SCHOOL ATTENDANCE SYSTEM USING RFID

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ABSTRACT

In traditional attendance system the teachers either call the name or Identity Number (ID) of the students to which student respond or pass the attendance sheet to the students to sign. The difficulty in such attendance management system increases when the number of students are increased. Also, in case of passing attendance sheet to the students, some student sign multiple times and the students give proxy attendance. To overcome these inconveniences, this project represents a school attendance system using RFID, which describes the Design and development of a wireless smart attendance system that will take an attendance by using information extracted from the database handling system. It is capable of collecting, recording and processing information on students of their activities, attendance or different sessions etc. The system can also generate real-time combined detailed reports on attendance, in time and out time of the students during the class hours. The implementation of the system is simple, inexpensive making it a good candidate for commercial and academic purpose.

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CHAPTER 1

1.0 PROJECT PLAN

1.1 Introduction

School Attendance System Using RFID is a digital attendance system which uses Radio Frequency Identification (RFID) in order to record the presence of students in class. RFID is chosen because this application is widely used in all over the world and by applying this system, it may shorten the time compared to the current method which records the student attendance manually. Instead of using the manual method where students need to write their name manually, they can just touch their RFID Cards on card reader in order to record their attendance in class.

Hence a system is needed which will solve the issue of manual attendance.So, we as a group came up with a idea to created and conduct a system called “School Attendance System Using RFID”.This project attempts to record student’s attendance through RFID. School Attendance System Using RFID is an application developed to record daily student’s attendance in the targeted school that is Sekolah Kebangsaan Kuala Perlis or its short name SK Kuala Perlis, is a primary school located at Jalan Kuala Perlis.

Students need to scan their RFID card in front of class door. Once the RFID Card and reader have been scanned, information regarding the student’s name will be displayed on the LCD screen to verify their attendance in class.Then, Arduino will receive the student data details and send it to the database.Teacher can login to the web application to check the students attendance details.

1.2 Problem Statement

The major problem that faced by this School is they are still record student’s attendance by manually system.The existing system largely consists of physical register where the teacher have to manually inputs the attendance record of all students one by one.Teacher always have to call the name of every students one by one to verify their attendance to be tick it right on the attendance book record.This will take some time for the teacher to start teaching

The traditional way for taking attendance has drawback, which is the data of the attendance list cannot be reuse and tracking and tracing student's attendance is harder.Besides, the paper may be torn, misplaced or lost for recording in database system manually.With the RFID-based system, all data will be secured and stored in database safely.

The teachers of Sekolah Kebangsaan Kuala Perlis have to come to class every morning to get the total attendance of their class everyday.The class teachers also

need to call the teacher that incharge for the first subject to get attendance if they do not want to come to class in the morning. It make the teacher to waste their time to come to class or call first time subject teachers.

1.3 Objective of Project

The main objectives of School Attendance System Using RFID are:

- To record Student attendance
- To view and generate student attendance report
- Manage or assign teachers and students information

1.4 Scope of Project

There are types of scope such as user scope,function scope,system scope and location scope.Below is the explanation for four scopes.

1.4.1 User Scope

i. Admin

The managing director of the company is the admin of the system. In this system, the admin of the company is able to update user of the system and view all update record and slots in Attendance System are done.

ii. Teachers

Teachers can update students attendance records, remove students attendance records, view students record lists and can print attendance record lists.

iii. Students

Students need to touch their RFID card at the scanner and view their name displayed at the lcd screen.

1.4.2 Function Scope

System to make it easier for teachers to record and view daily student attendance for more systematically rather than the traditional way.

1.4.3 System Scope

Our project is a web-based application. All information is store in server. RFID tag tracked by RFID reader. RFID reader has a power and is a network-connected device that sends data and commands to the tags. RFID reader process like an access point for RFID tagged sections. The RFID reader reads the student's ID by using reading process and Arduino IDE passes student's information to the XAMPP server through the router via Wi-Fi that is a transmission process. Server (MySQL and PHP) is use to identify student ID and to send student's information to the database. The student touches the RFID tag to the RFID reader where RFID reader reads student's ID, then send it through Nodemcu. On the server side (MySQL and PHP) where it searches Student's ID in central server database then the information can show on the website.

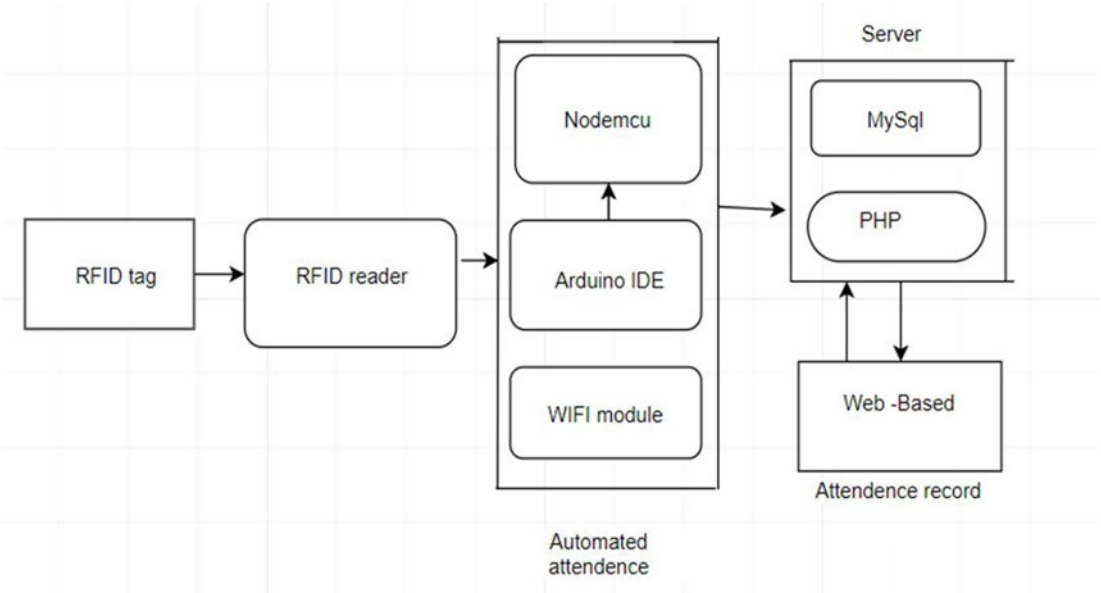


Figure 1.1 : Block diagram of working system

1.4.4 Location Scope

This system will implement at Sekolah Kebangsaan Kuala Perlis.The address of School is 32, Jalan Besar, Pekan Kuala Perlis, 02000 Kuala Perlis, Perlis.

Figure 1.1 and Figure 1.2 shows picture of the school and the view from the Google Maps of Sekolah Kebangsaan Kuala Perlis.

Figure 1.2 Sekolah Kebangsaan Kuala Perlis

Figure 1.3 View from Google Maps

1.4.5 Software Scope

To produce this system, there are some software used as in the table 1 below:

Table 1.1: Software scope

Software	**Explanation**
Arduino IDE	To produce this system
Notepad++	To produce web based application
MySQL	Store and sync data in real time
Microsoft Word	To produce the proposal or report of the system

1.5 Literature Review

The main purpose of the literature review is to study the problem and assess the existing system, or any activity related to the projects to be developed. Collect information about the system, the system requirements and priority system should also be investigated. An interview with teachers of Sekolah Kebangsaan Kuala Perlis has done to collect information and to understand the user's requirements. Knowledge regarding to the inventory information also can be collected from observation session and interview. It will be easier for programmer to develop School Attendance System using RFID.

Sekolah Kebangsaan Kuala Perlis does not exist any attendance system, so attendance on the paper for pupils attendance is the only method used for teachers to record all the attendance and pupils information.

Moreover, comparison between existing systems in market also helps the developer to get some idea to determine the functions in new system. The information from research are very useful in develop School Attendance System using RFID as well as to solve the problem faced by the users which are administrator, teachers and the students.

In this project, the literature review will be used as a guideline during the development process. Besides that, the literature review also can help the developer to build up the system more effective.

Furthermore, the study of literature is important in developing a project. It is done to collect various information related to the project in which this information will serve as guidelines and provide a clear picture of the project to be develop.

1.5.1 Attendance

Attendance is the concept of people, individually or as a group, appearing at a location for a previously scheduled event. Measuring attendance is a significant concern for many organizations, which can use such information to gauge the effectiveness of their efforts and to plan for future efforts.

in both classroom settings and workplaces, attendance may be mandatory. Poor attendance by a student in a class may affect their grades or other evaluations. Poor attendance may also reflect problems in a student's personal situation, and is an indicator that "students are not developing the knowledge and skills needed for later success".

For students in elementary school and high school, laws may require compulsory attendance, while students at higher levels of education may be penalized by professors or the institution for lack of attendance.

1.5.2 Radio Frequency Identification (RFID)

Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects. An RFID tag consists of a tiny radio transponder; a radio receiver and transmitter. When triggered by an electromagnetic interrogation pulse from a nearby RFID reader device, the tag transmits digital data, usually an identifying inventory number, back to the reader. This number can be used to inventory goods. There are two types. Passive tags are powered by energy from the RFID reader's interrogating radio waves. Active tags are powered by a battery and thus can be read at a greater range from the RFID reader; up to hundreds of meters. Unlike a barcode, the tag doesn't need to be within the line of sight of the reader, so it may be embedded in the tracked object. RFID is one method of automatic identification and data capture (AIDC).

1.5.3 Mobile App

A mobile app is a software application developed specifically for use on small, wireless computing devices, such as smartphones and tablets, rather than desktop or laptop computers.

Mobile apps are designed with consideration for the demands and constraints of the devices and also to take advantage of any specialized capabilities they have. A gaming app, for example, might take advantage of the iPhone's accelerometer.

Mobile apps are sometimes categorized according to whether they are web-based or native apps, which are created specifically for a given platform. A third category, hybrid apps, combines elements of both native and Web apps. As the technologies

mature, it's expected that mobile application development efforts will focus on the creation of browser-based, device-agnostic Web applications.

1.5.4 System Comparison

a) First System : Transpooler Attendance System

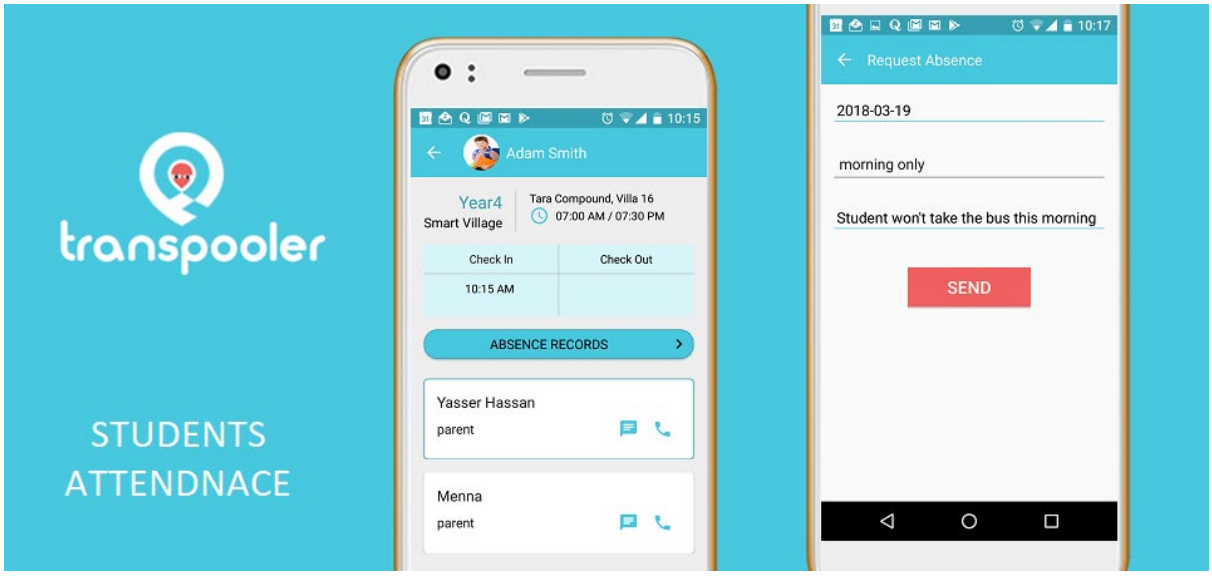


Figure 1.4 Transpooler Attendance System

Transpooler Attendance System was specially developed to help the administrator to manage attendance easily and accurately in accordance with the format and guidelines laid down by the company. Through this application users can perform functions as follow to count the amount of order based on their position in the company.

