**AUTOMATED DOOR SECURITY AND MONITORING SYSTEM USING NODEMCU V3 FOR**

**SELECTED OFFICES OF USTP – OROQUIETA CAMPUS**

**An Undergraduate Thesis Presented to**

**The Faculty of the Department of Information Technology University of Science and Technology of Southern Philippines Oroquieta Campus**

****

**In Partial Fulfillment of the Requirements for the degree**

**Bachelor of Science in Information Technology**

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**May 2021**

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**ABSTRACT**

Door locks are essentials. They give safety and security like no other appliance or tool. They serve as shields, helping to keep your facility and workspace secure and private. Door locks allow us to prevent stealing and prevent breaking into our property.

As we all knew, USTP Oroquieta Campus is still using the old safety method for the door lock in the facility. It still used keys to unlock the doors and it lacks appropriate monitoring system in the entrance and exit of the facility rooms. It is very important to check every person or assigned staff who is going to enter the facility to prevent crime such as stealing important files and properties or damaging the important facility that controls the computerized system like the server room.

Therefore, the research team confidently says that the proposed system Door Security and Monitoring system will give a more secure, modernized, cost-efficient, user-friendly, and convenient to the Server Room of the University of Science and Technology of Southern Philippines in Oroquieta Campus and its employees.

**DEDICATION**

First and foremost, we thank God for letting us live and to experience this thesis journey. We are forever grateful to our Instructors for their encouragement and patience through this process. We will never be able to repay you for all of your assistance.

Also, this study is wholeheartedly dedicated to our beloved parents who have been our source of inspiration and gave us strength, and continuously inspiring us to be more productive, who continually provide their moral, spiritual, emotional and financial support throughout our research period.  
 And it is our genuine gratefulness and warmest regard that we dedicate this work to the facilities and offices of the University of Science and Technology of Southern Philippines - Oroquieta Campus and the employees as well.

**ACKNOWLEDGMENT**

We would like to thank our respected adviser Mr. GERZON UDANGfor his critical supervision, support, and instructions during the journey of our studies. Our gratitude extends to the Faculty and Instructors for the funding opportunity to undertake our studies at the Department of Information Technology, University of Science and Technology of Southern Philippines Oroquieta – Campus. Additionally, our group would like to show our sincere thanks to ENGR. JONIKO ANGELO MEDINA for his treasured support which was influential in shaping our experiment methods and critiquing our results.

We also thank MS. MAYOLYN NARANJO and the staff of our department for their mentorship. We would like to thank our friends, colleagues and research team, JOHN MICHAEL V. PARIAN, HENRY KIM C. SUMAYLO, EMILYN V. GAMOTIN, and ELA P. SUACILLO for a cherished time spent together in the studies, and in social settings. Our appreciation also goes out to our families for their encouragement and support all through our studies.

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**CHAPTER 1**

**INTRODUCTION**

* 1. **Background of the Study**

Technology is rising rapidly. Many inventions are created for the comfort of human beings in the world. These inventions made life easier and their growth is unstoppable because of the unending needs of humans. Automated machines were then created for easier work. With these machines, work became easier and workers will be more productive. The usage of the internet as storage or cloud and for communication has been so helpful to us people especially in the IT field. Projects then used the cloud for storing their data for it is accessible in real-time through the internet. NodeMCU is one of the basic or most commonly used micro-controller for beginners.

This is writable via Arduino IDE. The micro-controller has a lot of libraries to use and compatible equipment like sensors, motors, etc. Even RFID Module is available, the module has a lot of libraries and easy to use. Nowadays we use door keys to open the door locks also use passcodes to open some doors as well as fingerprint and RFID are also available but we are not able to check them. Manual door locking systems are mostly used in offices, laboratories, and libraries where most important documents are stored.

But manual control is not capable of it so we developed a system which can check the access over the distance through a wide area network. The system proposed can be used not just for offices, laboratories, and libraries but also in school or university cashiers where the student’s payments are stored. The main focus of the study is to design/create a user-friendly and low-cost system that can be installed effortlessly, low in maintenance, and customizable based on the client’s requirements.

Most schools, universities, or colleges' archives use old methods like logbooks in their system. This has a lot of security issues and unreliable information of people who entered the facility. Because of this, we would like to propose a wireless door security and monitoring system with an RFID module and the data will be stored in the cloud. The project will make the server room modernized and more secure for the RFID’s unique identification.

* 1. **Overview of the Current State of Technology**

Security is a must in places or offices where important documents, equipment and money are stored. Inventions were then made to cater regarding the issues on security. The said inventions are made to give not only security but the safety of the employees as well.

As we all know, USTP Oroquieta Campus is still using the old safety method regarding the door lock in the facility. They have been using a key to unlock the door and also they lacked appropriate monitoring system in the entrance and exit of the facility room. It is very important to monitor every person or assigned personnel who are going to enter to prevent crime such as stealing important files and properties or damaging the important facility that controls the computerized system like the Server Room.

**1.3 Statement of the Problems**

The researcher wishes to indulge to a solution problem when it comes to door locks problems.

**1.3.1 Specific Problems**

* In our research, there was no proper monitoring of the security log of vital offices.
* No monitoring system that monitors every person that is going in and out of the selected offices of the University.
* Poor performance of the traditional door lock and not having the door locking system.

**1.4 Objective of the Study**

* Provide a monitoring system to track down the authorized persons who entered the said facility at a specific time of day through automation.
* There should be a web-based interfaced system and should possess straightforward and user-friendly features.
* There should be a renewed reliable and cost-efficient technology that provides a better and enhanced device for security.

