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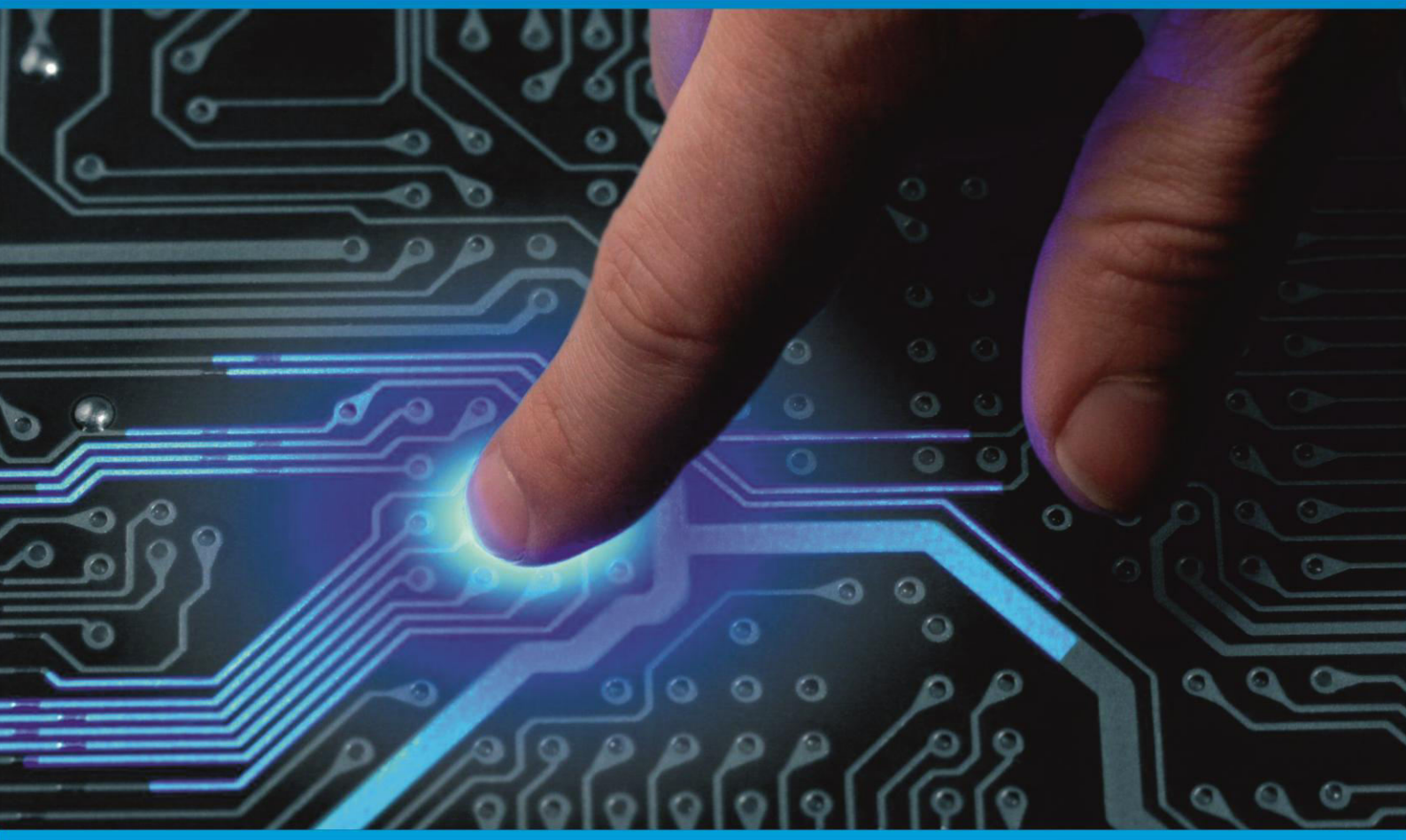

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Student Attendance System by Barcode Scan

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ABSTRACT: The proposed project is a system that keeps a track of student's attendance using a barcode scanner. In the academic world, information is very important and essential. Students have to register for courses, take attendance, exam, and curricular activities and as well as check scores. Unfortunately, there are no automated student records keeping applications available in institutes. There is a need for a tool to systematically keep the students' record due to the increasing number of college students. The traditional system requires a register maintained for manually signing the attendance by the students which is time consuming. Hence this proposed project eliminates the need of maintaining an attendance sheet. The proposed system uses a barcode method for authenticating students with a unique barcode that represents their unique id. Every student will have their attendance card. They have to scan their cards using a barcode scanner and the system notes down their attendance as per date and time. System stores student's attendance details and generates a brief report for the admin as required. Such kind of application is very useful in institutions, schools, organizations and corporations for taking daily attendance.