b) Second System : BT Attendance System

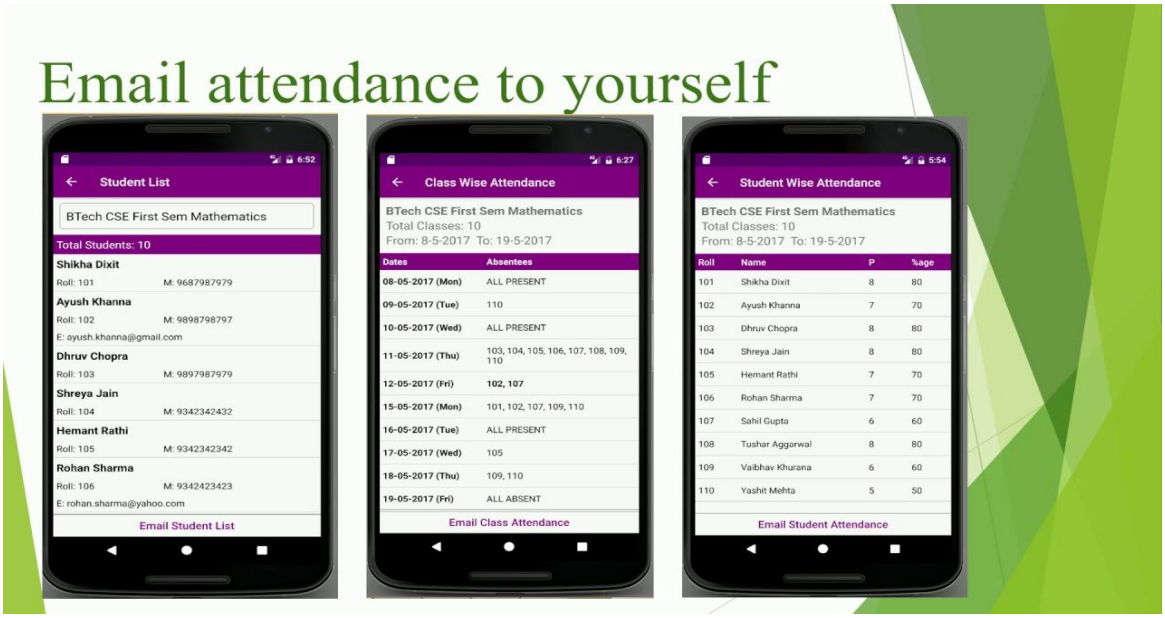


Figure 1.5 BT Attendance System

BT Attendance System was developed to help the production for storing information about the pupils attendance accurately. Through this system the production can add pupils information easily. This system is also enable the teacher to search for the attendance classes and then can print it out.

c) Third System : TEAMSPro Attendance System

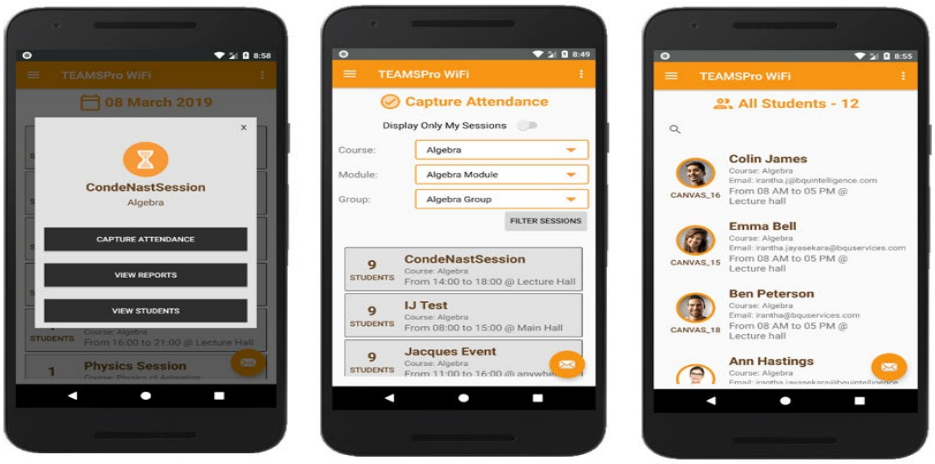


Figure 1.6 TEAMSPro Attendance System

TEAMSPro Attendance System consists of students details, classroom details, lecturer details as well as attendance details. The app communicates with the Central database via the API. I was responsible for the API as well which is developed

This system requires the app to be installed on the lecturer phone. When the lecture come to the class he will run the app and will ask for students to turn on Bluetooth or wifi on their phones. When students turn on, lecturer phon's app will start to identify available devices and synchronise with the central database. This process is ideal to identify the presence of a person over time. The application developed with JAVA in Android Studio studio environment.

Table 1.2 : Table Comparison

CRITERIA		**DETAIL**			
		Transpooler Attendance System	**BT Attendance System**	**TEAMSPro Attendance System**	**School Attendance System Using RFID**
Platforms Supported	RFID	No	No	No	Yes
	Windows Phone App	Yes	No	No	Yes
Typical Customers	Small business	Yes	Yes	Yes	Yes
	Mid Size Businesses	Yes	Yes	Yes	Yes
	Large Enterprise	Yes	Yes	No	Yes
Customer Support	Phone	No	No	Yes	Yes
	Online	Yes	Yes	Yes	Yes
	Knowledge base	Yes	Yes	No	Yes
	Video Tutorials	Yes	Yes	No	Yes
Security	Encryption of sensitive data at rest	No	No	Yes	Yes
	HTTPS for all pages (web-based apps)	No	Yes	Yes	Yes
Database					MySQL

1.6 Methodology of Project

1.6.1 Introduction

The term software development methodology is used to describe a framework for the development of information systems. A particular methodology is usually associated with a specific set of tools, models and methods that are used for the analysis, design and implementation of information systems, and each tends to favor a particular lifecycle model. Often, a methodology has its own philosophy of system development that practitioners are encouraged to adopt, as well as its own system of recording and documenting the development process. Many methodologies have emerged in the past few decades in response to the perceived need to manage different types of project using different tools and methods. Each methodology has its own strengths and weaknesses, and the choice of which approach to use for a given project will depend on the scale of the project, the nature of the business environment, and the type of system being developed.

1.6.2 Rapid Application Development(RAD)

Starting with the ideas of Barry Boehm and others, James Martin developed the rapid application development approach during the 1980s at IBM and finally formalized it by publishing a book in 1991, Rapid Application Development. This has resulted in some confusion over the term RAD even among IT professionals. It is important to distinguish between RAD as a general alternative to the waterfall model and RAD as the specific method created by Martin. The Martin method was tailored toward knowledge intensive and UI intensive business systems.

These ideas were further developed and improved upon by RAD pioneers like James Kerr and Richard Hunter, who together wrote the seminal book on the subject, Inside RAD, which followed the journey of a RAD project manager as he drove and refined the RAD Methodology in real-time on an actual RAD project. These practitioners, and those like them, helped RAD gain popularity as an alternative to traditional system project life cycle approaches.

Rapid Application Development (RAD) is a form of agile software development methodology that prioritizes rapid prototype releases and iterations. Unlike the Waterfall method, RAD emphasizes the use of software and user feedback over strict planning and requirements recording.

Some of the key benefits and advantages of RAD are:

- Enhanced flexibility and adaptability as developers can make adjustment quickly during the development process.
- Quick iterations that reduce development time and speed up delivery.

- Encouragement of code reuse, which means less manual coding, less room for errors, and shorter testing times.
- Increased customer satisfaction due to high-level collaboration and coordination between stakeholders (developers, clients, and end users).
- Better risk management as stakeholders can discuss and address code vulnerabilities while keeping development processes going.
- Fewer surprises as, unlike the Waterfall method, RAD includes integrations early on in the software development process.

Figure 1.7 shows the phase involved in RAD

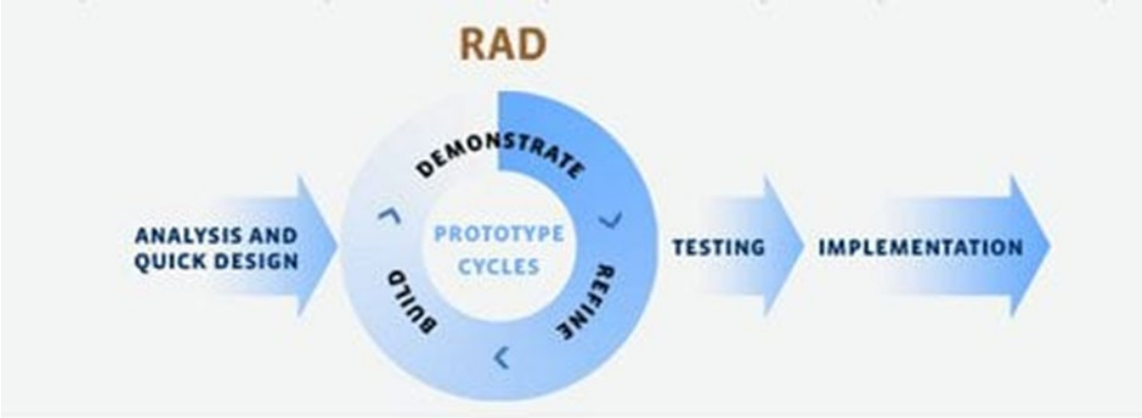


Figure 1.7 : Rapid Application Development.

1.6.3 Rapid Application Phase

Phase 1 – Analysis

In this analysis phase, we choose a company for the project at Kuala Perlis, Perlis. We were contact the company by mobile phone which were call and WhatsApp, interview the person in charge of the company. Lastly, list the current problem and find requirement of system.

Phase 2 – Design

In this design phase, create use case diagram to show the functionality of system, create Entity Relationship Diagram (ERD) to represent the data in database, create Data Flow Diagram to show the data flow involved in the system, create context diagram, create storyboard of interface and create interface of system.

Phase 3 – Development

In this development phase, we create procedure manuals, create system, create database, create connection database and get feedback from the person in charge.

Phase 4 – Refine

In this refine phase, updating whether the error connection if any and make changes to that it fits with the environment in location that is use.

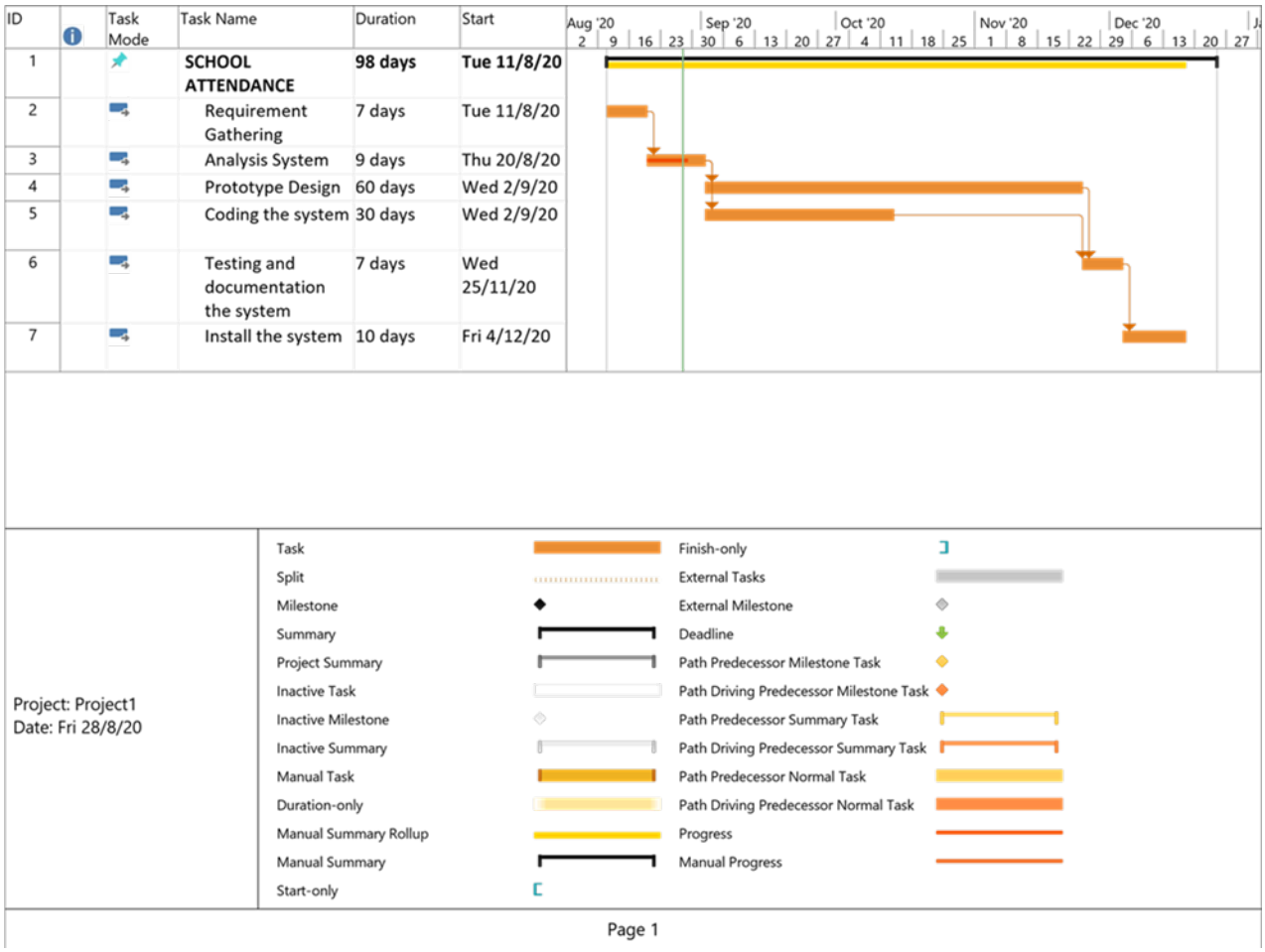
Phase 5 – Testing

In this phase, will test database and developed a program to access the system built. The system will be accessed whether it can operate perfectly or no. The system will be tested to determine if there is any error in system developed.