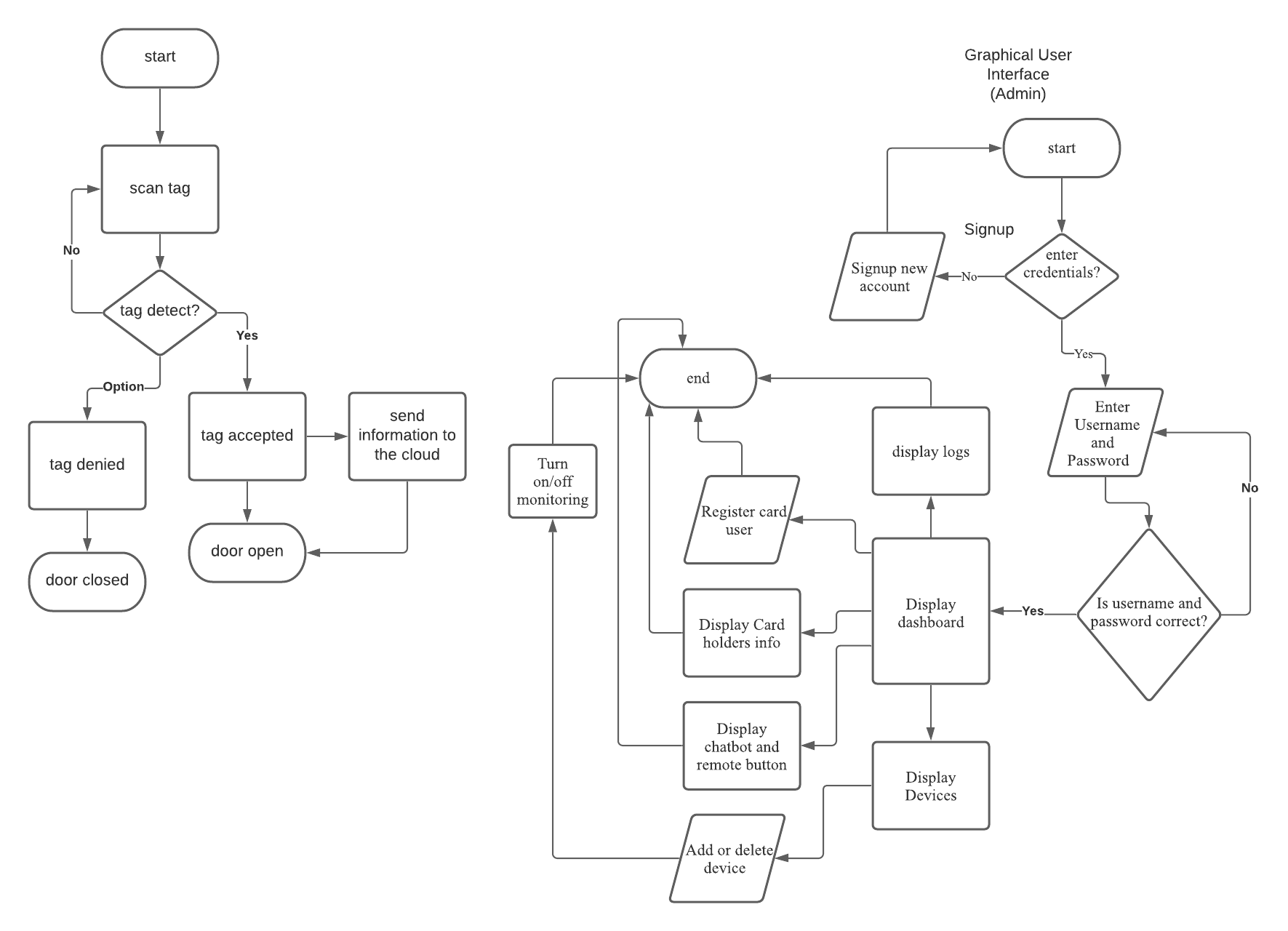
**1.5 Theoretical Framework**

This chapter introduces and describes the theory that explains the problems existing under the study.

The technology aims to reduce human efforts that, rather than traditional mechanical processes, make use of automated procedures. The system is assigned to provide a lock system for the selected offices of the University of Science and Technology of Southern Philippines.

The proposed system will provide a more secure and modern system for the convenience of the client. The client will freely provide the researcher the data needed regarding the client’s current system and also the client will provide honest expressions of their knowledge regarding the topic

**1.5.1 Flowchart**



*Figure 1.1 System Flow chart*

**1.6 Statement of the Objectives**

**1.6.1 General Objectives**

The main objective of this project is to provide better security when going in and out in the selectedofficesand enables them to complete more safety actions and less work on the existing manual door lock of the University of Science and Technology of Southern Philippines (USTP) - Oroquieta Campus.

By developing a more convenient Automated Door Security and Monitoring System that makes use of an RFID scanner and email notifications that will help to monitor every person and designated personnel who are going to enter the facility, and also for no hassle and faster access when opening the door.

* + 1. **Specific Objectives**
* Provide a monitoring system to track down the authorized persons who entered the said facility at a specific time of day through automation.
* There should be a web-based interfaced system and should possess straightforward and user-friendly features.
* There should be a renewed reliable and cost-efficient technology that provides a better and enhanced device for security.

**1.7 Significance of the Study**

In this section, the researchers provide brief descriptions of the significance of this study. The aim is to develop access to control a system for the facility room. Moreover, it will be very advantageous to the following:

**Institution**: This study will provide education authorities with a comprehensive understanding of security.

**Administration:** This study will form the basis for the improvement and development of the institution's access control management by providing reliable documentation for the implementation of an access control system.

**Faculty:** This proposed study will benefit them in terms of handling responsibility in controlling access and monitoring who enters and leaves the facility room. Also, it offers convenience on their part in the sense that they make use of automated access.

**Researchers:** This study serves as their reference or guide in creating related studies or research.

**1.8 Scope**

The study focuses on the implementation of an RFID door lock system in the selected offices of the University of Science and Technology of Southern Philippines – Oroquieta Campus and its authorized staff.

**1.9 Limitation**

This study is tested and used at the University of Science and Technology of Southern Philippines – Oroquieta Campus existing door lock by implementing the system and improving security in the selected offices, particularly the server room. The university will provide batteries in line with the hardware connections of the system to provide backup power in case of power interruption.

**1.10 Definition of Terms**

This section will provide the definition of terms of acronyms or terms that are ambiguous.

**RFID** – is a wireless technology that extracts a unique identifier from the microelectronic labels attached to the articles to provide unambiguous automatic line of sight identification.

**RFID tag** – is a kind of tracking system that uses intelligent barcodes to identify items.

**RFID Reader** – To define, categorize, and track properties, a system that uses radiofrequency waves to wirelessly transmit data between itself and an RFID tag is used.

**PHP** – is a common open-source general-purpose scripting language that is well-suited for web development and can be incorporated into HTML and back-end programming languages to provide GUI functions.

**HTML** – short for Hypertext Markup Language, a basic markup language for creating webpages.

**CSS** – calculate the details of a file recording style, such as fonts, colors, etc. which are read by browsers so that the style is consistent across multiple web pages.

**Cloud** – any part of the Internet, often exclusive, that allows online document and data processing and storage, as well as electronic access to software and other resources.

**Bootstrap** – is the most widely used CSS platform to create reactive and mobile websites first.

**Wireless Router** – is a device that combines the features of a router with a wireless access point, generally allowing a computer or other device to access a broadband Internet connection wirelessly.

**RFID** – This component will be used to control, secure, and supervise people entering the facility.

**NodeMCU V3** – A microcontroller with embedded Wi-Fi module. Used to control the RFID lock and solenoid and sends the data collected through the cloud.

**CHAPTER 2**

**REVIEW OF RELATED LITERATURE**

**2.1 RFID Based Automatic Door System**

It is a project system made by the author Robodia Technology from India. They created a simple RFID-controlled door security system using LCD as its user interface. This project was made possible from a cheap prototype to see if such a robust system could be developed using the micro-controller Arduino.

**2.2Foreign Study**

Previous studies in smart home technology have used IoT to remotely control and track various appliances, such as fire, gas, water, air conditioner, and fan. (Vikram et al., 2017) Some studies concentrate on energy conservation as a way to save money. (Alaa et al., 2017)

Andreas et al. (2019) proposed a Door Security System for Home Monitoring Based on the ESP32 system that monitors and controls the door remotely, a notification warning if a motion is detected near the door.   
 A home security system proposed by Agarwal et al. (2017) called the HDSL system, which will unleash the fear of laziness. The HDSL is a high-definition television signal. The device itself has two key functions: 'Home Security,' which can analyze people outside the door, and 'Intruder Detection,' which can detect people inside the house.

