ONLINE STUDENT ATTENDANCE SYSTEM USING RFID

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled **"Online Student Attendance System Using RFID**", submitted by Abu Sayeed Md. Sayeedur Rahman, Chanchal kumar, Md. Bayazid Bostamy and Md. Jabed Hossenn, to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 19 August 2015.

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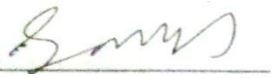

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Md. Mahmudul Hasan, Senior Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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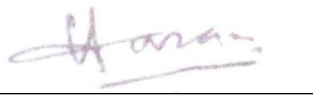

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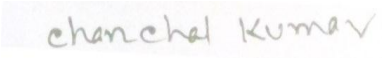

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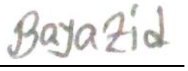

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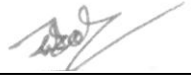

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ABSTRACT

This project is intended to develop a web based application on online student attendance system using RFID. The most education institution's administrators are concerned about student irregular attendance which may affect the student's overall academic performance and finally it affects in their professional career. According to the requirement of assignment we visited different online based attendance systems and institutes to know their details and in this way we obtained sufficient information about online attendance system. This project work gives us opportunity to increase our knowledge efficiently. In this software student input the card number into the attendance form by hold the card in front of the bar code reader or manually by the user. For this purpose, student's attendance management system using RFID is a much convenient method to take the attendance when student comes near to the reader. It will sense the respective student and update attendance. The whole process is controlled using the ZKT access controller. This project reviews some of these monitoring systems and proposes a RFID based student attendance system. The reports can be generated in real time processing thus provides valuable information about the students.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Attendance management is very important to every single institute of students. Not only it can use in institute it can be used in any organization as a keep tract and information for any employees. Monitoring attendance helps in the long term for an institute, as a student will be able to tell which students arrive early and late also who has the most absences without valid reason. Attendance management is also a health and safety procedure something in which that has to be carried out. It is important because in case of an emergency that was to arise in a workplace like a fire, then if they register in the institute they will know how many students are inside a building.

1.2 Aim of the project

The main object of this project is to develop a fully computerized automation system for an online attendance system. Aims of this project are to easily store the information, attendance time of the students. It can be helpful for students and teacher in the institute. The students will know that when they came and also the teacher will know about students properly. As a result it will be simple way for both.

1.3 Motivation of work

Nowadays there are increasing many online attendance based firm in the country. Most of them are maintaining their attendance manually by the manual resister and keeping student information. When maintaining the attendance manually it is difficult to give the actual result. There will be any mistakes by the manual attendance system. To create the attendance manually is not good way and day by day it's becoming much more complexity. In that kind of management system could not fill the student's expectation. The student could get the exact attendance of his/her in the online way.

1.4 Organization of work

This project entitled “Online Student Attendance System Using RFID” which is designed to be used in all of the educational organization. To develop the software we have to design the roadmap of the project. It is the main thing to select the best tools and platform. To create this software we have to use “PHP” programming language and MYSQL database. The program should run in all windows 7.

1.5 Project background

Daffodil International University prefers all time student’s satisfaction. They always try to give facilities to the student and faculty members. It is easy for them to retrieve their student’s attendance. Just because of their online system. Their online based system keeping all the information of the student [1].

1.6 Objective of the software

- The most information into a database with student profile and attendance properly.
- Confirm to the teacher about his student entrance and exit particularly from which branch.
- Assure the students for their exact payroll.
- To automatically manage the student’s in time into the database.
- Generate automatically the student weekly, monthly, yearly attendance report.
- To develop user friendly environment in the software.
- To build a database of MYSQL in back end and uses PHP in the front end.

1.7 Conclusion

Eventually we should like to say that our proposed and developed software will capable to run the system automatically. Now most of the educational organization maintains their attendance system manually and which makes so many mistakes and take more time as well as personnel because that is managed by manually. They will run their educational organization more perfectly to use this online attendance system. The modern world running after super highway as such computer proficiency must advancement for any educational organization under the prevailing world situation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Literature review provides all the basically aspect with theory or that related with documentation for the project that being developed. The important thing to know in this chapter is how to use the system effectively. Besides, the software and hardware approach must be cleared in developing database and also for the whole project.

2.2 Previous related concept

Online attendance system is implemented in many sectors as school, collage, university and many organizations. In the previous system many organizations uses the online attendance system to manage the attendance data of their employees.

2.3 Comparison

Online attendance system those are implemented in different organization. The project we have implemented is different from the existing implemented a system. In our system teacher can take attendance in a specific time and give marks for a subject that is registered by students.

CHAPTER 3

FEASIBILITY STUDY

3.1 Introduction

It is a preliminary investigation of a project which determines whether it will be cost effective and will realize the benefit that are expected and be technically feasible. It provides a platform for analyzing risk and reduction measure. IT allows better appreciation of the task that may be inherent in this project and plan to reduce those risk accordingly. It gives better understanding of the time and resource that will be required in the full project. So that a better project can be produce [2].

3.2 Planning Issue

I'm going to develop software which now running manually, but when the organization will use my developed software they have to plan alternatively, such as-

Additional infrastructure requirement

It is necessary to support the new system. New equipment needs to be installed and tested before system trial can start.

Staff issues

Since the previous system will be change by new system. So I will give special attention to the software that it will be course user friendly and authorized use this software by talking one week training. It will be introduction by the new system. Training will be readily accepted. Such training in the background of the background system together with well written user manuals will facilitate efficiency use of the system.

Testing

Testing is essential because it needs to be planned for and carried out throughout the project. The typically life cycle models imply that testing is at the end of the system life cycle. Some testing does take place late in the development process but much of the testing is interleaved with the development of prototype, modules program units [3].