Phase 6 – Implementation

In this implementation phase, will develop and testing out new system and mobile application. Then, will create a system that can be used by the use tools. It involves writing a program and documentation when the system is successfully developed.

1.7 Project Gantt Chart



CHAPTER 2

2.0 REQUIREMENT SPECIFICATION

2.1 Functional Requirements

The attendance management system to be developed is expected to facilitate the process of recording attendance through Web Based Application and RFID.The table 2.1 and 2.2 below shows the functional requirements for the Attendance management system and Web application respectively.

Table 2.1 : Attendance Management System Functional Requirements

ACTORS	REQUIREMENT	DESCRIPTION
RFID Reader	Record Attendance	RFID reader will be recording the attendance by detecting the Tags attached by students.
Class Teacher	Login View Attendance Edit Student Register Student	Class teacher will login into the system and upon successful, he/she will be able to view attendance information, Edit student details and Register new students.
Head Master (Admin)	Login View Attendance Edit Student Register Student Delete Student	The Head Master will login into the system, view attendance, Edit students, Register Students and Delete Students.

Table 2.2: Functional Requirements for Web Application

ACTORS	REQUIREMENT	DESCRIPTION
Class Teacher	• Take attendance • View attendance • Upload attendance • Login	• The class teacher/master is required to be able to take student attendance and upload to the back end database in case the RFID part is not working or not deployed. • The class teacher/master should be able to view student attendance for different interval of time.
Head Teacher (Admin)	• Edit student • Register student • Delete student • View attendance • Login	• The head Master/Teacher monitors the registered students and their attendance.She/he is also responsible for registering or deleting student.

2.2 Non Functional Requirement

These are constraints on the operation of the system that are not related directly to a function of the system.

Table 2.3 : Non Functional Requirement

No.	REQUIREMENT	DESCRIPTION
1	Operability	◊ The Web application will be developed under PHP platform. ◊ The application will run on Laptop/PC or Smartphone.
2	Maintainability	◊ The application is Specifically for Laptop/PC and Smartphone.
3	Security	◊ The system shall provide access to only registered users. The authorized users will login to the application
4	Performance	◊ The application will process attendance information as faster as possible from the moment of submission.

2.3 Hardware and Software Requirement

Table 2.4 : Hardware and Software Requirement

Bil	**Hardware**	**Software**
1	NodeMcu ESP8266	Arduino IDE
2	RFID-RC522 Module	XAMPP server
3	Jumper Wires	PHP Source Code
4	Micro USB Cable	RFID-RC522 Library
5	Mini Breadboard	NodeMcu ESP8266 Library and Board Manager
6	LCD Display	Notepad++

2.4 System Configuration

2.4.1 Connection between NodeMCU and RFID

We will assemble the base configuration following the circuit's diagram show below. Then, we connect NodeMCU and open the Arduino IDE and given the code.

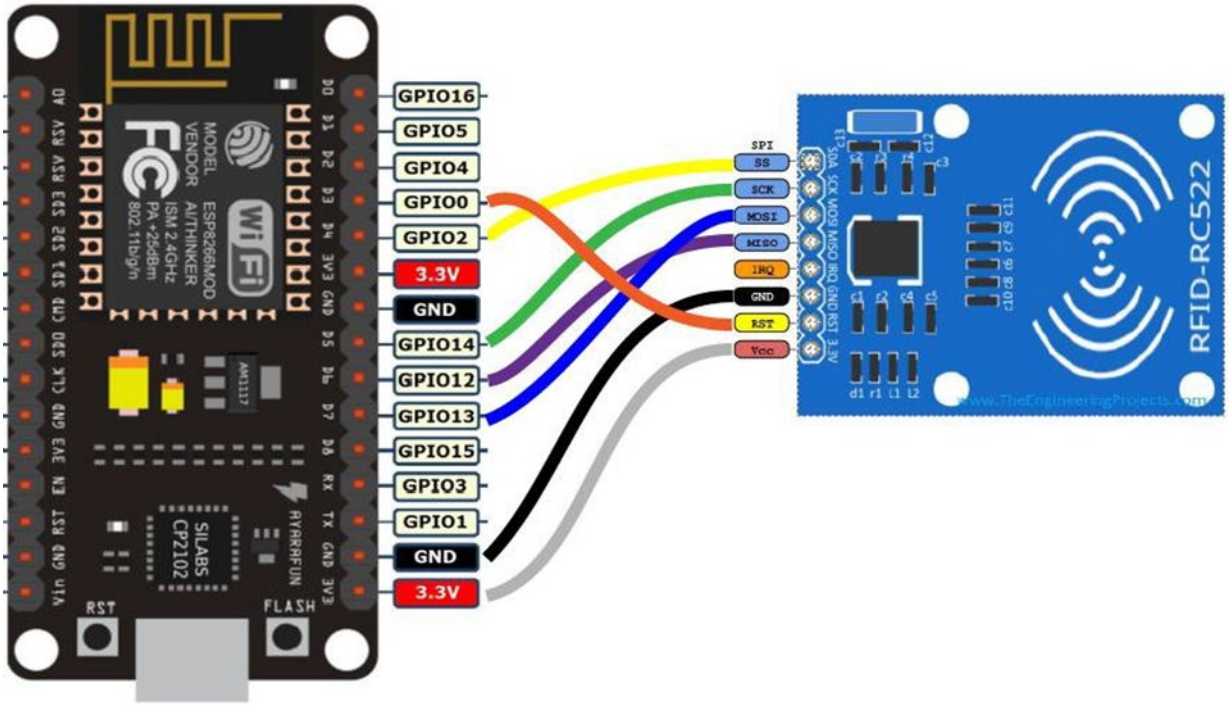


Figure 2.1 : Connection between NodeMCU and RFID

2.4.2 Connection between Arduino IDE and NodeMCU

There are six steps to connect Nodemcu on Arduino IDE.

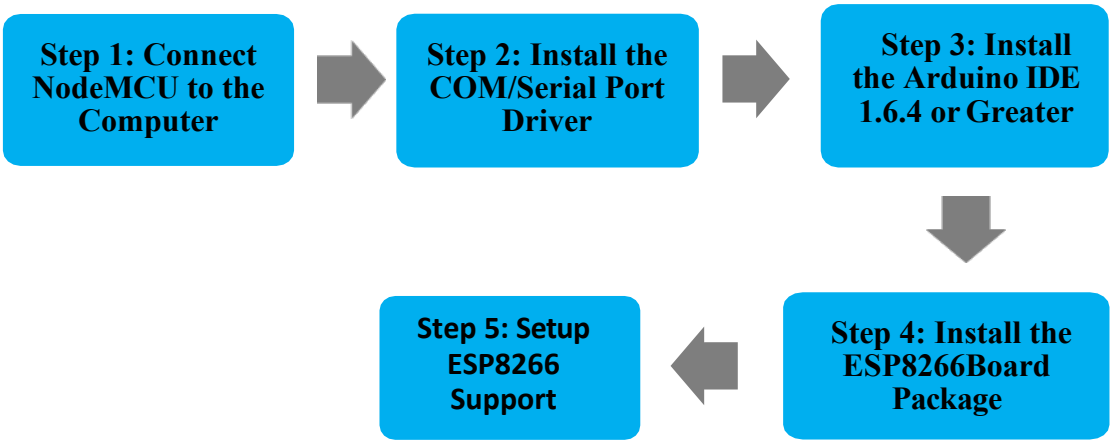


Figure 2.2: steps of Nodemcu on Arduino IDE

Step 1: Connect NodeMCU to the Computer

We are use the cable connect nodeMCU to the computer, we will see the blue onboard LED flicker when powered up, but they will not stay lit.

Step 2: Install the COM/Serial Port Driver

That one may transfer code to the ESP8266 and adoption the serial console, attach any data- capable micro usb cable to ESP8266 IoT board and the other side to our computer's usb port. The new version NodeMCUv3.0 appears with the CP2102 serial chip, we can download and install the driver from www.silabs.com/products/development-tools The NodeMCUv0.9 appears with the CH340 serial chip; we can download and install the driver from github.com/nodemcu/nodemcu-devkit/tree/mas

Step 3: Install the Arduino IDE 1.6.4 or Greater

Download Arduino IDE from Arduino.cc (1.6.4 or greater). We can use our existing IDE if we have already installed it. We can also try downloading the ready-to-go package from the ESP8266-Arduino project, if the proxy is giving our problems.