'Smart Locking,' which allows members of the household to monitor the locking mechanism using their smartphones, is a good example. A Raspberry Pi 3 is needed to control hardware like cameras, motion sensors, and electric locks.

Ketan Rathod1 et al. (2017) Proposed a mobile application using Arduino as its micro-controller. The system detects whether the door is locked or unlocked using Ultrasonic sensor and LDR values. The micro-controller receives a command from a smartphone over Bluetooth. The paper was designed for home security systems using cheap materials like Arduino.

**2.3 Local Study**

Bernardo et al. (2015) proposed an automated security system called Automated Classroom Magnetic Door Lock with Attendance Monitoring System using Radio Frequency Identification.This is a study by a group of students from Notre Dame of Tacurong College. The study focuses on the automation of the classroom door lock and attendance monitoring system.

The system was made to record teachers’ and students’ attendances, entry and exit logs. The system uses Arduino Uno as its micro-controller. The Arduino is connected to the RFID reader the electromagnetic lock then connected to the desktop computer.

**CHAPTER 3**

**METHODOLOGY**

* 1. **Information Gathering**

The study focuses on the modernization of the existing door locking system in the server room of the University of Science and Technology of the Philippines in Oroquieta Campus. The proposed system will not only be modernized but will also provide a more secure and convenient experience for employees who can access the facility. The system will also help the client to monitor and track the persons who entered the facility at a specific time reliably and conveniently. The interfaced system would possess straightforward and user-friendly features, thus in the process, would help minimize or eliminate the client’s current manual system and provide a reliable monitoring system.

The researchers conducted a group interview of the technician of the University of Science and Technology of Southern Philippines – Oroquieta Campus, on behalf of the chairman of the Department of Information Technology. The researchers documented the interview and analyze the said facility.

**3.1.1 Instrumentation and Data Collection Procedure**

The researchers conducted a group interview with the technician of the University of Science and Technology of the Southern Philippines – Oroquieta Campus. The researchers took notes during the interview and examined the facility.

The researchers used internet research as one of the most effective methods of gathering data, focusing on relevant literature from various countries as well as video instructional exercises that aid in the development of a framework. The researchers decided to take down notes of all important components that relate to the proposed system. The researchers conduct random testing of the machine on how it goes.

**3.1.2 Research Settings**

On behalf of the chairman of the Department of Information Technology, the analysis was conducted at the University of Science and Technology of the Southern Philippines – Oroquieta Campus.

* 1. **System Design**

**3.2.1 Design Implementation**

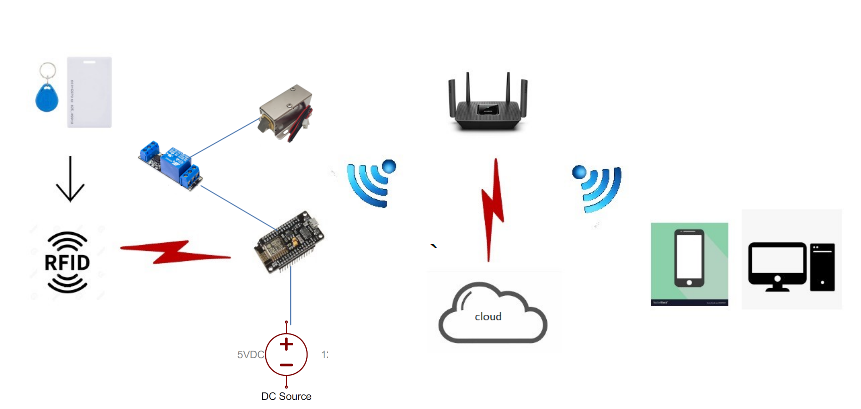




*Figure 3.1 demonstrates the prototype's architecture for the whole devices*

**3.2.2 System Architecture**

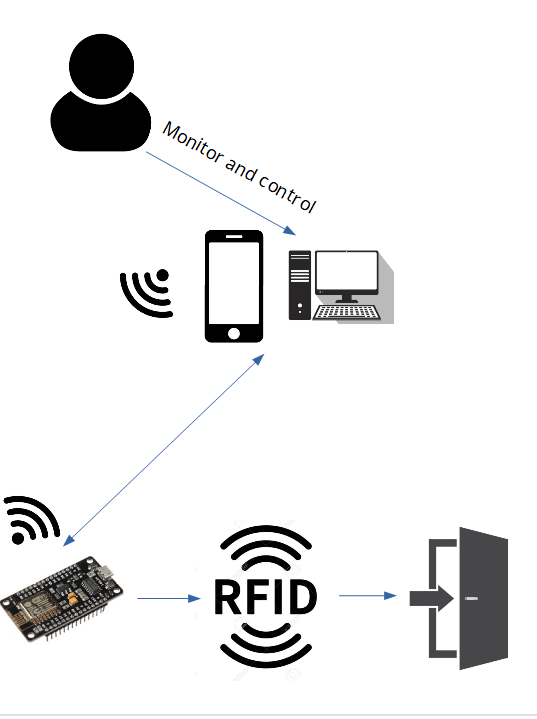
*Figure 3.2* shows the architectural design of the system. The microcontroller communicates with a smartphone app and a web app to monitor the device and display information on a computer or in a smartphone. The microcontroller is a NodeMCU with a built-in Wi-Fi module that handles the system's communication and data transmission. The entire system is incorporated into a web application, which shows information and data about employees who are entering and exiting the selected office. The system is powered by NodemCU and solenoid. The microcontroller is served as the main core of the system it controls every component connected to the system.



*Figure 3.2 Automated Door Security and Monitoring System Architectural Design*

**3.2.3 Conceptual Design**

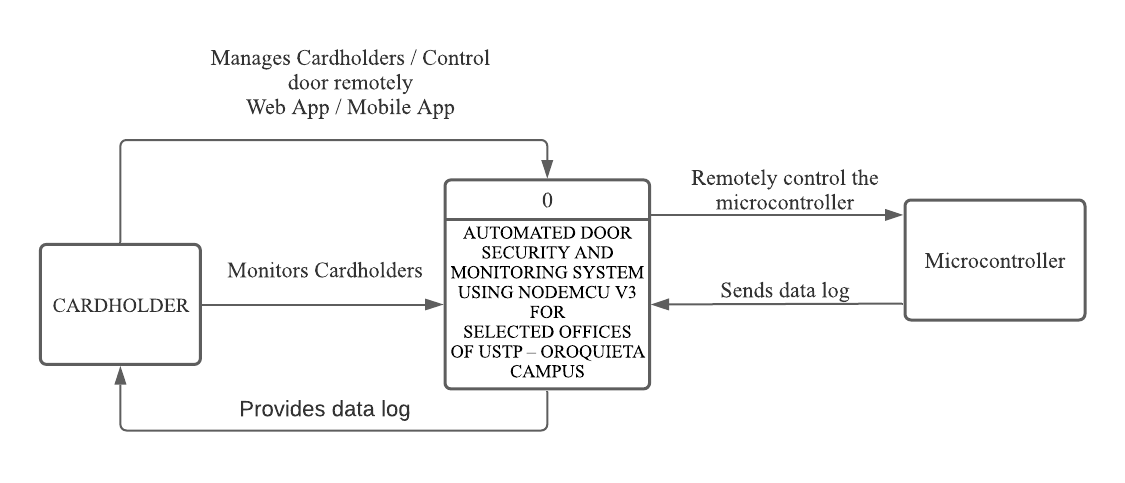
*Figure 3.3* shows the streamlined conceptual design of the system. The employees and the authorized personnel are the main users of this system that can control and monitor through a mobile application or in the web application. Employees and approved staff are the primary users of this device, which they can access and track through a mobile app or a web app. The mobile device and web application are incorporated into the microcontroller and other components as part of the system's sorting process. The components of the sensor are the variable in the automated mode, in the RFID sensor, it detects any person entering and exiting, and the solenoid will automatically open after the RFID card is swiped. The device is intended to increase security while reducing the amount of effort required in opening the door.



