Smart E Library Automation Based On IOT And Fingerprint

Sonam Tirkey[1], Sabith K[2], Siddharth P[3], Saifuddin Yafi[4], Rohan Salins[5]
[1, 2, 3] Dept of Computer Science and Engineering
[4]Assistant professor, Dept of Computer Science and Engineering
[1, 2, 3, 4] Shree Devi Institute of Technology (Mangalore, KARNATAKA)

Abstract- *This is mainly about the concept of making the normal library into a smart E-library booking automation using IOT and Fingerprint. The smart E library consists of three sections and these sections are - online booking, validating, issuing. After the completion of all three sections the book will be assign in the name of the user. To be the part of the library as the user, the person has to give the required documents to the admin, the admin will complete all the required procedure to make the person as the user of the library so that the user can make use of the benefits provided by the smart E library automation.*

Keywords- IOT, Android App , Web Site

I. INTRODUCTION

Smart E library booking automation using IOT and fingerprint is the advance technology for making free librarians library, the term defines that the library should consist of only one admin, where the rest of the works will be done by the user and the smart system. Instead of going to library and then booking the books the user can online place the required book in his name and then within 24hrs the user has to go and collect the book from the library, if in case the required book is not present in the library then the name of the user will be kept in the waiting list and the admin will send the notification when book will be free. When the user goes to take the book in the library the user goes to the book rack where the infra red rays are present, these infra-red rays will get break when the user will give the OTP which is assigned in his application, when the OTP goes correct the infra red rays will get break and user can take the book from the rack. After taking the book the user has to go the counter where the further procedure will be done. After going to the counter the user has to scan the book and puts his finger print for scanning where the database of the user will get open and the book will get assign into his name for15 days, before the finishing of the 15 days th/e user will get notification into his application for the returning or renewing the textbook.

II. PROPOSED WORK

PROBLEM DEFINATION - When user goes to the library for taking the book in his name what if the book is not present in the library, the going to the library will be waste. For issuing the text book from the reservation section the user need to register his name and then after few days only user can take the text book in his name which is again the problem of going to the library and again coming back with no book. Going to the library for each and everything is one problem for the user and time consuming also.

PROPOSED METHOD - Smart E library is mainly focusing on reducing the work of the librarian and again- again going to the library by the user. For making the normal library into an smart E library automation based on IOT and fingerprint we are proposing an android application, web site.

a) ANDROID APPLICATION- The android application will make the work of the user easier instead of going to the library and coming back with no book. Each user has to separately log into this application by putting his user id and password, if in case the user forgets the password the application provides an option for getting another password. This application will provides options for choosing the department and the text books the user want, it has all the option for selecting the text book either in normal textbooks, book bank or in reservation section or from reading section but the rule applied over here is the user need to issue the book from the library within 24hrs from the time he has place the book in his name in the application, if in case the user doesn't go within 24hrs then the book will be assigned to someone else. The application provide the notification before 2 days of the last day, if the user wants to check the books he is having he can directly check into his application. The user will get notification from the admin about the availability of the text book he wanted last time and this availability will be till next 24hrs. This android

application makes the things easier then compare to the previous library system.

b) WEB SITE – The head of the web site is the admin who will make users as the part of the library by taking the required document from the individual person, for authentication purpose we are considering finger print biometric system which will unique for each and every user. At the time of issuing the text book near the counter the user has to put finger print in the finger print sensor if the authentication will be done properly then the page of the user will get open and the text book placed in the user name will be issued to the user but before this the user need to scan the QR code of the text book and the QR code will also get print into the database of the user.

c) NODE MCU – Node MCU is an open source IOT platform. It include firmware which runs on the ESP8266Wi-Fi SoC from Espress if Systems, and hardware which is based on the ESP-12 module. Node MCU will contain all the database of the user and it will connect to the LCD Display.

d) LCD DISPLAY – LCD(liquid crystal display) is the technology used for displays in notebook and other smaller computer. Here LCD is used to display the OTP written by the user while verifying the user. The OTP which is generated by the system and sent to the user has to put again and same OTP is given back to the system then the infra red rays will get break and these OTP will be displayed in the LCD display.

III. RESULT

The Android Application is developed in Android Studio and the web site in the HTML. Because of these two it provides a great relief to the user who has to go to library every time for each and every thing. The smart E library system makes the library to keep only admin because there is no need to keep the librarians. The main focus of making the normal library into smart E library so that the number of librarians should not be present in the library, it should be fully IOT based where the user can directly access the books without the interference of the other. So for achieving this goal android application, web page, QR code sensor, infra red rays, finger print sensor all has been done. If any of the user tries to make fool to the admin by planning to take two text book instead of one then while issuing the book he will issue only one but while going time the alarm beam will turn on when someone tries to take the book without issuing. In this way the smart E library automation provides benefits to the admin and users.

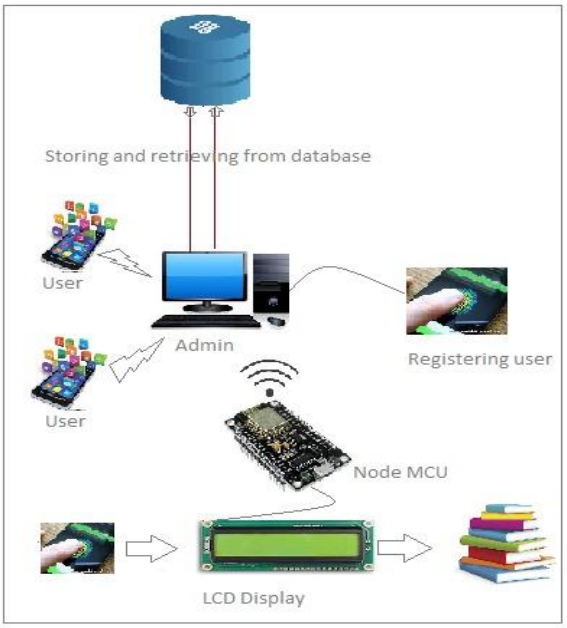

Fig1:Architecture Diagram

IV. CONCLUSION

The main focus of this project is to lesson human efforts. The maintenance of the records is made efficient, as all the records are stored in the database, through which data can be retrieved easily. The problems, which existed in the earlier system, have been removed to a large extent. And it is expected that this project will go a long way in satisfying user requirements. The computerization of the Library Management will not only improves the efficiency but will also reduce human stress thereby indirectly improving human recourses.

REFERENCES

[1] Lizeth Ghandi, Catarina Silva, Tatiana Gualotuna "Mobile application development process – a practical experience" Information Systems and Technologies (CISTI), 2017 12th Iberian Conference.

[2] A.L.H. Jin, A.Chekima,, Liau Chung Fan **"** Fingerprint identification and recognition using backpropagation neural network**",** Student Conference on Research and Development 2002.

[3] Zuzana Vantova, Jan Paralic, Vladimir Gaspar "Mobile Application for Creating Presence Lists" Applied MachineIntelligence and Informatics (SAMI), IEEE International Symposium 2017.