Implementation

The purpose of cut over from the old system to the new one must be carefully planned. I will compare both of old and new system and will prepare the way that the new system is easy to run and efficient. It would include planning for the transfer and conversion of data and the involvement of student. I will show a parallel running of the old system, with the additional resources which this implies.

Benefits

This software gives user to access a user friendly environment by using PHP, Java Script, Ajax, CSS, Laravel framework and MySQL will provide best use of modern technology and technique. Working efficiently improves day by day. Increase our knowledge how to develop software in a period of time. Help user to get related information. Make the system more users friendly and easy to use. Create a comprehensive database that provides all the related information required on the application.

3.3 Testing plan

Testing plan: Since I will follow the water fall model that's why I will be test one after another. Whenever we find any problem then we will try to find out the reason of the problem.

3.4 Feasibility Report

After completion the feasibility study I have defined some requirement for an organization such as

* My first recommendation is to developed the system fully automatic

* Another option is attendance will be digitally

CHAPTER 4

SYSTEM REQUIREMENTS

This chapter covered the whole requirements analysis. It's the most important because of it shows how the requirements are interacted with the system. It focuses on the business processes that are taking place and how these requirements can be fulfilled more efficiently to accomplish the project.

4.1 REQUIREMENTS ANALYSIS

The aim of analysis the requirements is to be produces an accurate requirements specification for a project, Initial study and feasibility study, carried out earlier, throw some light. Data flow diagram show how data are maintained in a system, how the system interacts with the outside world. Requirement analysis id to be carried out on the basis of user, technical, legal and it components [4].

4.2 USER REQUIREMENTS

User requirement to product an accurate requirement specification for a project is made through analysis and observation of operations and activities of the entire organization with special reference to the following.

- Overview of the website
- About the company information
- Counter location
- Schedule & ticket price

4.3 REQUIREMENTS OF COMPONENT

To carry out the project according to need the hardware and software those are described below.

Hardware Requirements

For using this site minimum one pc with internet connection is needed.

TABLE 4.1: HARDWARE REQUIRMENT FROM CASE 1

Processor	Intel Pentium / core-i 3 to Up
Motherboard	Any
RFID CARD	Any
ZKA DEVICE	LAN Port Supported
RAM	256MB or more
LAN	Any
AGP	Any
Sound Card	Any
Hard disk	40GB
Floppy disk(not mandatory)	1.44MB
Casing	ATX
Monitor	Any color monitor
Keyboard	Any
Mouse	Any
CD ROM	52X
Cable	Twisted

CHAPTER 5

DESIGN& DEVELOPMENT

5.1 Introduction

System design is important part for any project. Designer has to pay strong attention to design the system. It is really very hard to design the interface, form, reports, and database physical design. It is impossible to design the system according to all user requirements. I design the system according to the best of our effort and knowledge. I compare our design to other form and report to check its usability. Subsequently I did contact with my client and provide them the design. They give their consent and modify design. I then design the system and add required form, report and so on [5].

5.2 Database Requirements

The initial specifications of our user requirements may be based on interviews with the database users and on the designers own analysis of the enterprise. The description that arises from this design phase serves the basis for specifying the conceptual structure of database. Here the major characteristics of this software are-

- Administrations are identified by their ID values. For login they also have a password.
- Different Administrations have different password.

5.3 Database Design

The goal of database is to generate a set of relation schemas that allows us to store information without unnecessary redundancy and allows us to retrieve information easily. We can achieve optimization ease of use in maintenance by design the database using the relation medal in which the data is stored in the form of table and their exist relation between or among the table. The following figure (figure 5.1) shows Database diagram [6].