KEYWORDS: Attendance Management, Barcode Scanner.

I. INTRODUCTION

The Student Attendance System by Barcode Scan is used for keep records of every student in a single system. Attendance is an essential system that maintains the record of the student and provides summaries of their presence. They play an important part in providing eligibility to a student to be able to write his/her semester end examinations. The project that we are going to make is to help the teachers in our college to avoid maintaining the registry book. This project uses a barcode scanner to take the attendance of students entering the lab. Each student's ID card will have a barcode at the back side of it. This barcode contains unique data of the student such as roll number, branch and year. Etc. Students will scan their barcode at the end so that the student can't cheat. The display screen will show the attendance of the particular student after scanning his/her barcode. Teachers and administrator will only have access to the system with their respective login ID's and passwords.

II. LITERATURE REVIEW

There are numerous proposals for Automatic attendance Management Systems in the literature and in the market. Nowadays, barcodes are frequently used in most industries, supermarkets, and wherever information needs to be read automatically. A Software which utilizes barcode scanner to record and maintain the attendance of the students is described in paper . A Barcode is a machine readable representation of information in a visual format. A bar code consists of a series of parallel, adjacent bars and spaces which is read by a barcode scanner. Each student will be assigned a unique barcode ID which identifies the student and displays records of the students. Teachers and administrator will only have access to the system with their respective login ID's and passwords. There are numerous benefits to using a Student Records System. One of the benefits is the use of a central database. This database is the core for all actions in the system and can be easily updated and used to ease all the system's processes. This storage method is more efficient than a paper based file system.

III. METHODOLOGY

The attendance system was implemented using EmbeddedC, PHP (Pre-processor Hypertext) & MySQL (My Structured Query Language) and a barcode scanner device. It consists of two stages: the enrollment stage where each student details were taken and generate a barcode then stored in the database and the authentication stage where each student's barcode was scanned and compared with all Barcode Firstly, the staff users need to login to system by using appropriate login ID and password. After that the user scans the barcode of a particular student using a barcode scanner to retrieve his/her details like personal information, exam details, attendance, curricular activities details etc. Each

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student's details are stored in database which can be retrieve/modify/delete by the user. Finally, the user generates reports according to requirement and gets the prints.

IV. NEED OF PROJECT

Student attendance plays significant role in order to justify academic outcome of a student and school as overall. Unfortunately, there is no automated attendance record keeping application available in schools and colleges. Student Attendance System (SAS) development team, have identified that teachers and school management face problems in recording and managing attendance of their students. Therefore, SAS has been proposed and developed. Need for a tool to systematically keep the student's attendance record increased due to increasing number of school students. Upon completion of SAS, user acceptance testing conducted among potential end users.

Advantages: One of the advantages is using a barcode based attendance system will easier the students to fill in the class attendance. The time constraint of barcode based attendance system to fill in class attendance is small compared to the existing manual system which uses attendance sheets. This is because the barcode based attendance system allows the system to get students' identification efficiently; the main improvement is the possibility to process the information directly on the card Other advantages is each student can use a barcode based attendance system securely because the unique identification that the barcode based attendance system provide.

Disadvantages: The only disadvantage is that every class requires a barcode reader to access the system.

V. IMPLEMENTATION

Barcode Scanner:

A Barcode scanner is an electronic device for reading printed barcodes, it consists of a light source, a lens and light sensor translating optical impulses into electrical ones. It contains a decoder circuit analysing the data provide by the sensor and sending it to scanner's output. A hardware device or software program that interfaces with a computer to translate data read by a device other than a key board, such as a magnetic strip or barcode reader or other such scanning device, into keyboard data. For example, data entered into a database via a bar code reader must first be translated into alphanumeric characters in order to be understood by the person interfacing with the database since humans do not read bar codes. The term wedge comes from the fact that the hardware device typically sits, or wedges, between the keyboard and the system unit. The keyboard is attached to the scanner, which is attached to processing component of the computer. Software wedges are programs that reroute the data once it has been input into a computer, typically through a COM port. The input data is routed to the keyboard buffer by the software, making it appear as if it entered the system through the keyboard. Keyboard wedges can be used simultaneously with keyboards.