*Figure 3.3 Conceptual Design*

**3.2.4 Context Diagram**

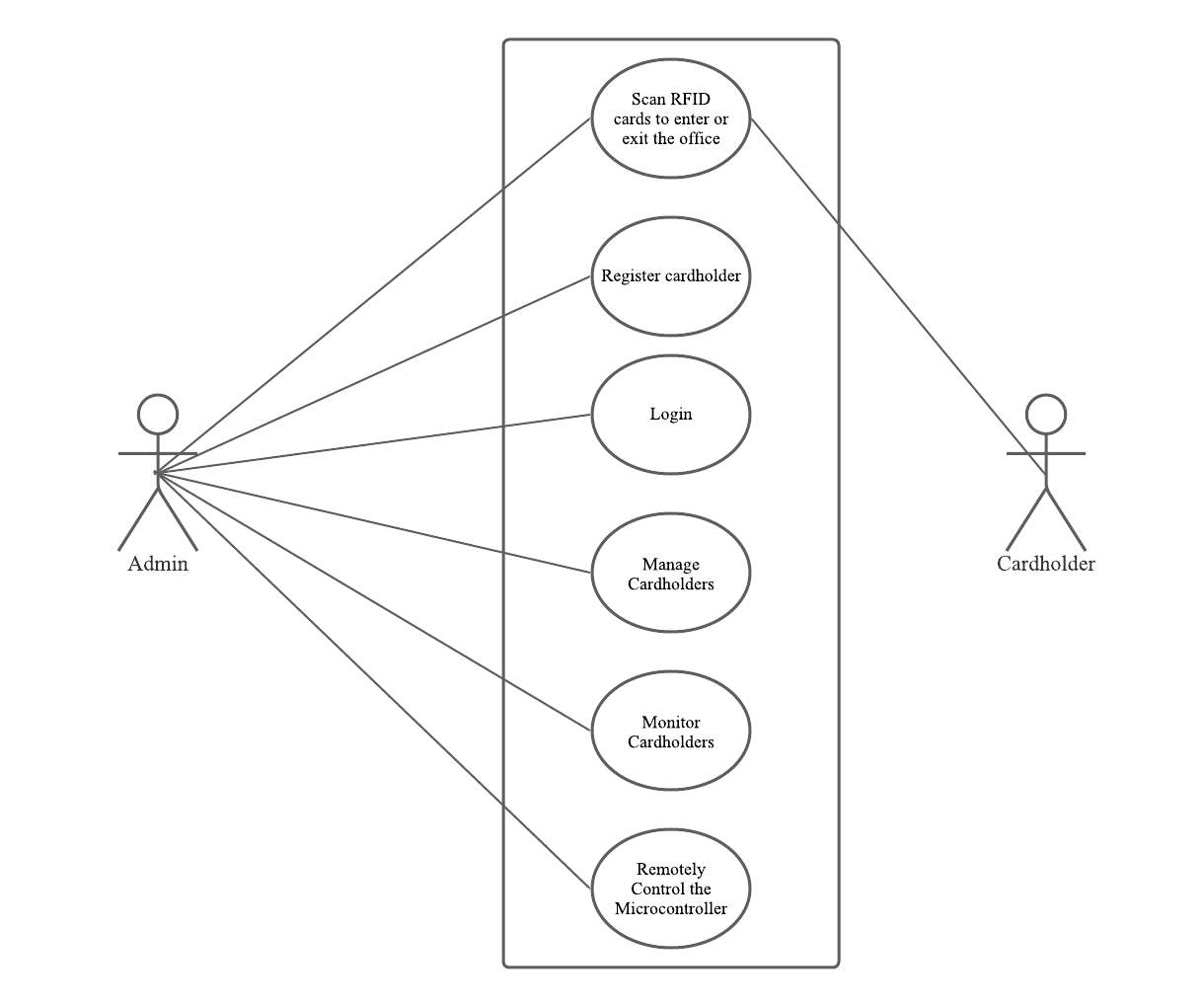
*Figure 3.4* shows the system's background Data Flow Diagram Level 0. Via a mobile application or a web application, approved personnel may track and manage the device. The authorized personnel can input/change the personal information of the cardholders and remotely control the microcontroller. The system maintains a data log for employees as well as the administrator, who is the only person who has access to the graphical interface.



*Figure 3.4 Automated Door Security and Monitoring System Context Diagram*

**3.2.5 Use Case Diagram**

*Figure 3.5* shows the system’s Use Case Diagram of the personnel and the admin being the users of the system. Both of them are capable of accessing the system but the personnel has a limit of accessing the features of the system like, modify the cardholder’ information, view the data log, and other privileges that can be only found on the web application or in the mobile application.

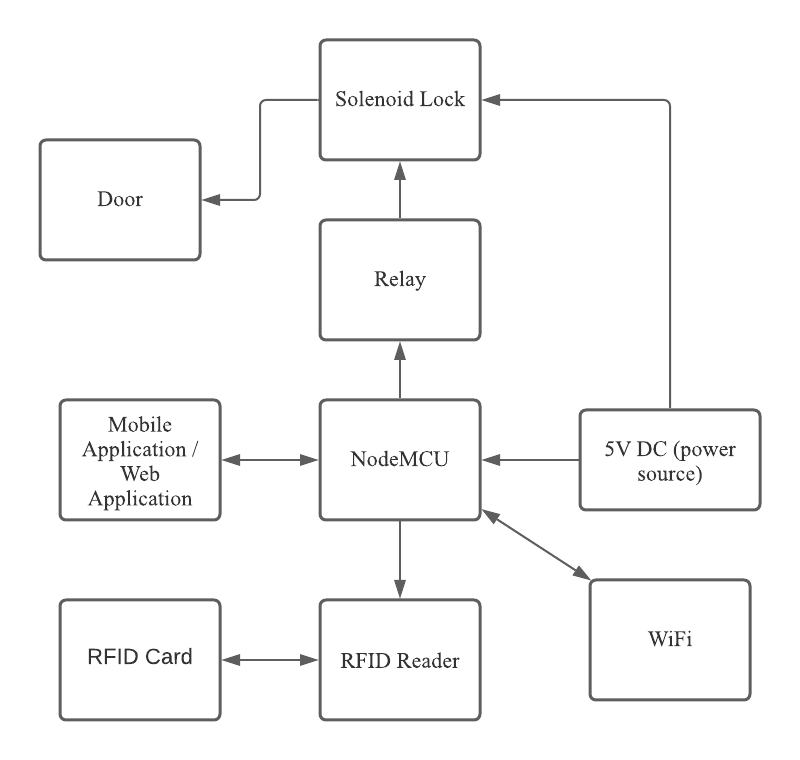


*Figure 3.5 Automated Door Security and Monitoring System Use Case Diagram*

**3.2.6Research Design**

*Figure 3.6* shows the block diagram of the system. It consists of parts of the system. First, the mobile application which is installed on the mobile phones serves as the monitor device of the system. It is integrated into the microcontroller using the Wi-Fi module through transferring data. The microcontroller is attached to the RFID sensors and solenoid lock.