Step 4: Install the ESP8266 Board Package

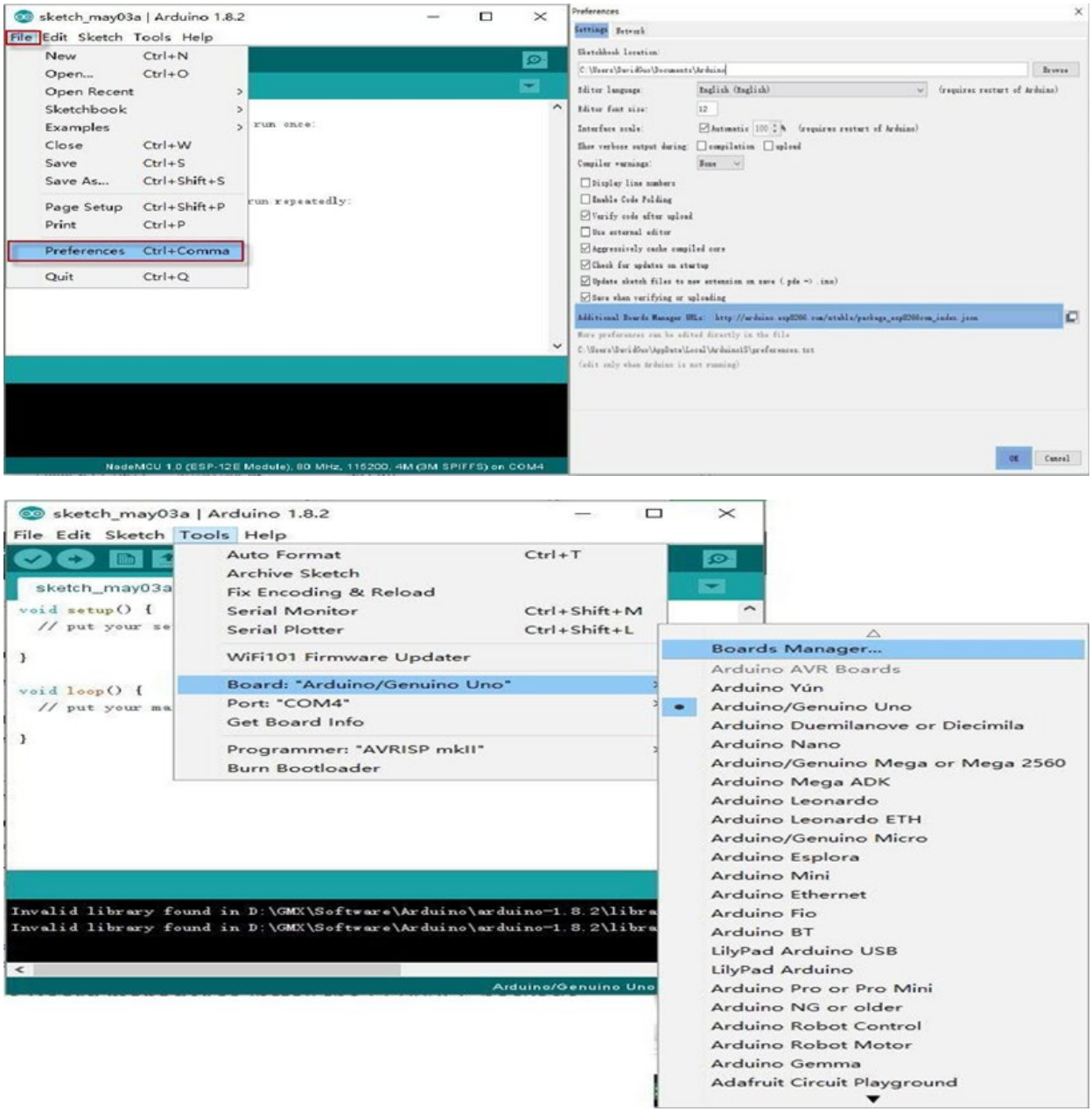


Figure 2.3: ESP8266 Board Package

Step 5: Setup ESP8266 Support

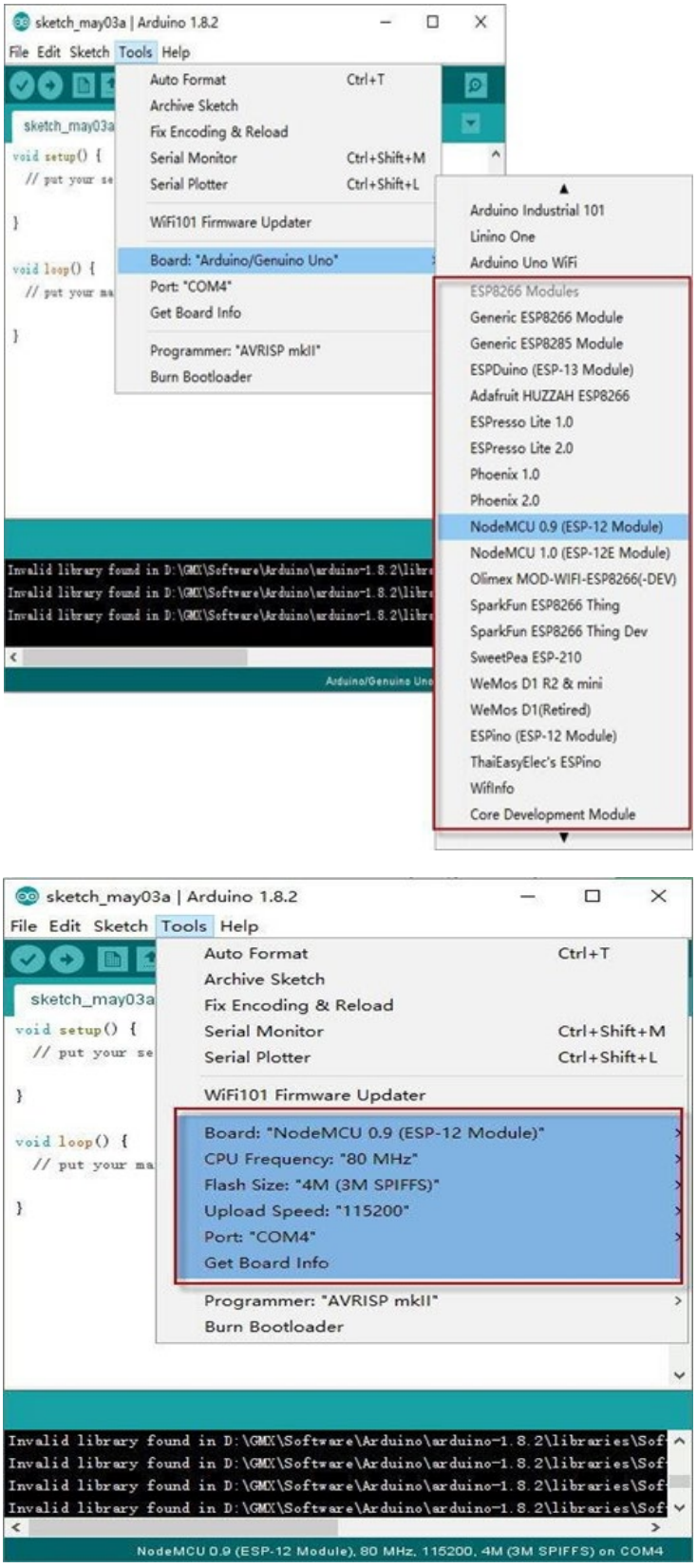


Figure 2. 4: Setup ESP8266 Support

2.5 Security Requirement

2.5.1 The Current System Security

The current system, which is Canvas, has its policy on its site page. The current system builds upon a user name and password access. Admin and Teacher can access to his/her account through their page, and they can control it.

2.5.2 User Access

Inside the community, there are students, teachers, and admin who are going to use the system. The main actor of the users in the entity is teachers and admin. Students will use the entity everyday by scanning their rfid tags by the beginning of each class. Teachers will use the system through Web based application, and they can access to student attendance record. Admin will use the entity to view attendance, Edit students, Register Students and Delete Students. Teachers is able to view attendance information, Edit student details and Register new students.Furthermore, admin will check on every student's identification for security purposes. They check on students for identification in person before they add, edit, update and delete any information from their rfid tags id records in the system. Admin will ask students for ID for identification and scan their rfid tags in the device if needed to make sure the person is identified.

2.5.3 Threats to the system security

This system may face many threats. Sometimes, it comes from a community insider. This could be someone who discloses the data form the database where it located. Another type of deception is false identification, such as a fake ID, when students present for the registration .The system will reduce this kind of misuse because the rfid tags scanning is more secure than others. Each of rfid tags has unique. However, admin who in charge the registration should check on the identification carefully before initiating any processes in the system. These records will be the official record for all students, since they begin school and until they graduate.

2.5.4 Levels of security:

1) Hardware: The RFID scanner devices must be located in a secure location.

2) The network:

3) The data management system:

1. Students can access to their classes to the system check by RFID.

2. Admin and Teacher would be the same as we have now, and they will control the attendance page/report.

3. The purpose of the registration office is to make sure every student has the right rfid tags id record and right information in the system on a consistent basis.

2.5.4 Level of access

Subject:

People level:

1) Users (students).

2) Teachers (Control on Attendance section).

3) Admin (control the system).

Computer level:

1) Hardware (RFID reader)

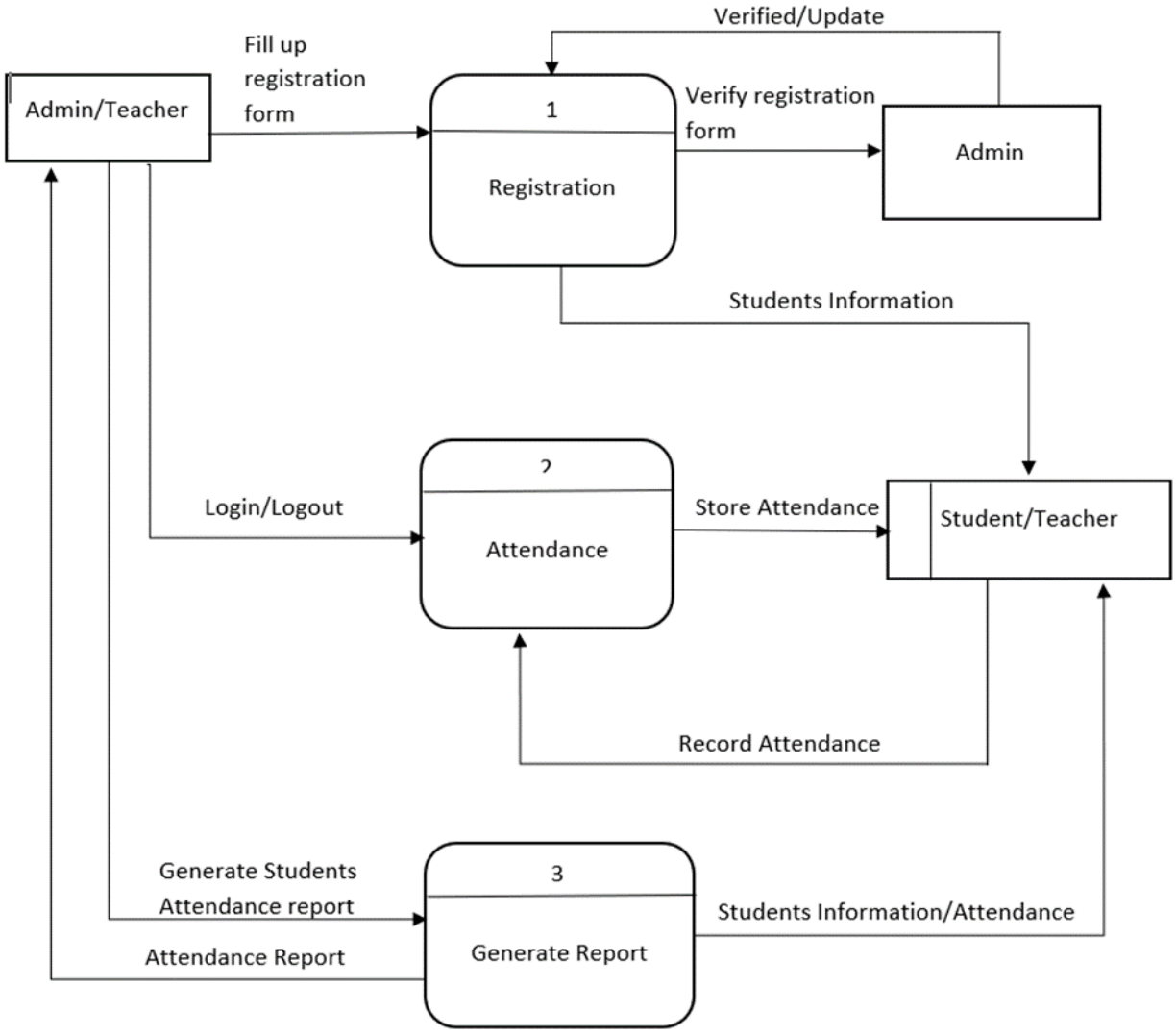
2) Software (the system)