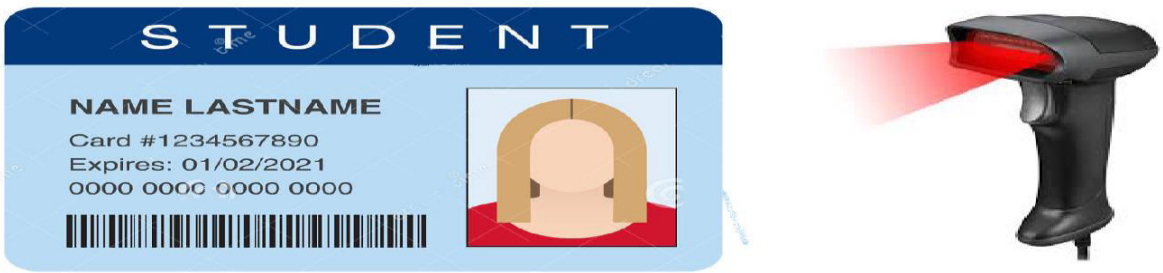

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Figure 1-Identity and Barcode Scanner

VI. SOFTWARE IMPLEMENTATION

Embedded C :

Embedded C is a set of language extensions for the C Programming language by the C Standards committee to address commonality issues that exist between C extensions for different embedded systems. Historically, embedded C programming requires nonstandard extensions to the C language in order to support exotic features such as fixed-point arithmetic, multiple distinct memory banks, and basic I/O operations.

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PHP (Pre-processor Hypertext) & MySQL (My Structured Query Language):

PHP is a High level programming language installed on a web server which receives inputs from user via the internet and processes these inputs to produce dynamic outputs. A PHP can access databases which are installed on server. It can able to receive inputs (Serial number, ID number etc.) from clients and get the entire information associated with it and sent it back to the client. It also validates the information before processing the same. MySQL is a language used to control the functioning of a database. It supports several data operations such as storing new data, updating, deleting, retrieving etc. It requires a User Name and password for the authorization to access the database.