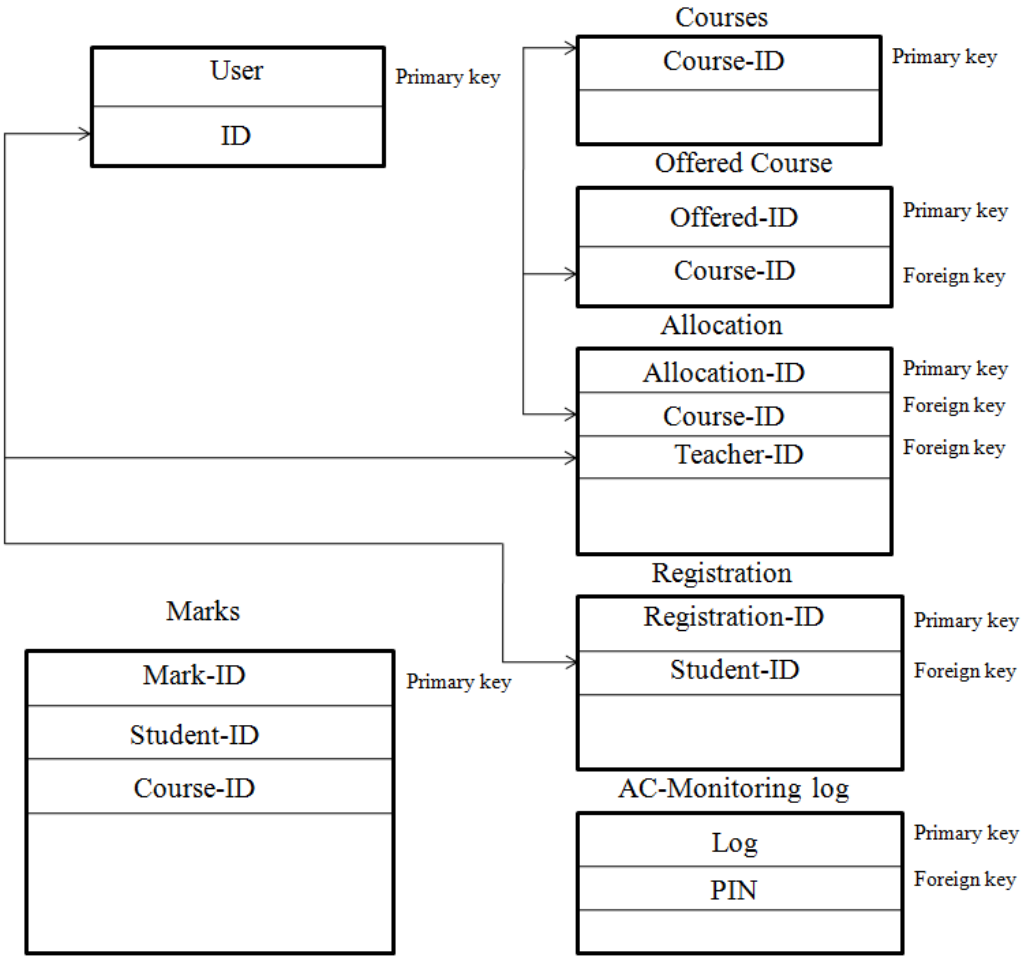

Fig 5.1: Database diagram

5.4 Data flow Diagram (DFD)

A Data Flow Diagram is a graphical representation of the flow of data through an information system. A dataflow diagram can also use for the visualization of data processing. The sponsor of a project and the end users will need to brief and consulted throughout all stages of a system evolution. With a data flow diagram users are able to visualize how the system will operate, what the system will accomplish and how the system will be the implemented. The old systems dataflow diagram can be drawn up and compared with the new systems dataflow diagram to draw comparisons to implement a more efficient system. Dataflow diagram can used to provide the end user with a physical idea of where the data they input ultimately has an effect upon the structure of the whole system from user input to report how user input to report how any system is developed can be determined through a dataflow diagram. The following figure (figure 5.2) shows Dataflow Diagram [7].

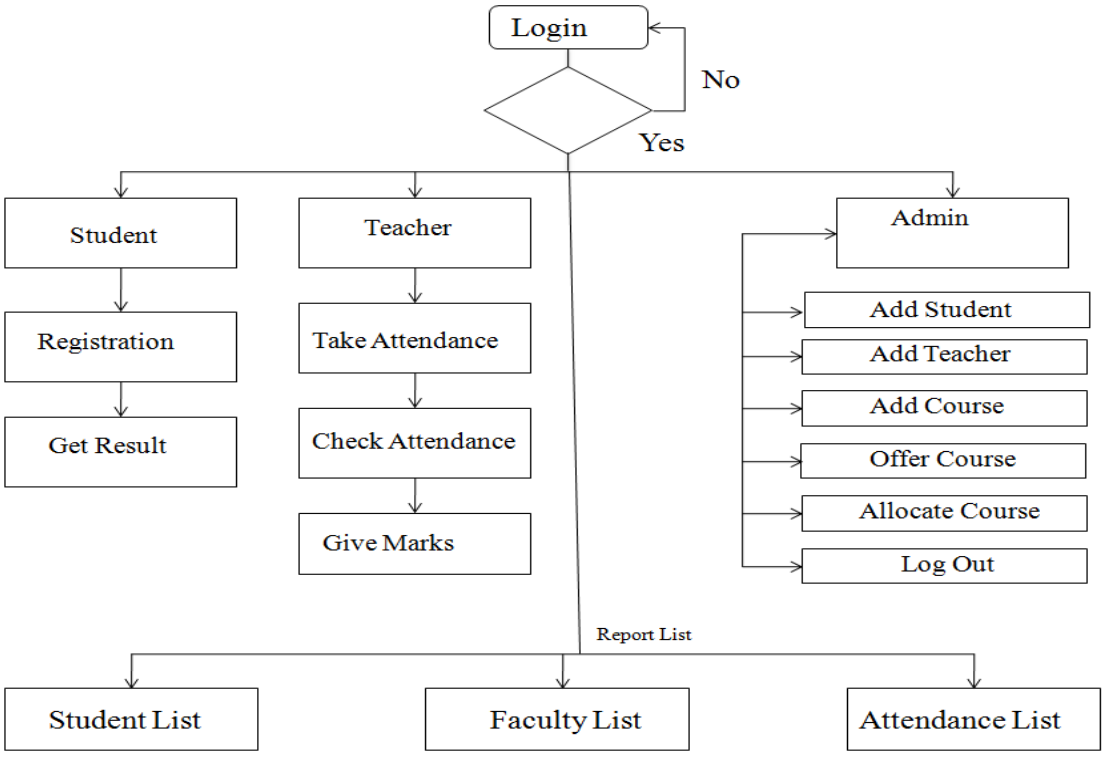

Fig 5.2: Dataflow Diagram

CHAPTER 6

IMPLEMENTATION

6.1 Introduction

Implementation phase covers the whole process of the project. Using PHP, Java Script, CSS, Laravel will gives the project a user friendly view, Implementation of the project and testing should provide proper output. The project should be runner into a computer.

6.2 Tools

RFID

RFID stands for Radio-Frequency Identification. The acronym refers to small electronic devices that consist of a small chip and an antenna. The chip typically is capable of carrying 2,000 bytes of data or less. The RFID device serves the same purpose as a bar code or a magnetic strip on the back of a credit card or ATM card; it provides a unique identifier for that object. And, just as a bar code or magnetic strip must be scanned to get the information, the RFID device must be scanned to retrieve the identifying information [8].

RFID TYPES

There are three main types of RFID systems: passive, semi-passive, and active. In a passive system, the transmitted signal from the reader powers the tag's integrated circuit (IC) reaches a tag, the tag reflects the signal in the form of backscatter. This reflected signal is modulated by the tag to transmit its unique identifier. Similarly, a semi-passive system reflects the signal from the antenna, but the backscatter signal it sends back is much more powerful because the tag is attached to a small battery. This battery provides the power to transmit the signal back to the reader, increasing its range. Within passive

RFID systems, there are three frequency bands available: Low Frequency (LF), High Frequency (HF), and Ultra High Frequency (UHF).The following Table (2) shows.