CHAPTER 3

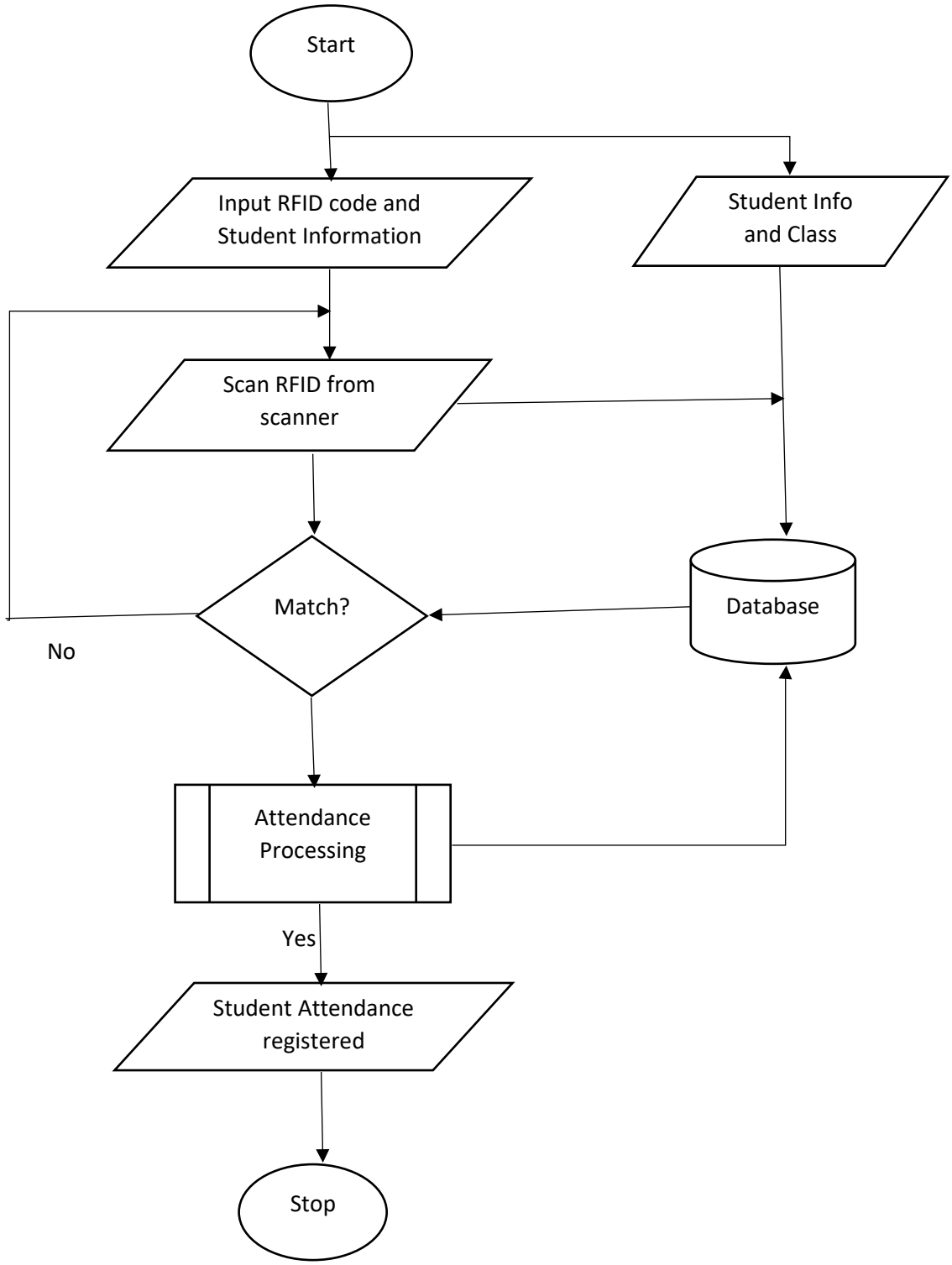
3.0 FINAL DESIGN

3.1 Logical Design

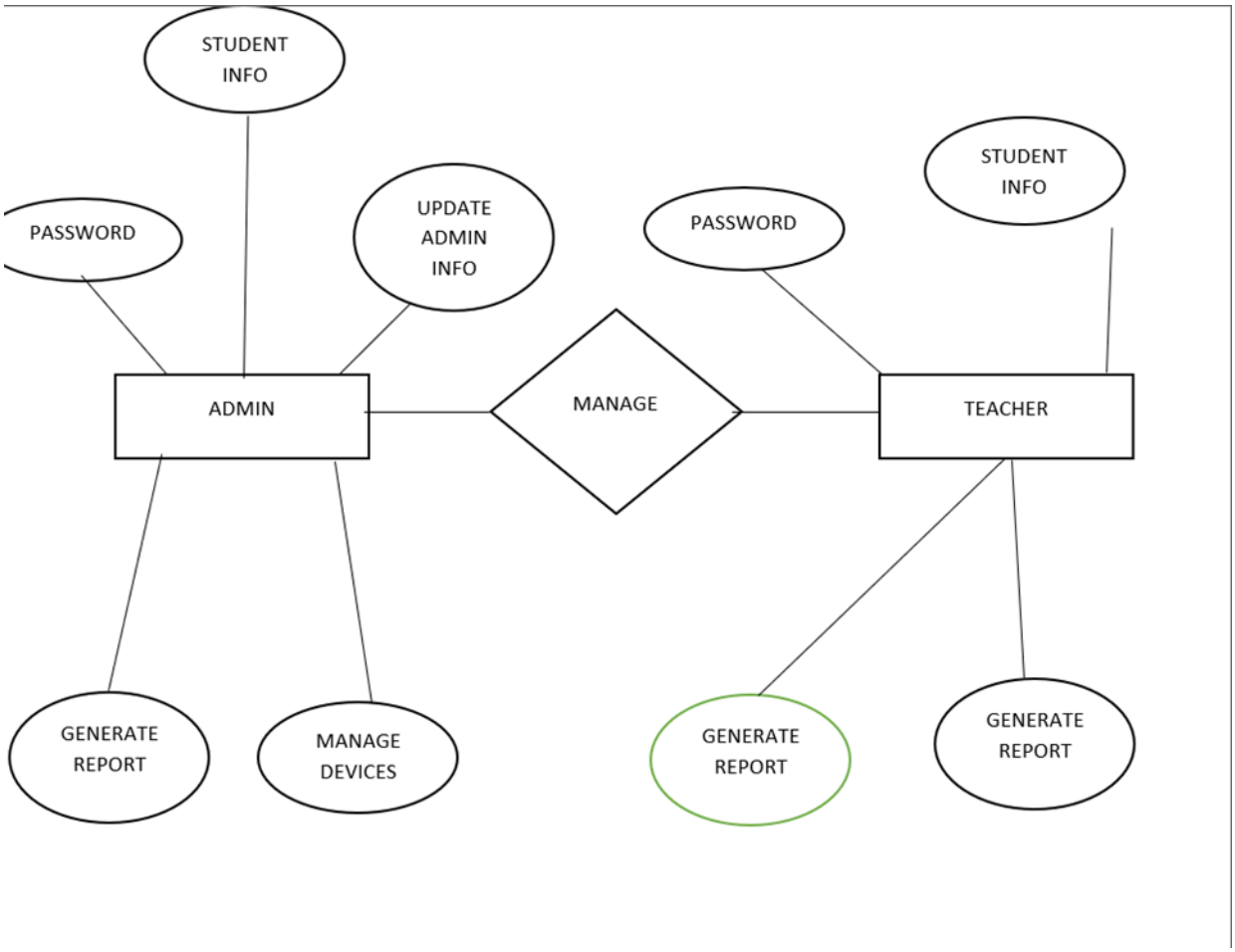
i) Data Flow Diagram



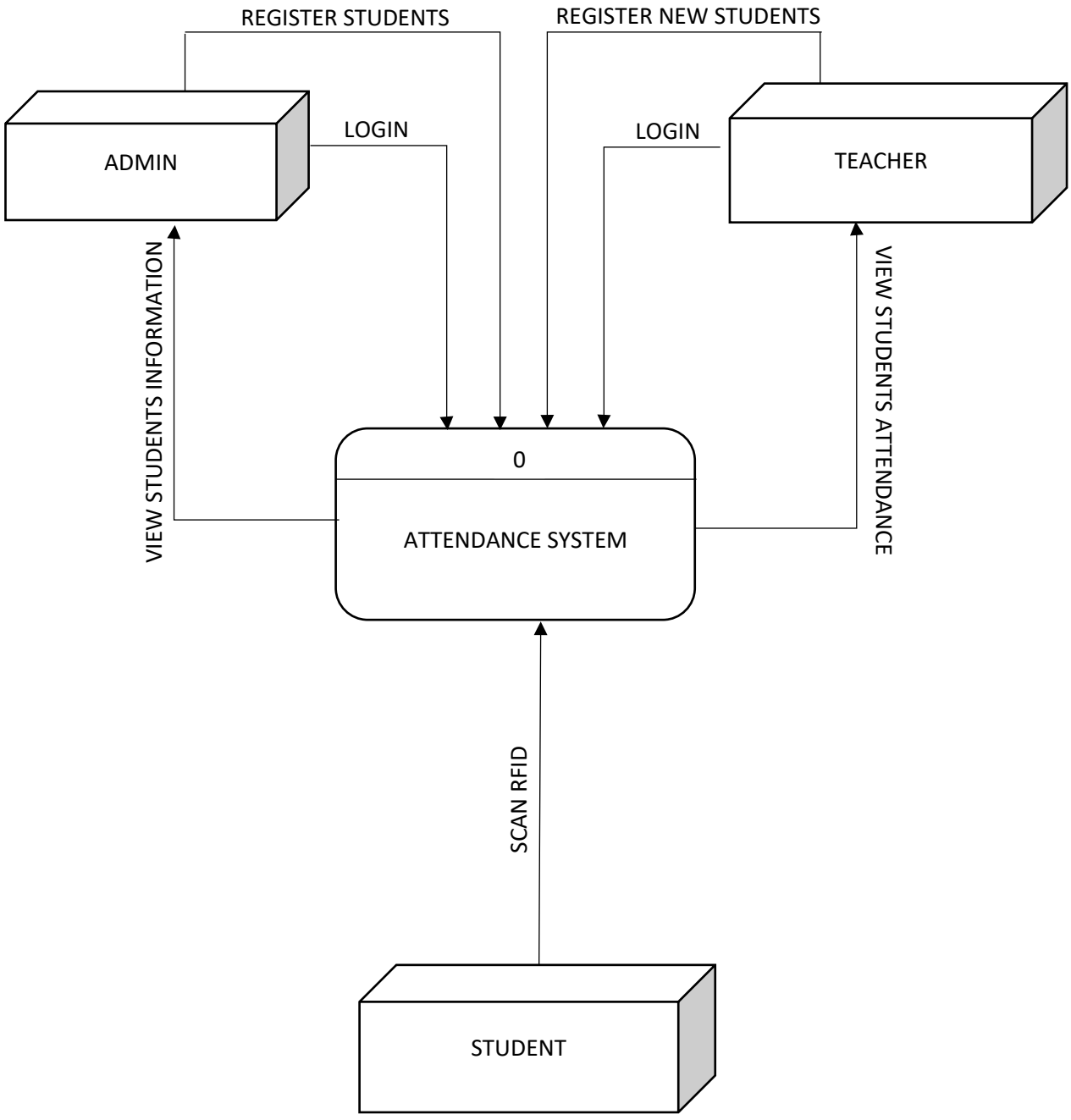
2) Flow Chart


Start
Input RFID code and Student Information
Student Info and Class
Scan RFID from scanner
Match?
Database
No
Attendance Processing
Yes
Student Attendance registered
Stop