1. Architectural model

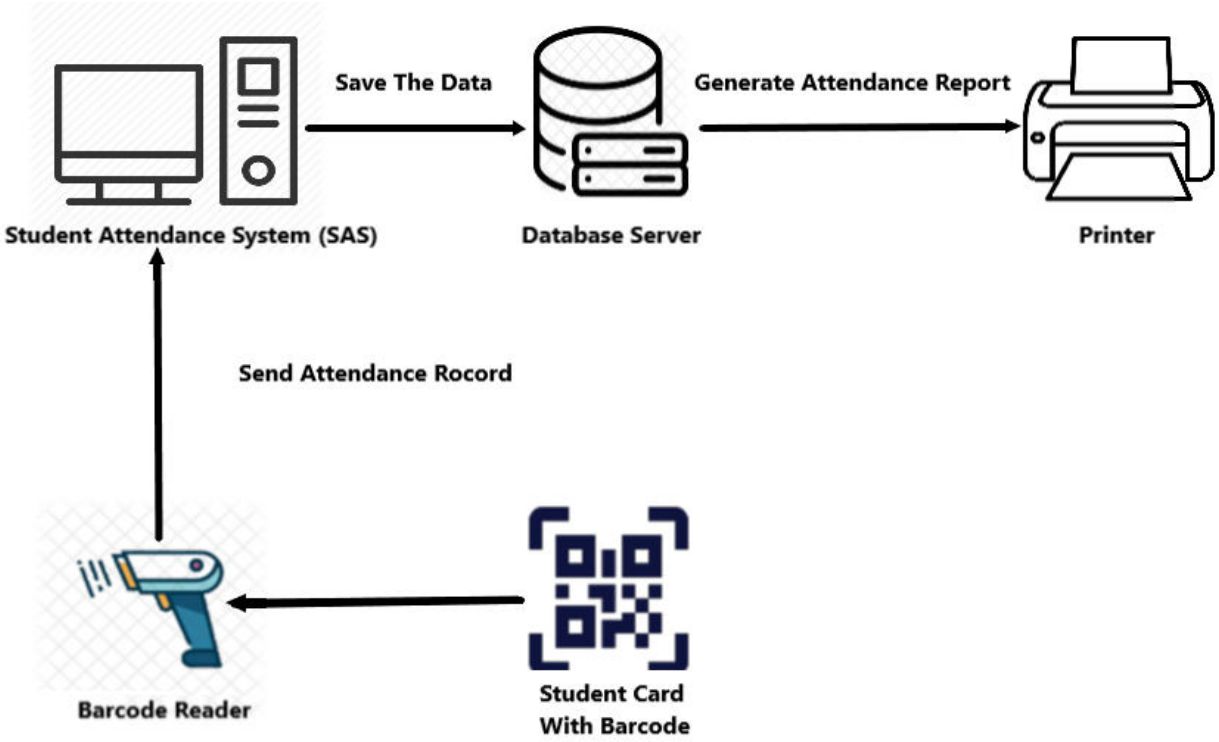

Figure 2-Architectural Label

Technical requirement

- Barcode Reader
- Student Card With Barcode

Hardware Requirement

- Processor – i3
- Hard Disk – 5 GB
- Memory – 1GB RAM
- Barcode Reader

Software Requirement

- Windows Xp, Windows 7(ultimate, enterprise)
- Sql 2005
- Visual studio 2008

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2. UML DESIGN

Data Flow Diagram

Data flow diagrams are used to graphically represent the flow of data in a business information system. The student attendance management system data flow diagram shows there are three users to run the system Admin, Staff and Student.