TABLE 6.1: RFID SYSTEM CHARACTERISTICS CASE 2

RFID System	Frequency	Read Range
Passive LF	125/134 KHz	1-3 cm
Passive HF	13.56 MHz	1-10 cm
Passive UHF	902-928 MHz	10 m
Semi-Passive	Varies	100 m
Active	Varies	100 m+

RFID Works Better Than Barcodes

A significant advantage of RFID devices over the others mentioned above is that the RFID device does not need to be positioned precisely relative to the scanner. We're all familiar with the difficulty that store checkout clerks sometimes have in making sure that a barcode can be read. And obviously, credit cards and ATM cards must be swiped through a special reader.

RFID technology has been available for more than fifty years. It has only been recently that the ability to manufacture the RFID devices has fallen to the point where they can be used as a "throwaway" inventory or control device. Alien Technologies recently sold 500 million RFID tags to Gillette at a cost of about ten cents per tag.

One reason that it has taken so long for RFID to come into common use is the lack of standards in the industry. Most companies invested in RFID technology only use the tags to track items within their control; many of the benefits of RFID come when items are tracked from company to company or from country to country [9].

6.3 Software Design Considerations

In the development cycle of the system, decisions were made on the parts of the system to be realized in the hardware design and the parts to be implemented in software. The software is decomposed into modules so that each module can be individually tested as a unit and debugged before the modules are integrated and tested as a software system in order to ensure that the software design meets its specification. The program was written in PHP programming language for the front end while the backend was based on Microsoft SQL Server relational database management system.

6.4 Development

Online attendance system is the best example of our advanced technology, by replacing the payroll system and manual attendance system; we develop online attendance system to take attendance of student automatically. The following figure (figure 6.1) shows Flowchart showing the mode of operation of the student attendance RFID system [10].

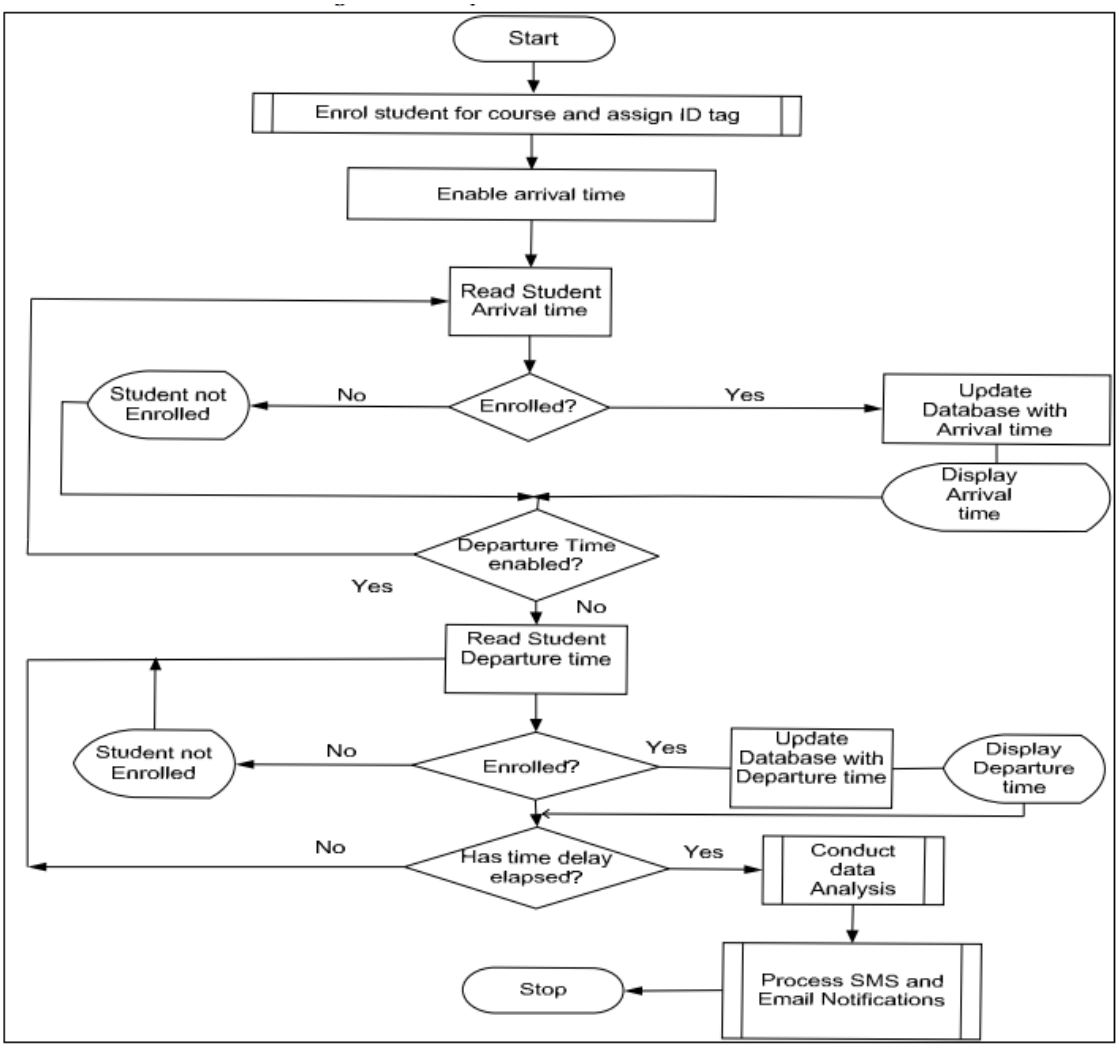

Fig.6.1. Flowchart showing the mode of operation of the student attendance RFID system

DASHBOARD

This is the home page of our developed system. Showing three panels linking those are admin panel, teacher panel and student panel. The following figure (figure 6.2) shows Dashboard.

