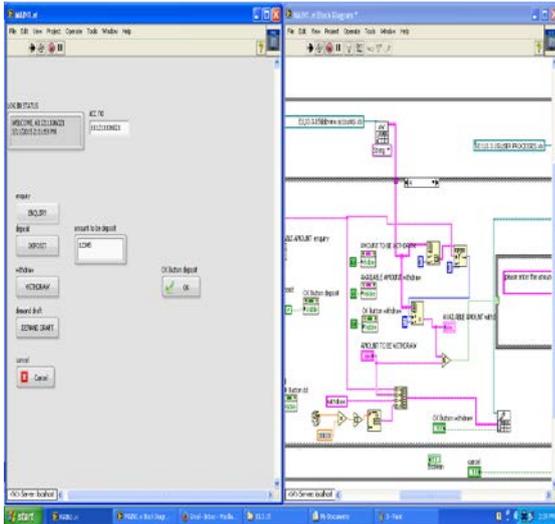


Fig.11 Deposit option page

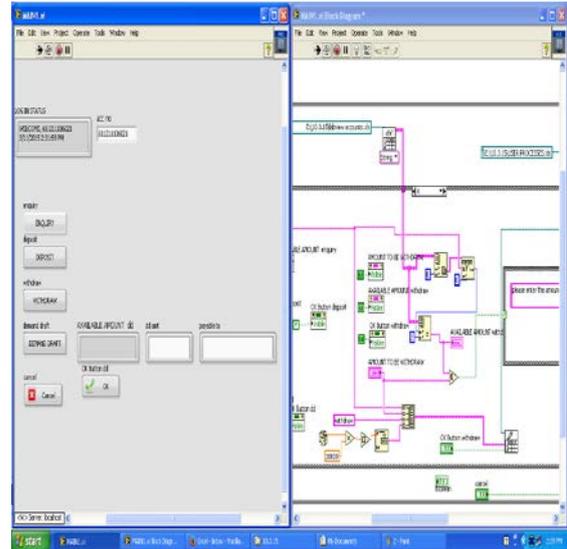


Fig.13 Demand Draft option page

Stage 5

If the client needs to withdraw the amount from his/her account he/she can prefer deposit option, the following page will display as shown in fig.12. This page requires the total amount, which the client wants to deposit.

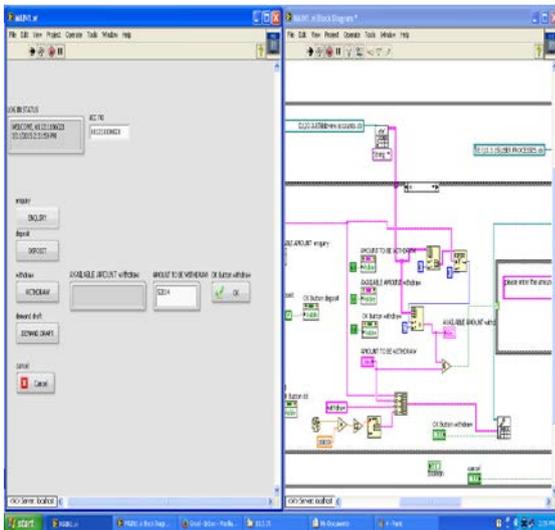


Fig.12 Withdraw option page

Stage 7

After choosing the required service for transaction, the client will get the Barcode. The Barcode reader page is shown in the fig.14.

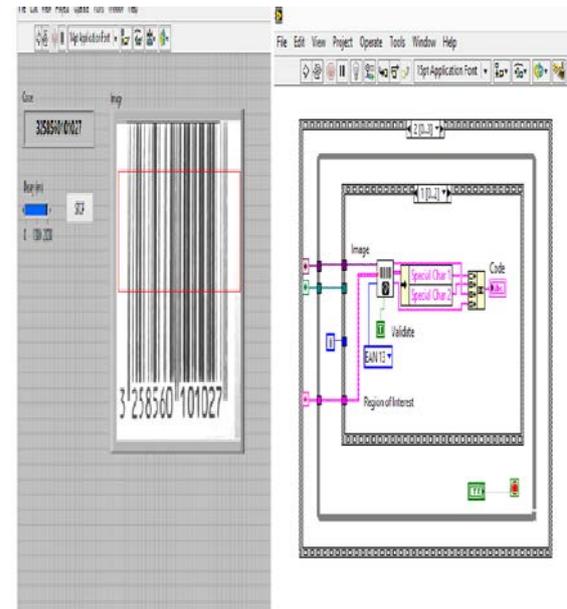


Fig.14 Barcode Reader page

Stage 6

While choosing the demand draft option from the transaction menu, the following window will display as shown in fig.13, which requires the details like amount to be payable to and total amount.

Stage 8

For the required transaction, Iris Recognition is used for authentication as shown in the fig.15.

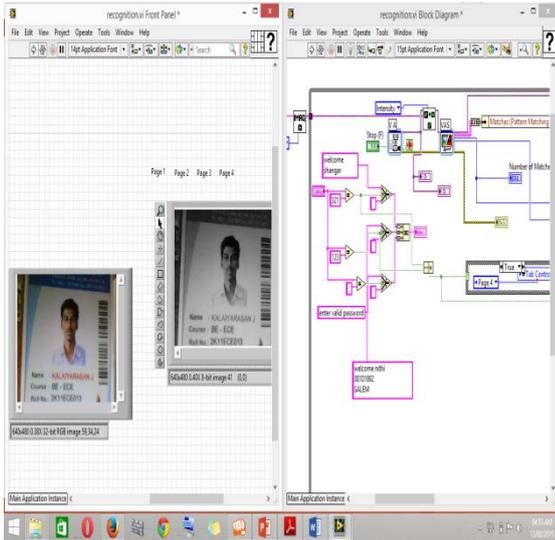


Fig.15 Iris Recognition

VI.CONCLUSION

A smart banking system suits quick and efficient management for serving many customers at a time that has been designed. The system is being at testing at current scenario similar to public places and the performance of the system has been analyzed. The system brings about quick and easy management of queue with very little cost and can be successfully implemented in medium crowd environment. The low power consumption and easy configuration enhances the portability if the system enabling it to be used with battery for sufficient amount of

time. The reliability of the system can be enhanced by future modifications and the cost can be further brought down by mass production.

VII. REFERENCES

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