2.1 DFD 0

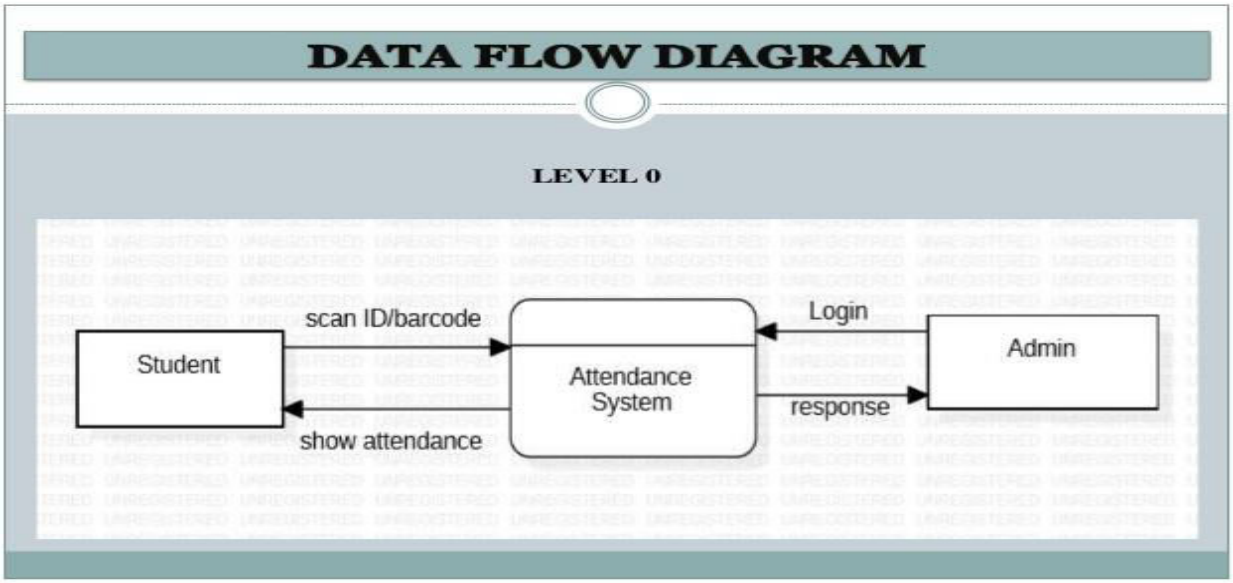

Figure 3-Data Flow Diagram Level 0

2.2 DFD 1

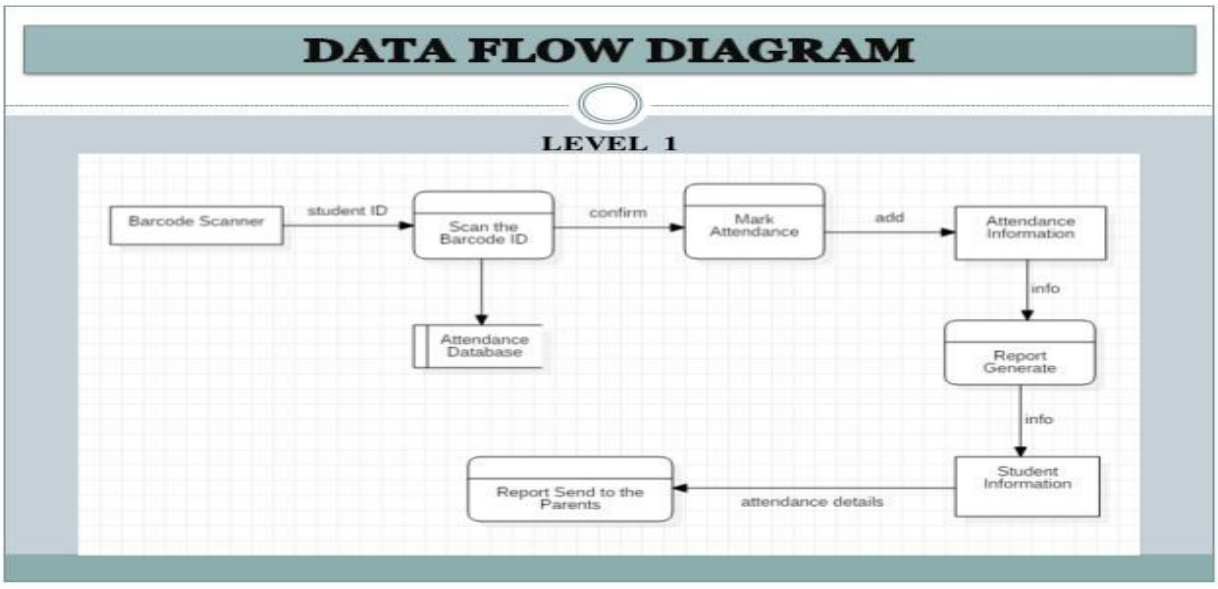

Figure 4-Data Flow Diagram level-1

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2.3 Use case

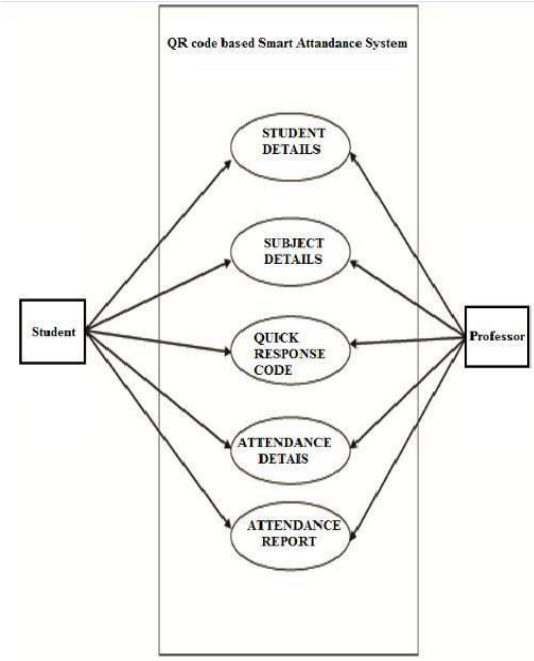

Figure 5-Use case

A use case diagram is a graphic depiction of the interactions among the elements of a system.

Use case of the teacher:

1. Login: The teacher can log on to the system with a username and password.
2. Show New QR Code: The teacher can display a new QR code for students.
3. Check students' attendance and absence records.

Student Use Cases:

Use case of the Student:

1. Login: Students can log on to the system with an enrollment number and password.
2. Check Record: Students can see attendance and absence.
3. Scan Barcode: Students can scan Barcode for recording attendance

2.4 Class

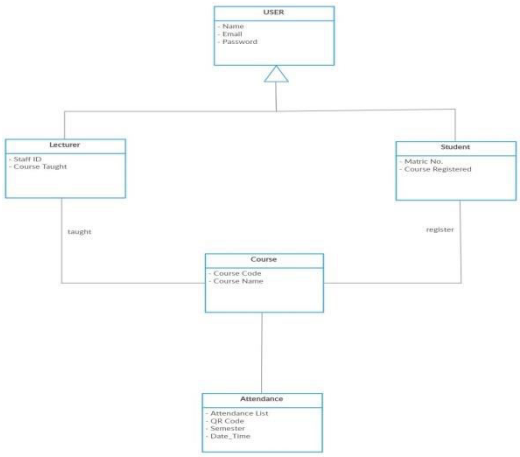

Figure 6-Class Structure

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The class diagram is the main building block of object-oriented modeling. It is used for general conceptual modeling of the structure of the application, and for detailed modeling translating the models into programming code. Class Diagram describes the structure of Attendance Management System classes, their attributes, operations (or methods), and the relationships among objects. The main classes of the Attendance Management System are Attendance, Student, User, Lecturer/Teacher, Course.