Figure 6.2: Dashboard

ADMIN LOGIN

This is an admin login page. The following figure (figure 6.3) shows Admin login.

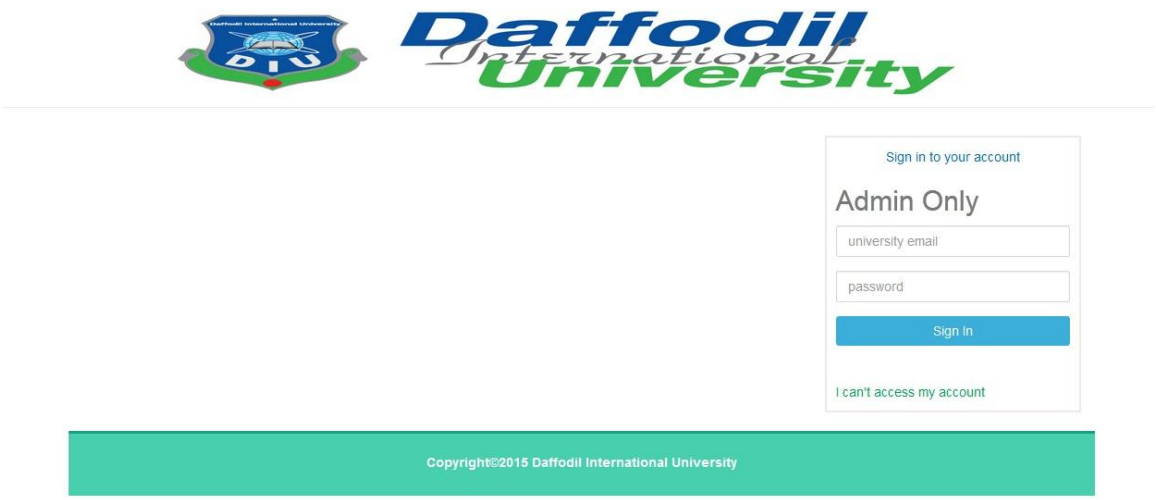

Figure 6.3: Admin login

ADMIN DASHBOARD

This is the admin dashboard page of our developed system. The Feature is add student, add teacher, add course and etc. The following figure (figure 6.4) shows Admin Dashboard.

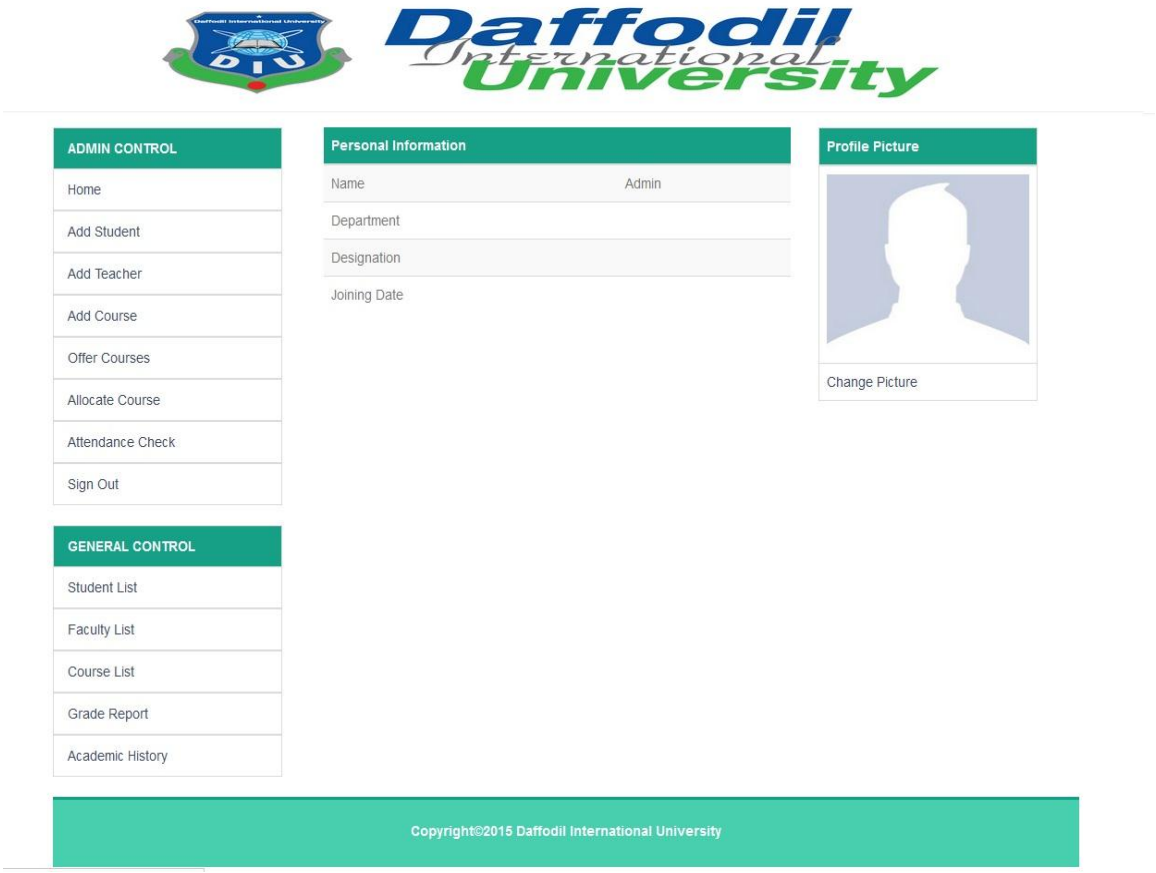

Figure 6.4: Admin Dashboard

ADMIN DASHBOARD FOR OFFER COURSE

This is the Admin Dashboard for Offer Course page of our developed system. The following figure (figure 6.5) shows Admin Dashboard for Offer Course.