3) Entity Relationship diagram

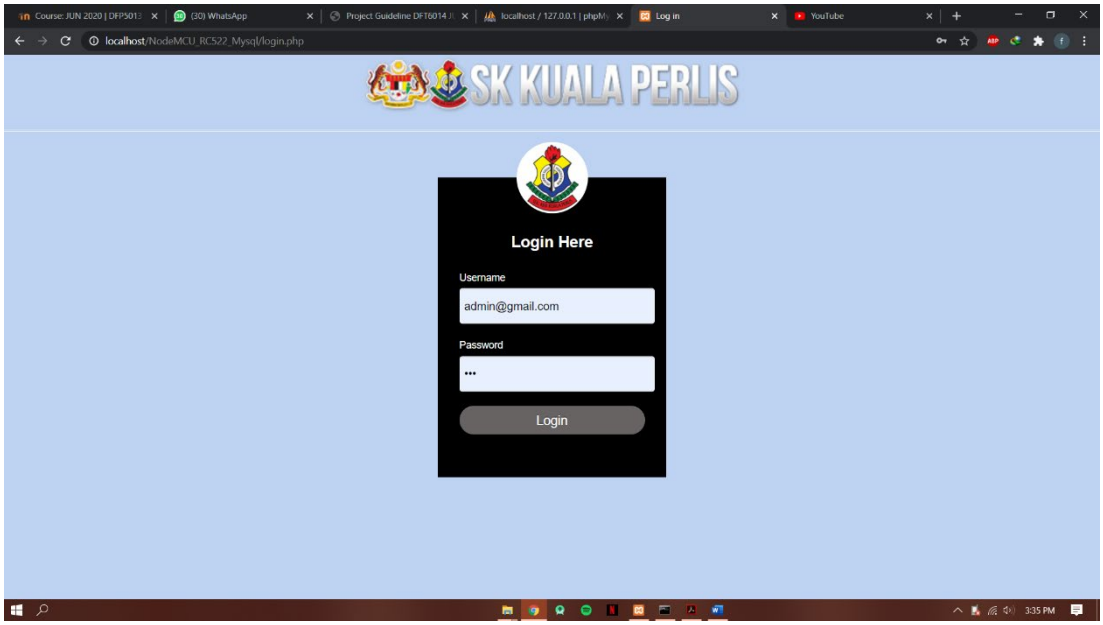


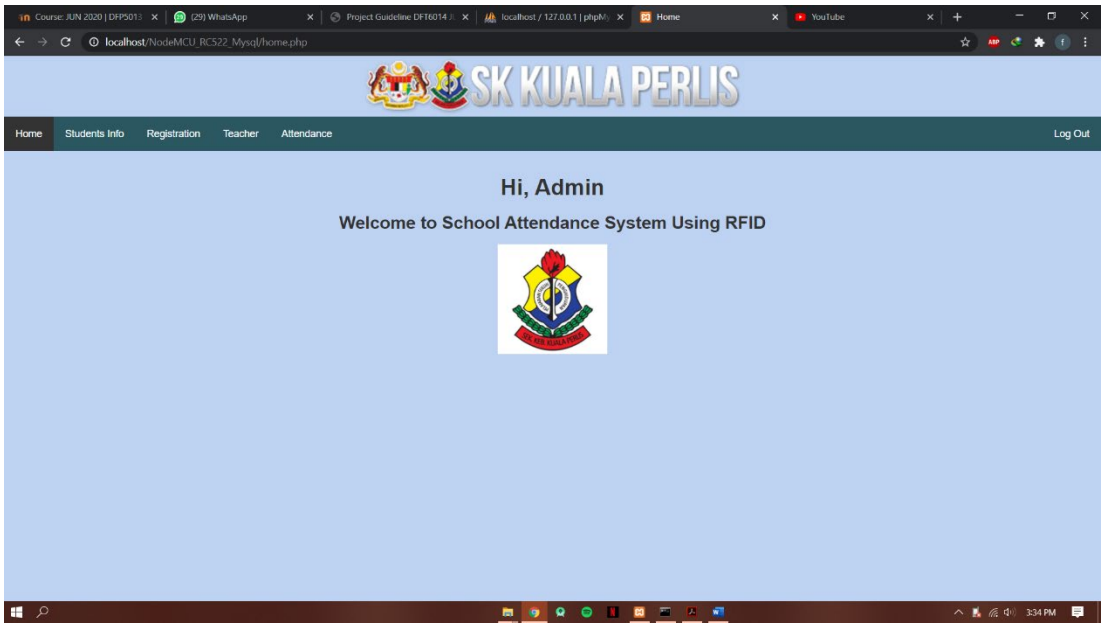
4) Context Diagram

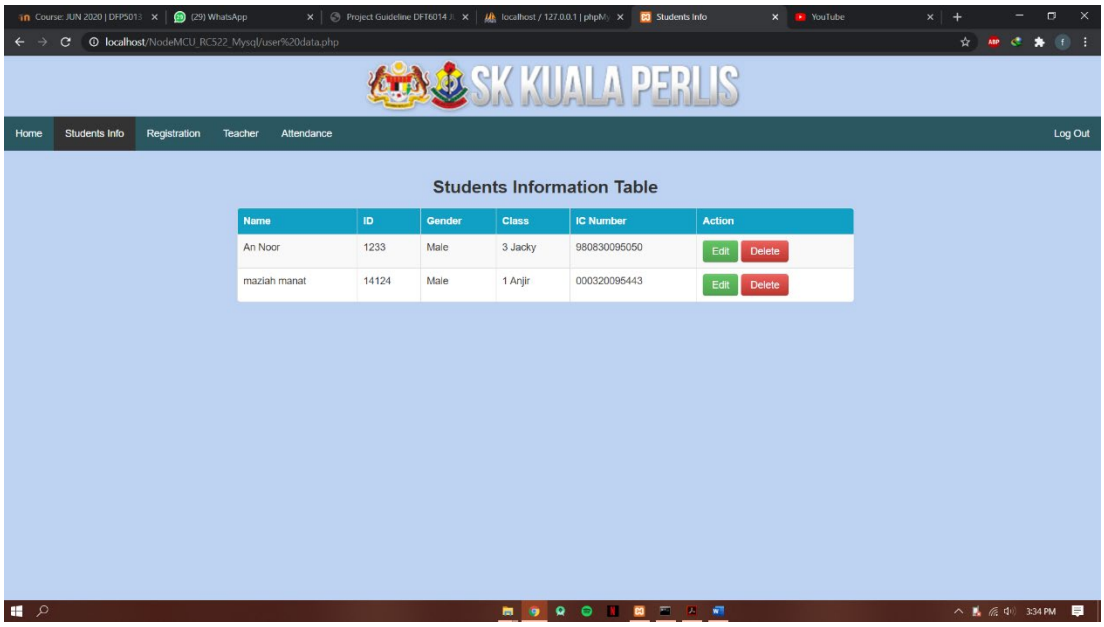


3.2 Physical Design

3.2.1 Interface for Admin



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Students Info
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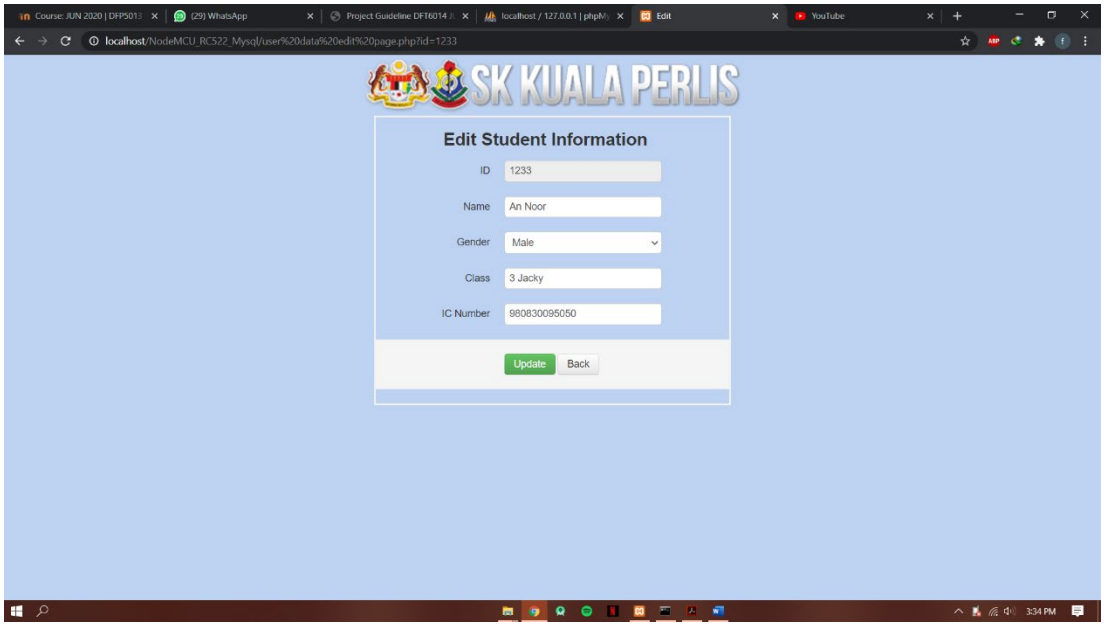
localhost/NodeMCU_RC522_Mysql/user%20data.php
SK KUALA PERLIS
Home
Students Info
Registration
Teacher
Attendance
Log Out
Students Information Table
Name
ID
Gender
Class
IC Number
Action
An Noor
1233
Male
3 Jacky
980830095050
Edit
Delete
maziah manat
14124
Male
1 Anjir
000320095443
Edit
Delete
3:34 PM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SK KUALA PERLIS
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Gender
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Class
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IC Number
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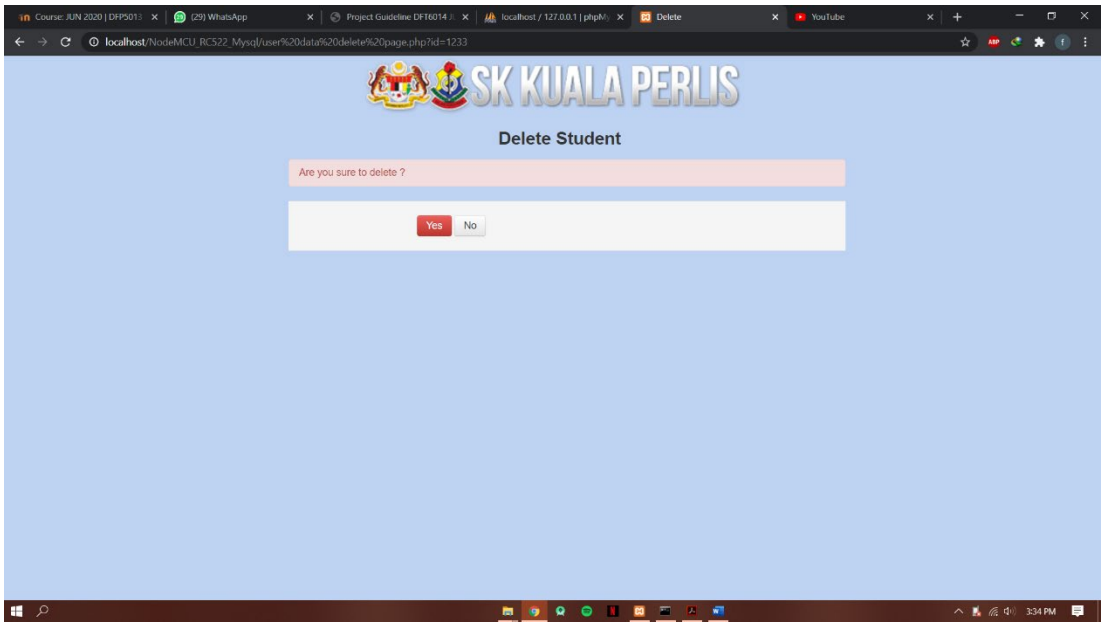
3:34 PM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Delete
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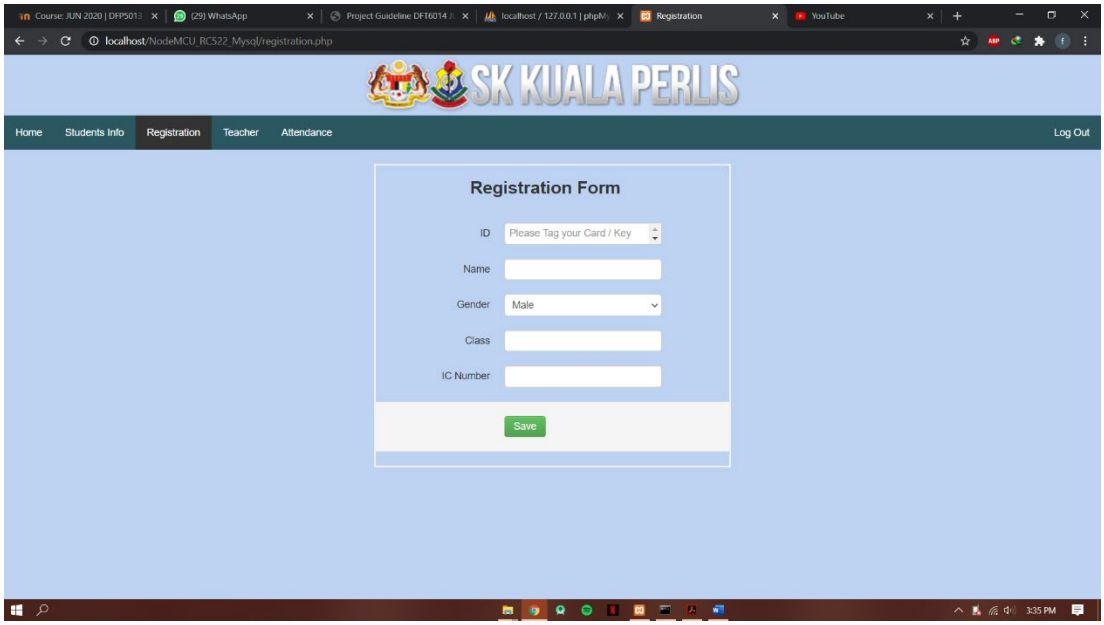
SK KUALA PERLIS
Delete Student
Are you sure to delete ?
Yes
No
3:34 PM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YouTube
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SK KUALA PERLIS
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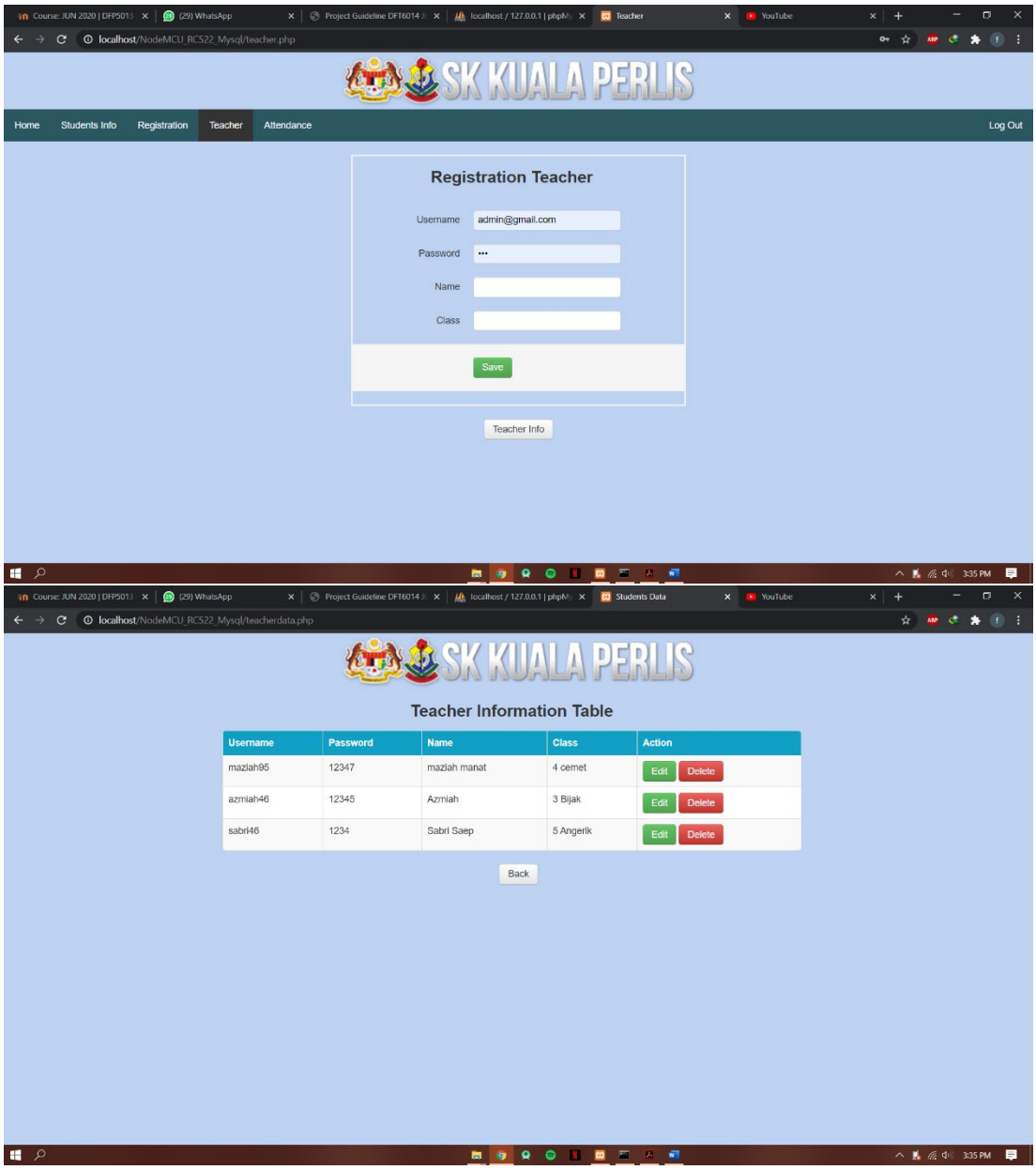
Students Info
Registration
Teacher
Attendance
Log Out
Registration Form
ID
Please Tag your Card / Key
Name
Gender
Male
Class
IC Number
Save