RFID sensors are used to locate and identify the individual who is using the RFID card's identification. The solenoid lock is used to lock the door with the process of the microcontroller. And lastly, the NodemCU has its Wi-Fi module that helps the system connect and process faster.



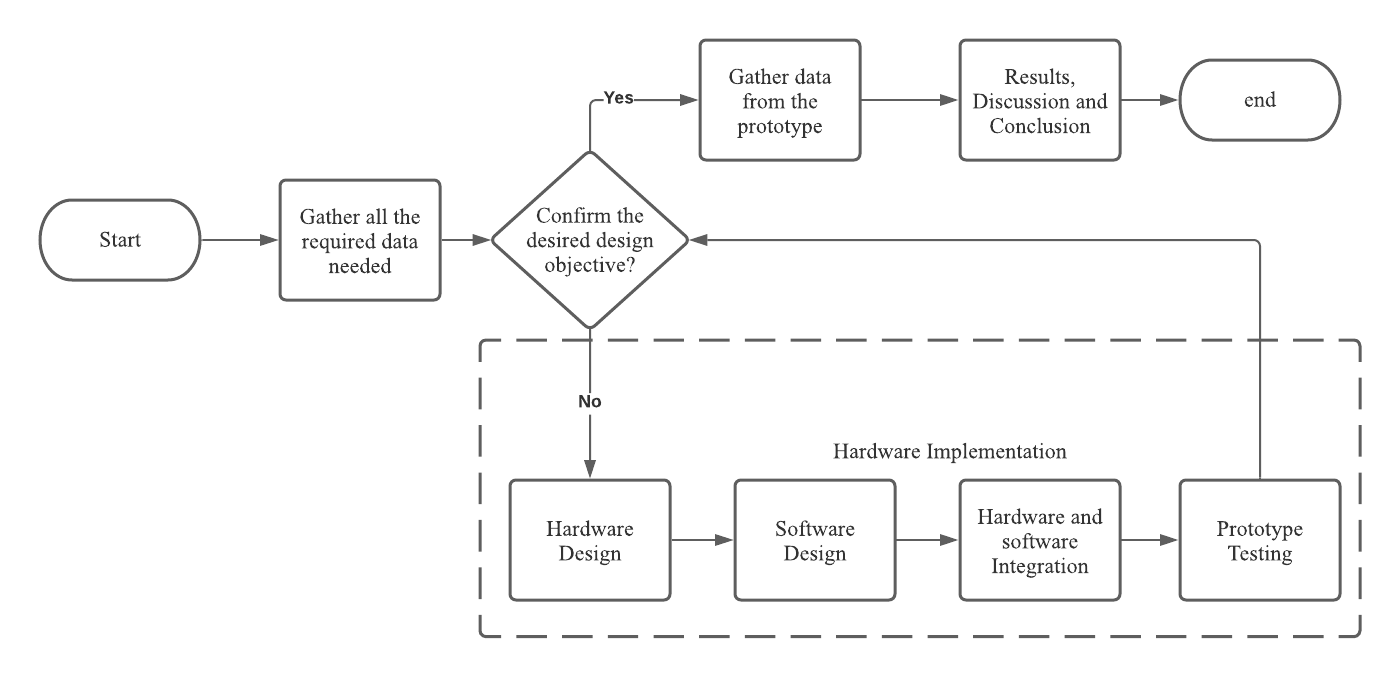
*Figure 3.6 Automated Door Security and Monitoring System Block Diagram*

**3.2.7 Design Procedure**

*Figure 3.7* shows a diagram of the study's design protocol and the process used by the researcher. It explains how the procedure works.

It explains in-depth how the researcher conducted their research. From the time they collect all of the data to the time they finish building their prototype and achieve their desired design.

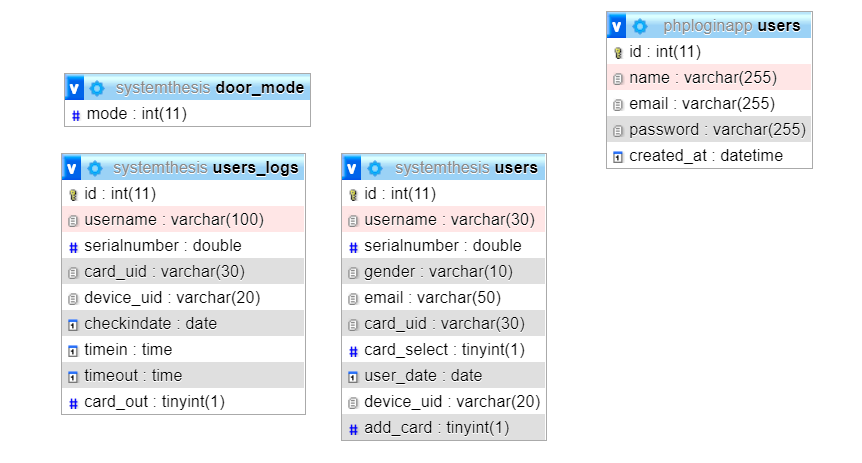
The researcher then collected all of the data and knowledge that the system had to offer. Following that, prototype testing, the researcher should assume that the system's success is expressed in the study's findings and discussion.



*Figure 3.7 Automated Door Security and Monitoring System Design Procedure*

**3.2.8 Entity Related Diagram**

*Figure 3.8* shows the Entity Related Diagram of Automated Door Security and Monitoring System. The diagram shows a detailed database design of the entire system, from table descriptions to column attributes. The database design was made by the system’s requirements and functionalities



*Figure 3.8 Entity Related Diagram*

* 1. **System Development**

**3.3.1 Software Tools**

* The researcher is using the Arduino IDE as a framework to program the hardware components in the sample. Arduino IDE is being used to create, write and upload the codes to the NodeMCU microcontroller board.
* Sublime Text IDE is being used as the platform for the researcher to build and develop a website and mobile application. Sublime Text IDE is a cross-platform source code editor with a Python application programming interface that is available as a shareware download (API). It supports a variety of programming and markup languages out of the box, and users can add functions using the plug-in, which is usually community-built and maintained under free-software licenses.
* The researchers are building a database that will be connected to the framework using MySQL Database as a basis. My SQL Database is a cloud-native database service that uses the world's most common open-source database to deploy cloud-native applications.