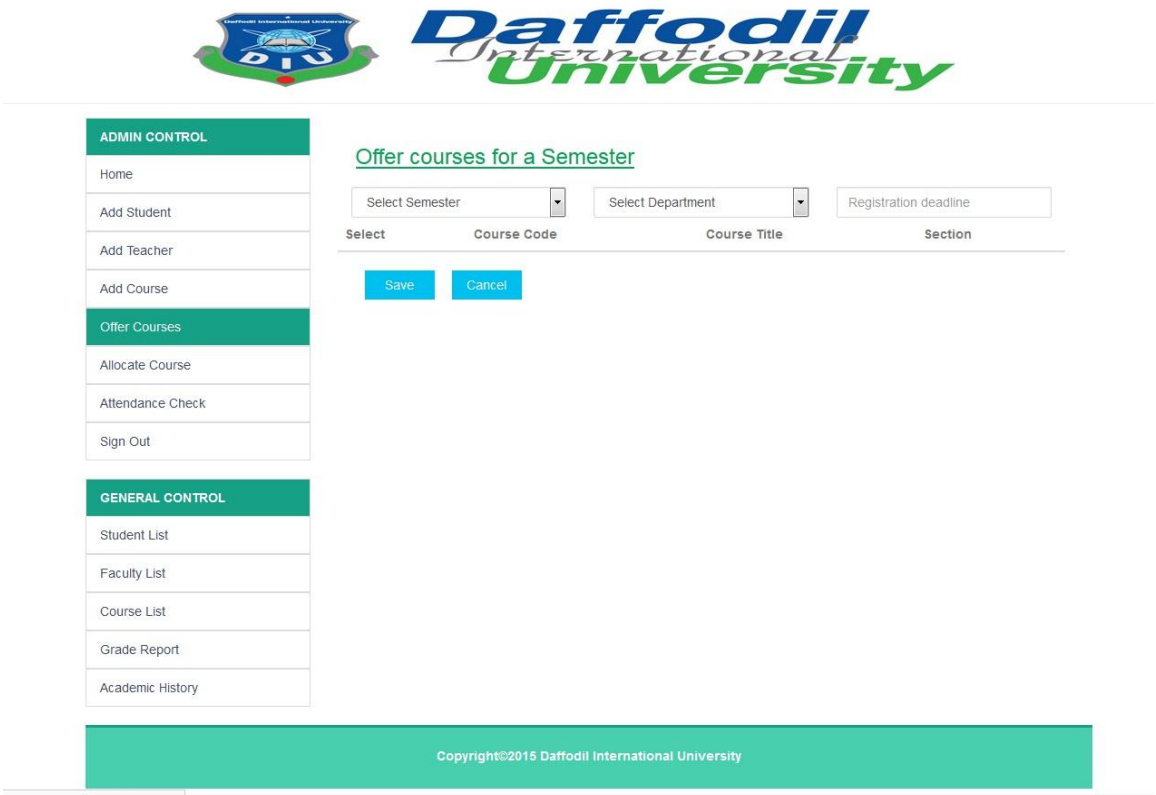

Figure 6.5: Admin Dashboard for Offer Course

STUDENT LOGIN

This is the Student login page of our developed system. The following figure (figure 6.6) shows student login page.