3:35 PM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localhost / 127.0.0.1 | phpM
Teacher
YouTube
localhost/NodeMCU_RC522_Mysql/teacher.php
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Home
Students Info
Registration
Teacher
Attendance
Log Out
Registration Teacher
Username
admin@gmail.com
Password
Name
Class
Save
Teacher Info
3:35 PM
Course: JUN 2020 | DFP5013
(29) WhatsApp
Project Guideline DFT6014
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SK KUALA PERLIS
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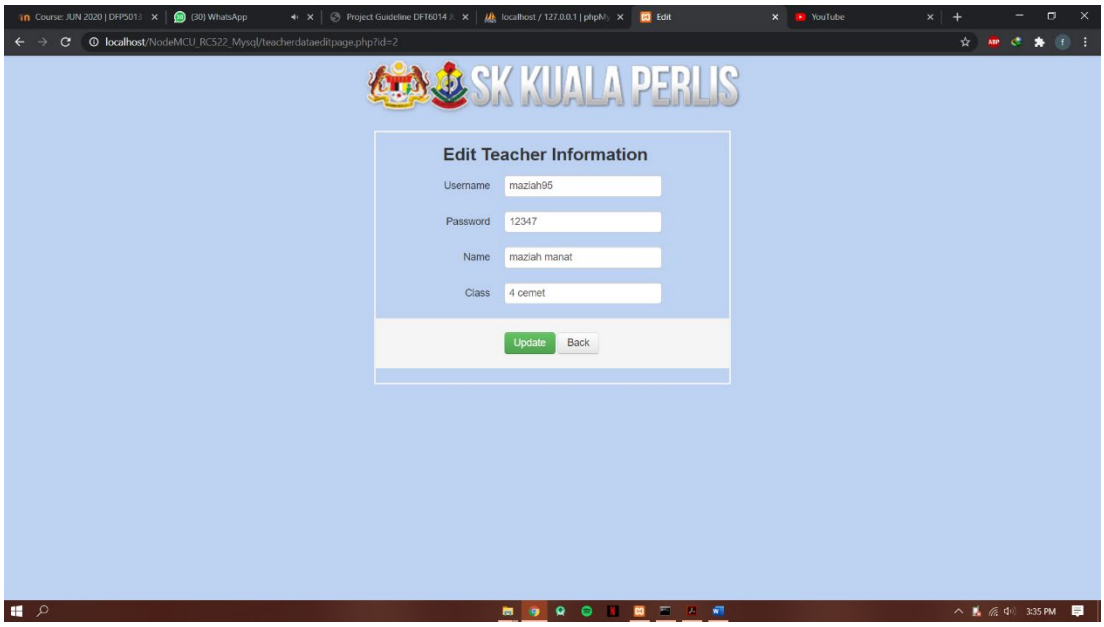
Username
Password
Name
Class
Action
maziah95
12347
maziah manat
4 cemet
Edit
Delete
azmiah46
12345
Azmiah
3 Bijak
Edit
Delete
sabri46
1234
Sabri Saep
5 Angerik
Edit
Delete
Back
3:35 PM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Edit Teacher Information
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Password
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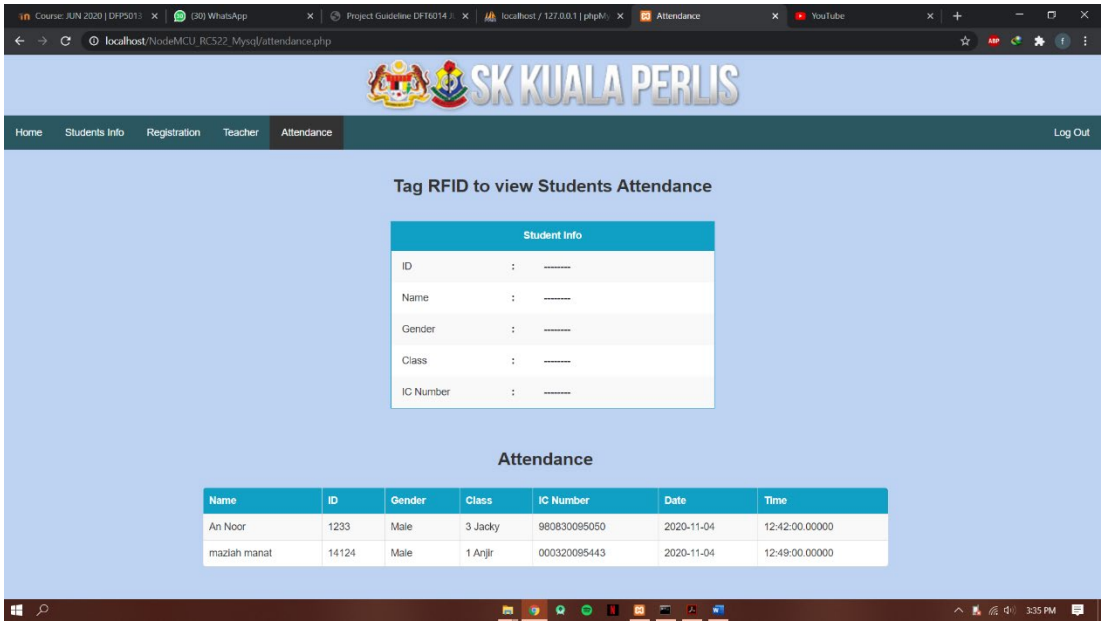
Name
maziah manat
Class
4 cemet
Update
Back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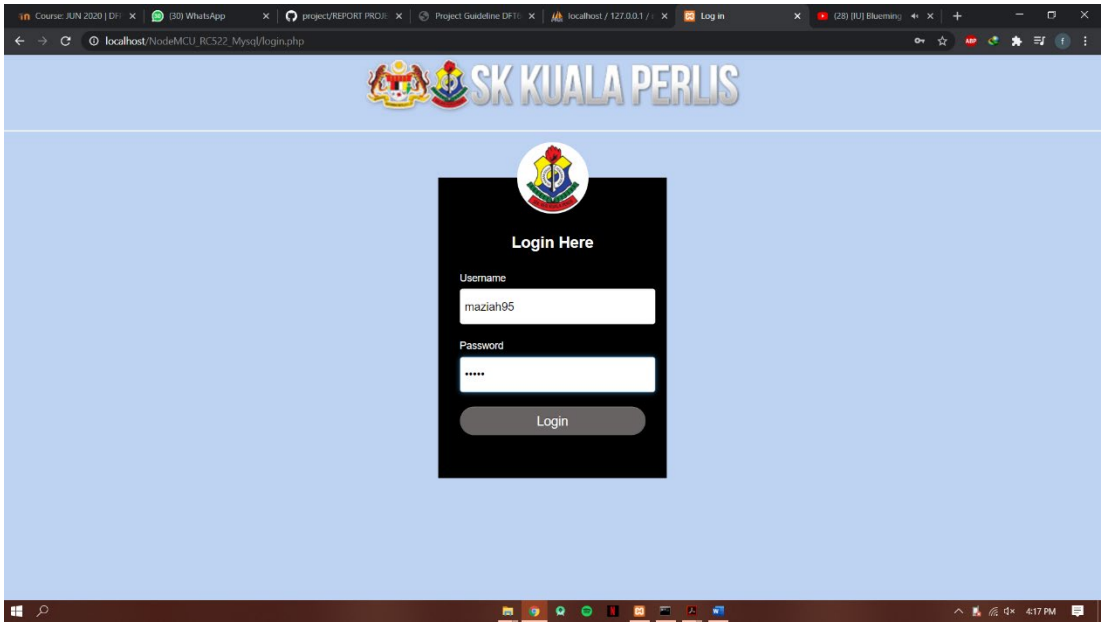
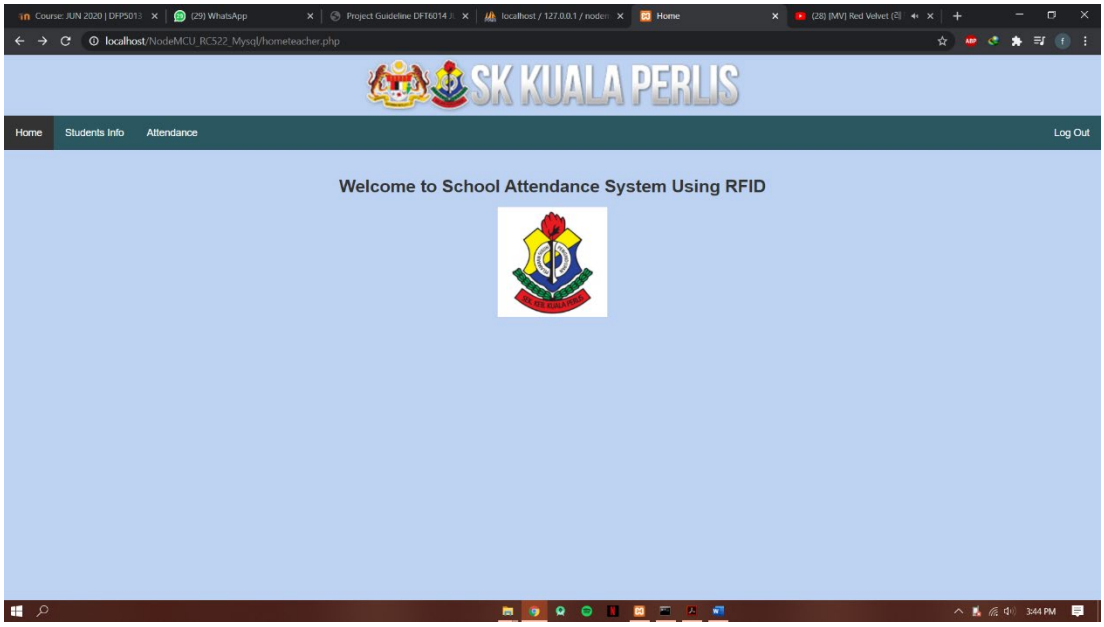
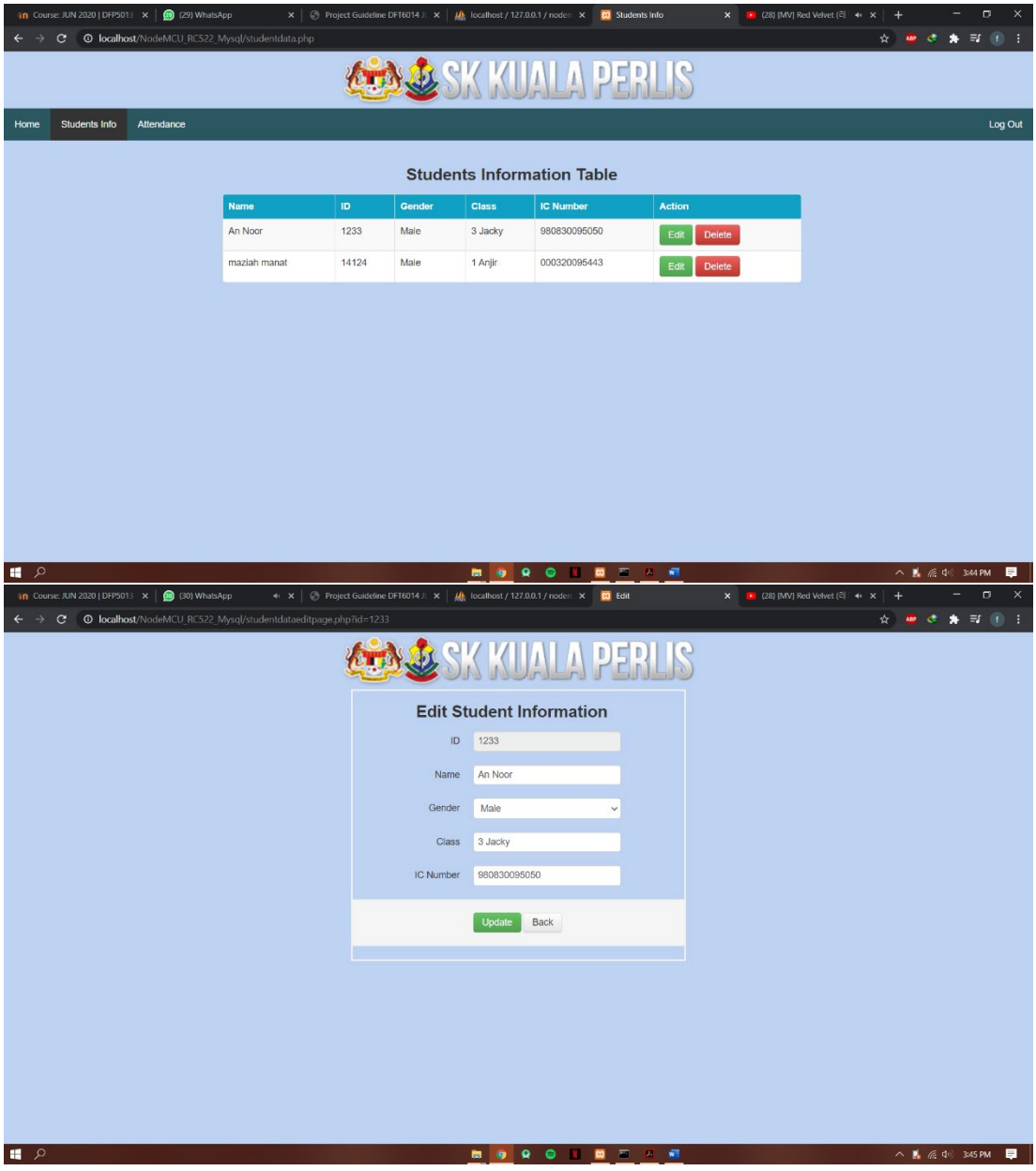
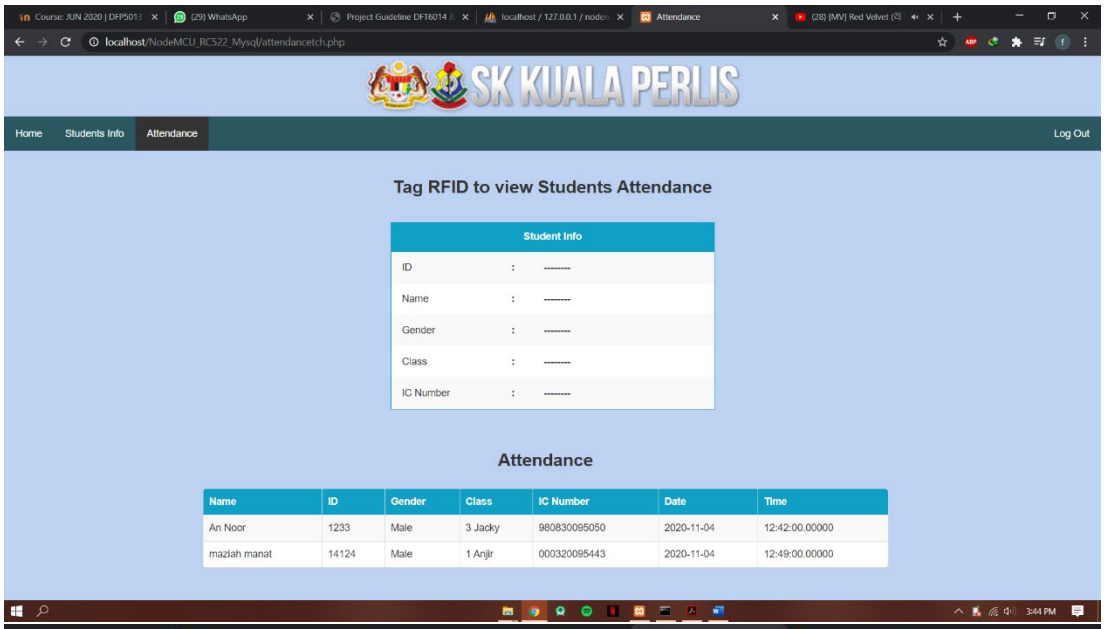
Home
Students Info
Registration
Teacher
Attendance
Log Out
Tag RFID to view Students Attendance
Student Info
ID : --------
Name : --------
Gender : --------
Class : --------
IC Number : --------
Attendance
Name
ID
Gender
Class
IC Number
Date
Time
An Noor
1233
Male
3 Jacky
980830095050
2020-11-04
12:42:00.00000
maziah manat
14124
Male
1 Anjir
000320095443
2020-11-04
12:49:00.00000