**3.3.2Programming Languages**

* The researchers used PHP, HTML, SQL, and CSS as programming languages during the system's development.
* The microcontroller was programmed using the C programming language by the researchers. It's used in the Arduino IDE, a tool for researchers to program microcontrollers that are then incorporated into the software product, which is the smartphone and web application.
  1. **System Implementation**

**3.4.1 Hardware Requirements**

* Smartphone
  + Memory: 2GB RAM
* Personal Computer
  + CPU: Intel Core i3
  + Memory: 2GB RAM

**3.4.2 Software Requirements**

**3.4.2.1 Smartphone**

* Minimum: Android Oreo

**3.4.2.2 Personal Computer**

* Windows, Linux, MacOS
* Google Chrome, Firefox

**CHAPTER 4**

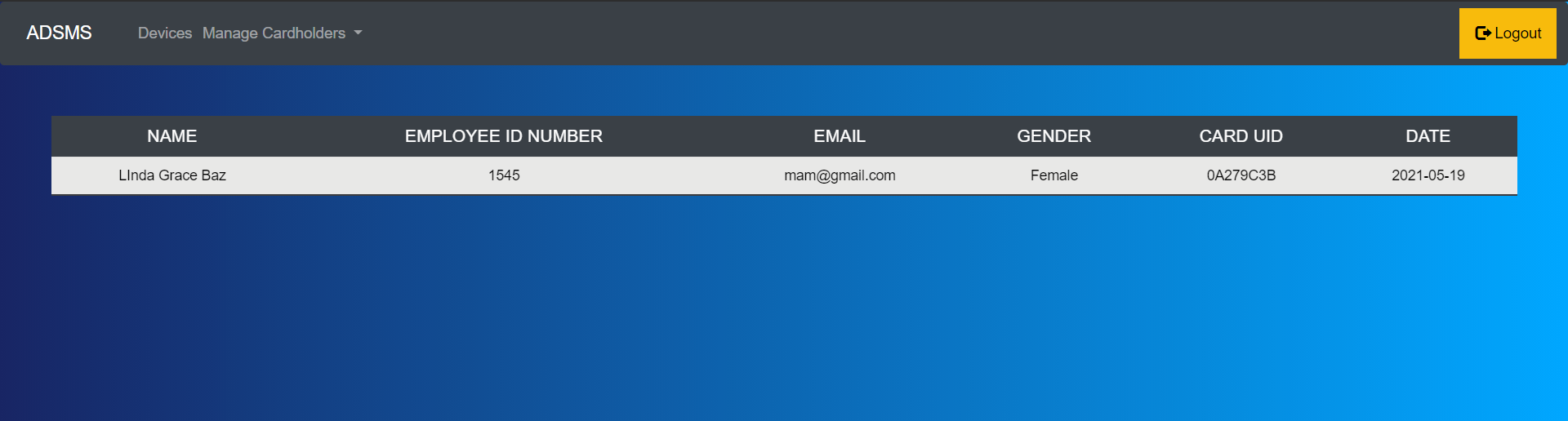
**RESULTS AND DISCUSSIONS**

This chapter discusses the overall system's findings and debates concerning the objectives.

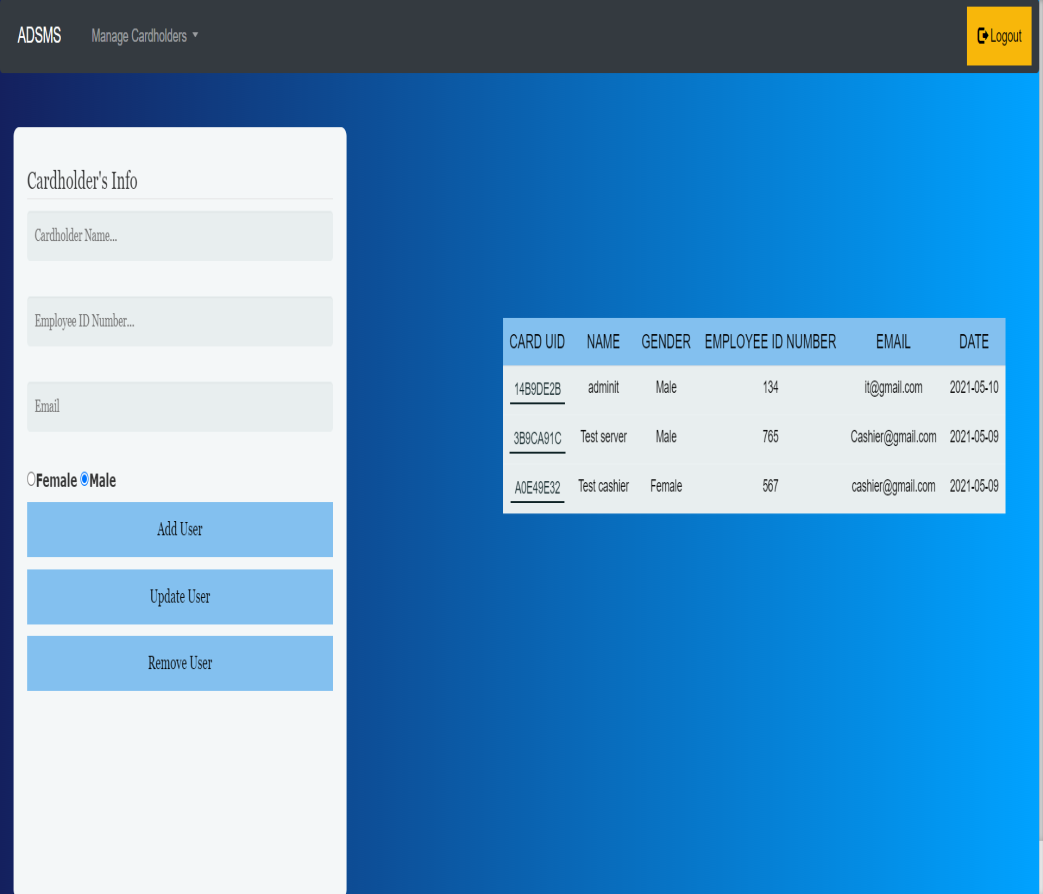
**4.1 Results**

**4.1.1 Design of Automated Door Security and Monitoring System Web Application**

*Figure 4.1* shows the index page of the system. This displays the list of cardholders and their information.