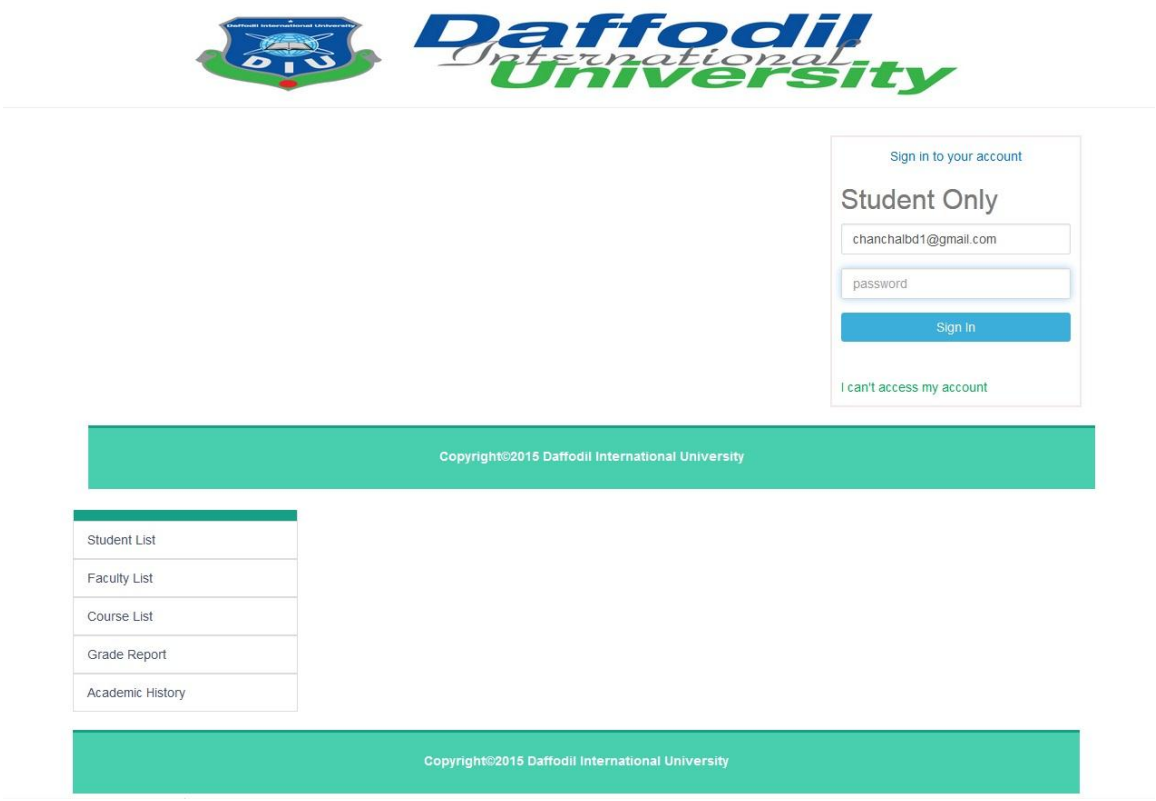

Figure 6.6: Student Login Page

STUDENT DASHBOARD

This is the student dashboard page of our developed system. Showing three panels linking those are personal information, registration. The following figure (figure 6.7) shows the following figure Student Dashboard.

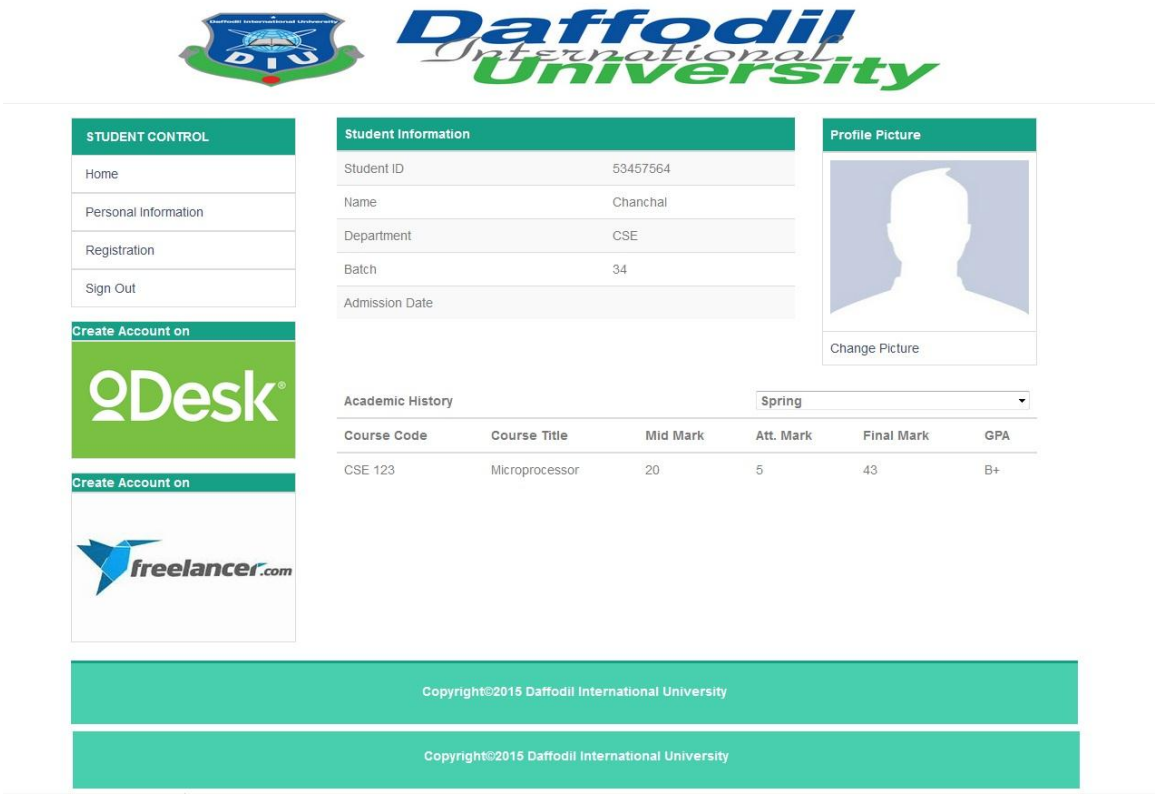

Figure 6.7: Student Dashboard

FEATURE LIST

This is a feature list diagram. Main feature is Admin, Teacher and Student. The following figure (figure 6.8) shows Feature List.