Classes of Attendance Management System Class Diagram:

- Attendance Class: Manage all the operations of Attendance.
- Student Class: Manage all the operations of Students and enrollment number
- Lecturer Class: Manage all the Lecturer schedule
- Course Class: Manage all the course related to students

2.5 Flowchart

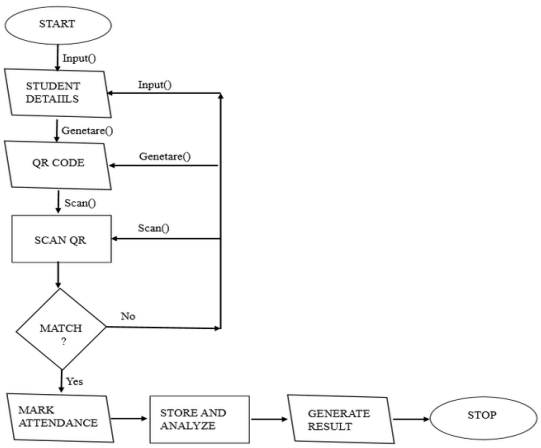

Figure 7-Flow Chart

A flowchart is simply a graphical representation of steps. It shows steps in sequential order and is widely used in presenting the flow of algorithms, workflow or processes. The below flow chart gives us a vivid picture of a student or a teacher using barcode attendance system. In this flowchart it can be seen that when a student enters the classroom there will a barcode scanner near the door When a student enters he has to scan the barcode on his ID card So when a student scans their barcode on Id card after student scan their barcode ID card the student attendance will be recorded and his ID card and enrollment number will be processed and stored in the system and database.

2.6 Sequence

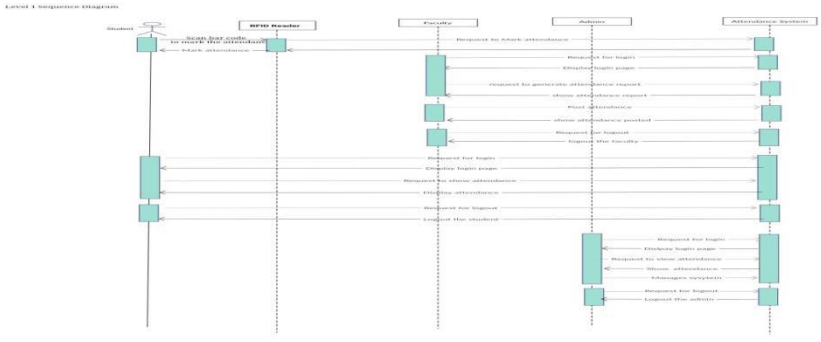

Figure 8-Sequence Diagram

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A UML diagram is a diagram based on the UML (Unified Modeling Language) with the purpose of visually representing a system along with its main actors, roles, actions, artifacts or classes, in order to better understand, alter, maintain, or document information about the system.

The below is the UML sequence diagram of Attendance Management System which shows the interaction between the objects of Attendance of student, Lecturer/teacher. The instance of class objects involved in this UML sequence diagram of Attendance Management System are as follows:

- Attendance Object
- Lecturer/Teacher Object
- Course Object
- Admin Object

VI. CONCLUSION

This software will provide a graphical environment in which the users of the system will be able to perform various operations that are associated with storing, marinating, updating and retrieving Student information. The student attendance system that is implemented by using scanning barcode of Individual student where the unique barcode number is generated from the given student's ENROLLMENT NO. And where the admin will provide appropriate access to the individual student data for each login will ensure an efficient and an secured way of accessing, maintaining, and updating the data for the overall academic career of an individual student. By scanning the barcode of particular student the user can get the personal information, attendance, marks details, curricular activities description.

REFERENCES

1. Anitha V Pai, Krishna A, Kshama PM, Correa M. Web service for student attendance management system. www.ijarse.com. 2016 Mar;5(3).
2. Ahmad BI. TouchIn: an NFC supported attendance system in a university environment. Int J Inf Educ Technol. 2014;4(5):448.
3. Srinidhi M, Roy R. A web enabled secured system for attendance monitoring and real time location tracking using Biometric and Radio Frequency Identification (RFID) technology. In IEEE; 2015. p. 1–5.
4. Jacksi K. Design and Implementation of Online Submission and Peer Review System: A Case Study of E-Journal of University of Zakho. Int J Sci Technol Res. 2015;4(8):83–5.
5. Benyo B, Sodor B, Doktor T, Fördős G. Student attendance monitoring at the university using NFC. In IEEE.

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