*F**igure 4.1 Web Application index page*

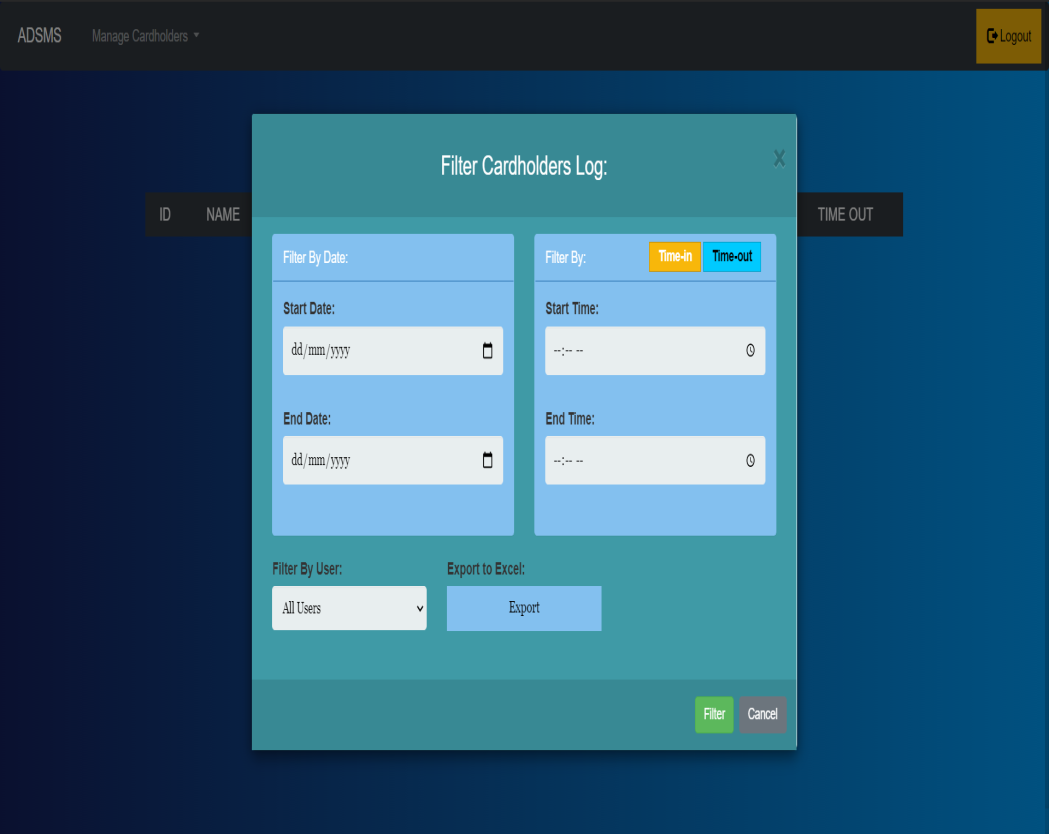
*Figure 4.2* shows Add/remove cardholders. The page displays the cardholders’ information and its information can be modified through this page.



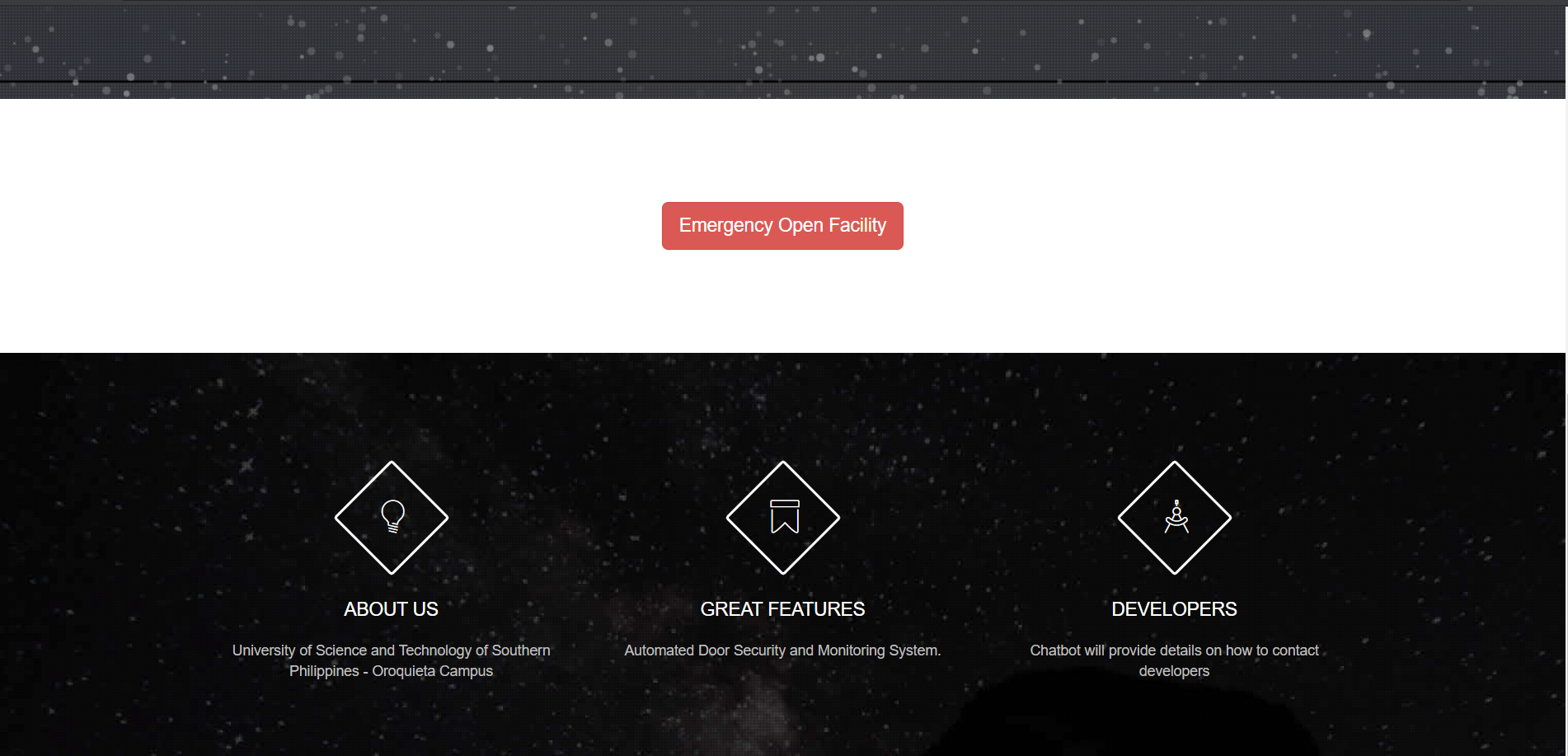
*Figure 4.2 Web Application Add/remove cardholders page*

***Figure 4.3*** shows the cardholders’ logs. The page has its filtering system in which the logs can be filtered by date, time, cardholders, and department. The filtering system can be accessed by clicking the log filter/Export in Excel. The logs can be also exported to the Xls file. Figure 4.5 shows the modal where the log can be filtered and exported.