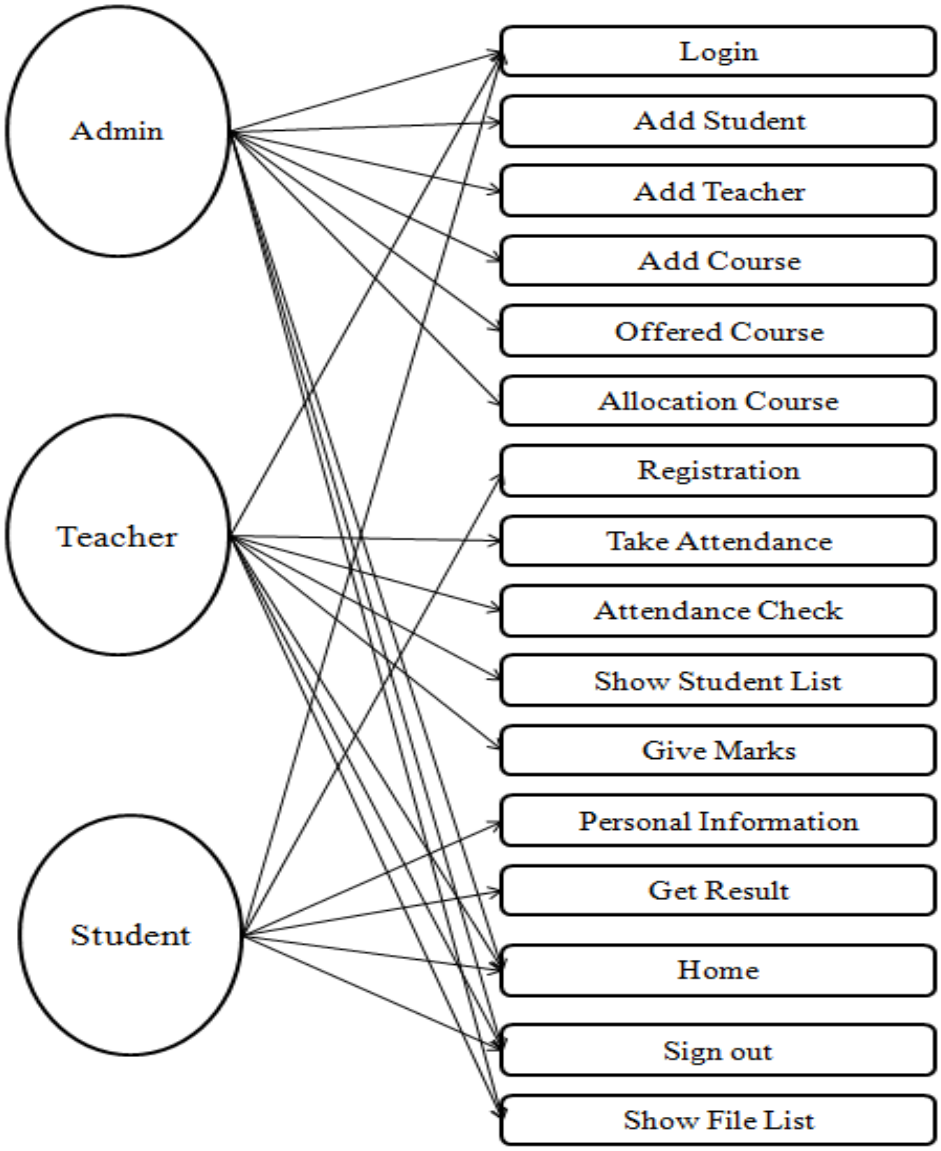

Fig 6.8: Feature List

CHAPTER 7

TESTING

7.1 Introduction

Software testing is an investigation conducted to provide people with information about the quality of the product or service under test. Software testing also provides objectives, independent view of the software to allow the business to appreciate and understand the risk at implementation of the software. Test technique includes, but is not limited to, the process of exciting a program or application with the intent of finding software bugs [11].

7.2 System Test

System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its requirements. System testing falls within the scope of black box testing, and as such, should require no knowledge of the inner design of the code or logic.

7.3 Black-Box Test

Black-box testing is a method of software testing that examines the functionality of an application without peering into its internal structures or workings. This method of test can be applied to virtually every level of software testing: unit, integration, system and acceptance. We have completed the black box testing of our implemented system. There is no issue's we have found.

7.4 Compatibility Test

Compatibility testing part of software non-functional test is testing conducted on the application to evaluate the application's compatibility with the computing environment. Various operating system compatibility testing can be more appropriately referred to as user experience testing. The requires that the applications are tested different operating system [12].

Table7.1: Compatibility Testing

TABLE 7.1: COMPATIBILITI TESTING FROM CASE 3

Operating System	Test	Remark
Windows 7	Yes	Work Properly

7.5 Usability Test

Software testing, developing on the testing method students, can be implemented at any time in the development process. However, most of the test effort occurs after the requirements have been defined and the coding process has been completed. As much the methodology of the test is govern by the software development methodology adopted.

7.6 System Operation and Testing

A careful observation of the trend of usage of RFID tags leads one to consider the possibility of its utilization for monitoring the attendance of students in educational institutions, **wi**th the aid of program driven computers. While every student given a specific RFID tag attends the lecture through entrance door, a serial number (related to

each student's matriculation number) of tag is associated with the student database entry. So every time a student uses his/her card, the entries will been entered into the database with the time stamp. The use of webcam might be optionally necessary to take a snap of the person using the card. Webcam reduces proxy attendance attempts. This is used to cross-verify in the event of an undesirable event or dispute. Consequently, the attendance data then can be used to create many types of reports like daily attendance details, monthly, weekly and real time feedback to parents [13].

The attendance score calculation can be automated using the collected data. After setting up the student attendance RFID system from the mode of operations. The following figure (figure 7.1) shows Illustration of the RFID system operational principle.

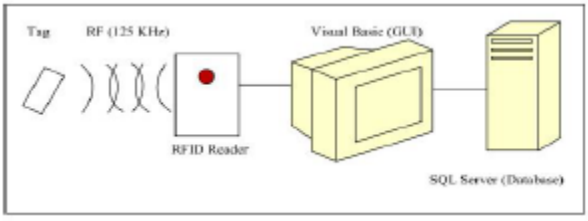

Fig.7.1: Illustration of the RFID system operational principle.

CHAPTER 8

CONCLUSION

8.1 Drawback and Limitation

- No help file has been included. However the usage of the program is very straight forward. It is believed that, there is no much use of any help file at all.
- Still Any one can use some one ID card and can enter into the organization.

8.2 Further Improvement

In the future improvement I will be overcome that limitation and also add the newer features with the changing communication technology.

The developed Web-Based Student Attendance System using Radio Frequency Identification technology will significantly improve the current manual process of student attendance recording and tracking system, especially in a university or school environment. The system promotes a semi-automated approach in capturing the student attendance, i.e. by having the students to flash their student cards to the RFID reader. In addition, a number of other advantages are gained by having an online web-based system, acting as a central repository of student attendance record.

8.3 Conclusion

The captured student attendance data are also processed and analyze automatically with less risk of data loss, compared to a manual filing approach. Specific to lecturers or teachers, they can easily monitor their students' attendance online and this could improve the quality of teaching since less time is needed to manage the student attendance record. The developed system can be improved and upgraded further, e.g. by extending the system with new features and modules or by improving the web-interface layout with new display style.

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