3.2.2 Interface for Teacher






localhost/NodeMCU_RC522_Mysql/studentdata.php
SK KUALA PERLIS
Home
Students Info
Attendance
Log Out
Students Information Table
Name
ID
Gender
Class
IC Number
Action
An Noor
1233
Male
3 Jacky
980830095050
Edit
Delete
maziah manat
14124
Male
1 Anjir
000320095443
Edit
Delete
localhost/NodeMCU_RC522_Mysql/studentdataeditpage.php?id=1233
SK KUALA PERLIS
Edit Student Information
ID
1233
Name
An Noor
Gender
Male
Class
3 Jacky
IC Number
980830095050
Update
Back


Attendance
localhost/NodeMCU_RC522_Mysql/attendancetch.php
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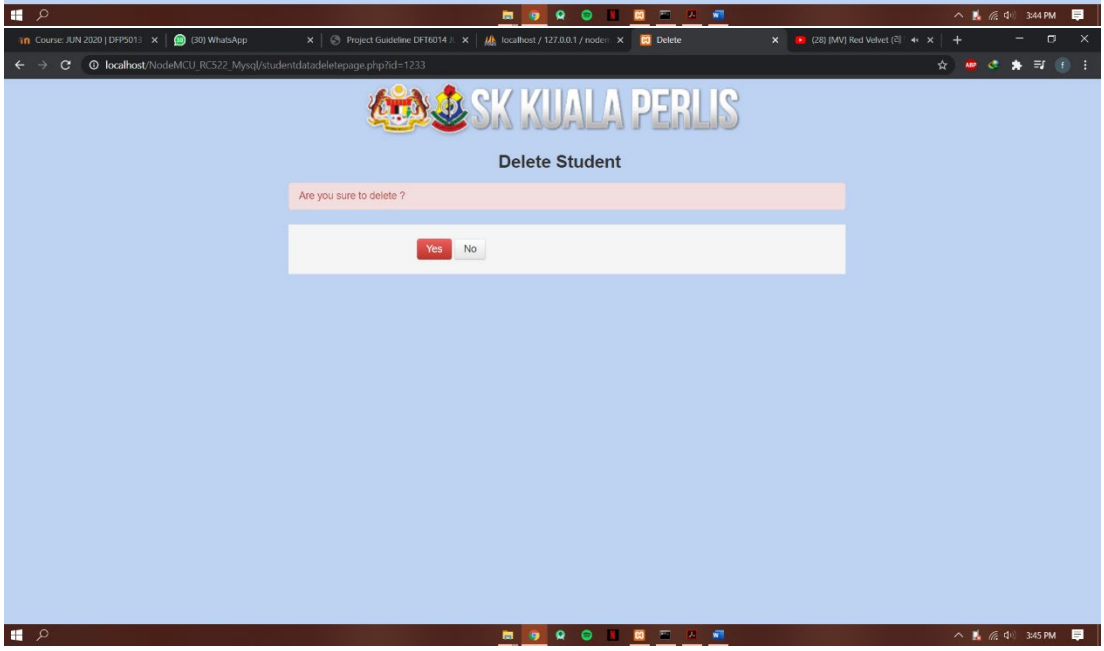
Home
Students Info
Attendance
Log Out
Tag RFID to view Students Attendance
Student Info
ID : --------
Name : --------
Gender : --------
Class : --------
IC Number : --------
Attendance
Name ID Gender Class IC Number Date Time
An Noor 1233 Male 3 Jacky 980830095050 2020-11-04 12:42:00.00000
maziah manat 14124 Male 1 Anjir 000320095443 2020-11-04 12:49:00.00000
3:44 PM


Delete
localhost/NodeMCU_RC522_Mysql/studentdatadeletepage.php?id=1233
SK KUALA PERLIS
Delete Student
Are you sure to delete ?
Yes
No
3:45 PM

CHAPTER 4

4.0 TEST DESCRIPTION AND RESULT

4.1 Unit Testing Plan

No.	Test Case Name	Test Procedure	Pre-Condition	Expected Result	Tester	Result(Pass /Failure)
1	Login	User is required to fill the username and password field before access the system.	Username and password are set already in system without registration	+ve case Prompt successful register -ve username and password does not match	Annoor	Pass
2	Logout	User logout from the system by clicking logout button	None	+ve case Prompt login page	Zihny	pass

Table 4.1 Web System Unit Testing Plan (UTP)

No.	Test Case Name	Test Procedure	Pre-Condition	Expected Result	Tester	Result(Pass /Failure)
1	Scan RFID tag/card	User touch their RFID tag/card at the scanner	The Student Information are set already in system if their is valid user and had registered.	+ve case Successfully Read data and save record attendance in database.	An noor	pass
2	Get daily student attendance record	Teacher can export daily student attendance record from web application	None	+ve case Successful export to excel	Zihny	pass

Table 4.2 School Attendance System using RFID Unit Testing Plan (UTP)

4.2 Integration Testing Plan

No.	Test Case Name	Test Procedure	Pre-Condition	Expected Result	Tester	Result(Pass /Failure)
1	Login	User is required to fill the username and password field before access the system.	Username and password are set already in system without registration	User will directly go to the homepage system after login	Annoor	Pass
2	Logout	User logout from the system by clicking logout button	None	User will directly go to login page after clicking button sign out	Zihny	pass

Table 4.3 Web System Integration Testing Plan (ITP)

No.	Test Case Name	Test Procedure	Pre-Condition	Expected Result	Tester	Result (Pass /Failure)
1	Scan RFID tag/card	User touch their RFID tag/card at the scanner	The Student Information are set already in system if their is valid user and had registered.	+ve case Successfully Read data and record attendance and display in web application	An noor	pass
2	Get daily student attendance record	Teacher can export daily student attendance record from web application	None	+ve case Successful export to excel	Zihny	pass

Table 4.4 School Attendance System Integration Testing Plan (ITP)

CHAPTER 5

5.0 DISCUSSIONS

5.1 Advantage of the Project

1. RFID-based attendance system is able to track the attendance accurately as each RFID tag is unique.

2. RFID-based attendance system is able to shorten the time compared to the current method which records the student attendance manually.

3. System to make it easier for teachers to record and view daily student attendance for more systematically from the web application.

4. Store all information in database safely.

5.2 Limitation of the Project

1.Security is an important issue in RFID based system. Anyone can use others RFID tag, so it will hamper in our security.

2.Time consuming is also an important issue. When start class time and all students come in front of the class and they attach student id card in RFID reader one by one that's take more time.

3.RFID is expensive than barcode system.

4.Liquid and metal things reflect when it comes near the RFID reader and then data is unreadable.

There is some limitation in RFID system. There is also an issue of security system. Therefore, that is why in future we can work on it. That no one can hack the system or no one can give proxy of other. Therefore, we will work on this in future. For future work, we think something on our project.

CHAPTER 6

6.0 CONCLUSIONS

Design and development of School Attendance System using RFID is one of best way to take attendance of the student. New Technology's modern invention in the monitoring system that provides more advantageous way and will be a massive success in improving the current traditional way of monitoring students.

The Institution Management faces many challenges like student missing, student bunking class, faculty marking fake attendance, faculty spending 30% time on Error manual Attendance, lack or no communication among students, Admin staffs. So all these things solved by Smart Attendance System using RFID. These RFID can detect student entry mark their attendance within 1 minute and sent notification to the teacher and student whole information will kept in database server.

CHAPTER 7

REFERENCES

[1] Anshulpareek, "Arduino Project Hub," [Online]. Available: https://create.arduino.cc/projecthub/gadgetprogrammers/version-2-0-advanced-attendance-system-without-ethernet-0402ba?ref=similar&ref_id=151659&offset=4.

[2] Mxtronixtech. [Online]. Available: https://www.projectsof8051.com/rfid-based-attendance-management-system/.

[3] A. V. Konni, "Instructables Circuits," [Online]. Available: https://www.instructables.com/id/Automatic-Students-Attendance-System-Using-Arduino/.

[4] I. D. PRO. [Online]. Available: https://iotdesignpro.com/projects/arduino-rfid-based-attendance-system.

[5] M. Alam, "Electronics how to!," [Online]. Available: https://how2electronics.com/iot-rfid-attendance-system-arduino-esp8266/.

[6] Pratikdd, "Slide Share," [Online]. Available: https://www.slideshare.net/Pratikdd/smart-attendance-system-using-rfid.

[7] J. Paredes, "Arduino Project Hub," [Online]. Available: https://create.arduino.cc/projecthub/jeffpar0721/add-wifi-to-arduino-uno-663b9e?ref=platform&ref_id=424_trending___&offset=8.