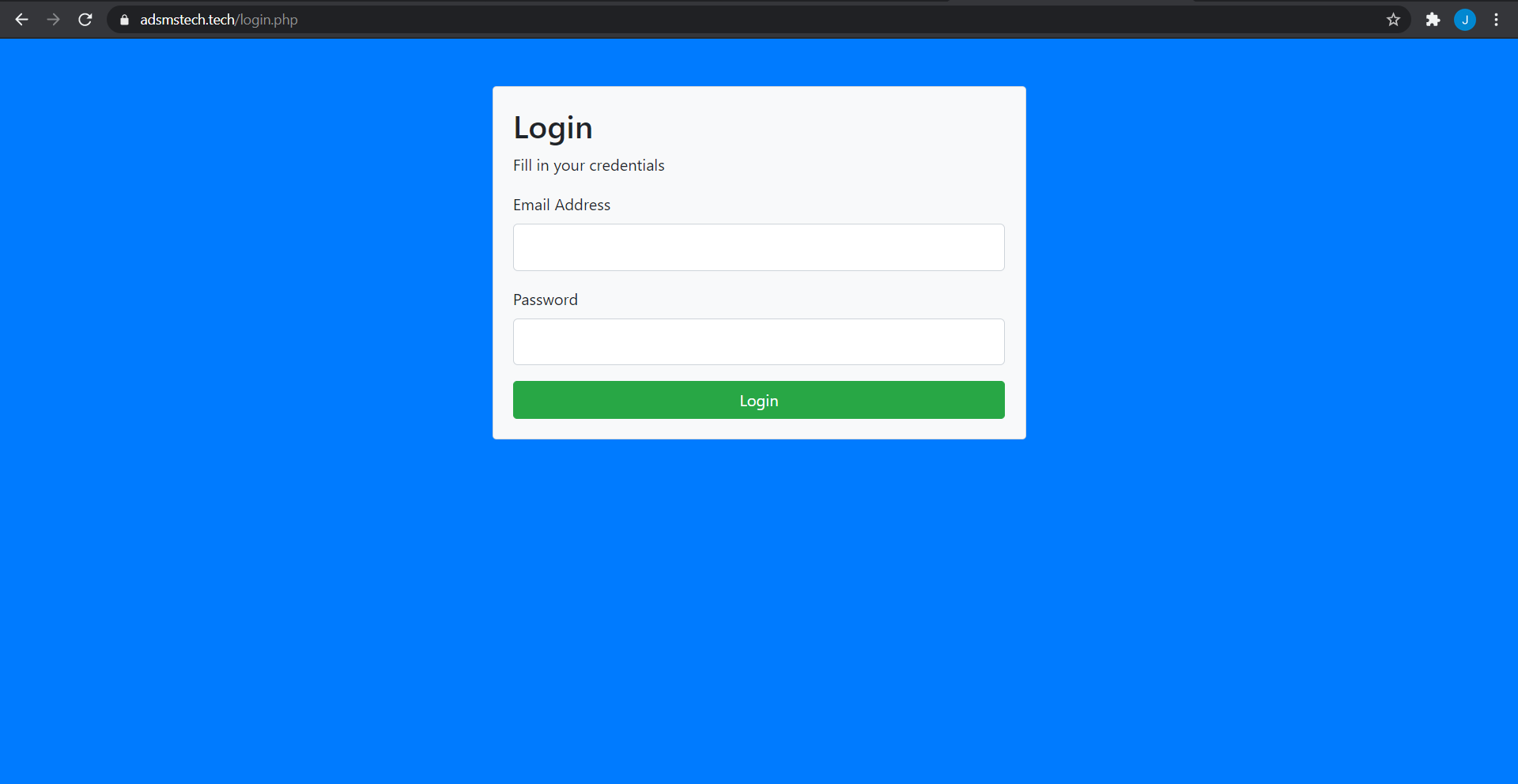
*Figure 4.3 Web Application cardholders’ logs page*



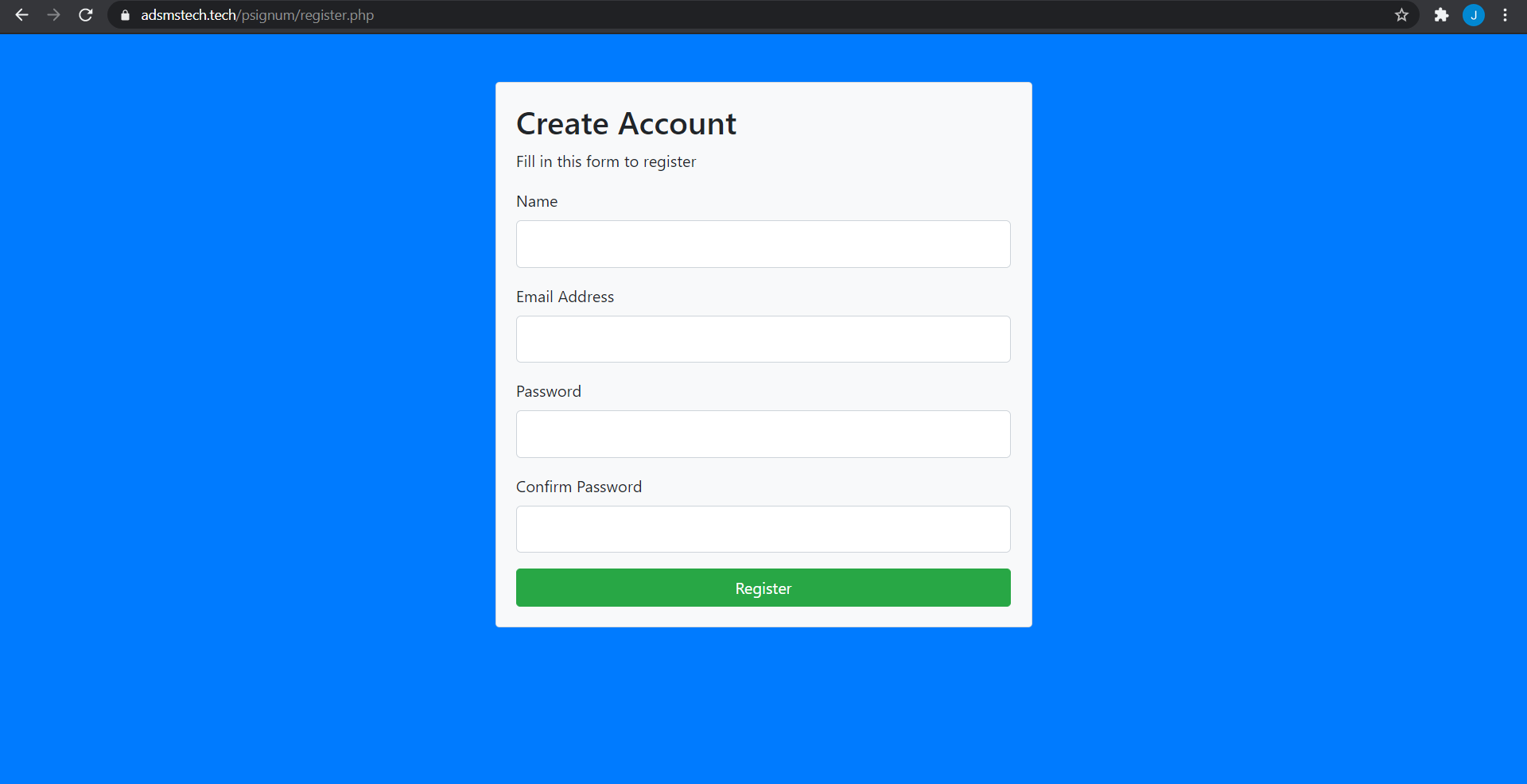
*Figure 4.4 Web Application log filter/export modal*

*Figure 4.5* shows the home page. The remote buttons on each door are on the left side of the page and the chatbot is on the lower right. The chatbot can only answer FAQs but can be modified to the client’s taste. The login page is displayed on Figure 4.6 and Figure 4.7 is the admin registration page.

*Figure 4.5 Web Application home page*



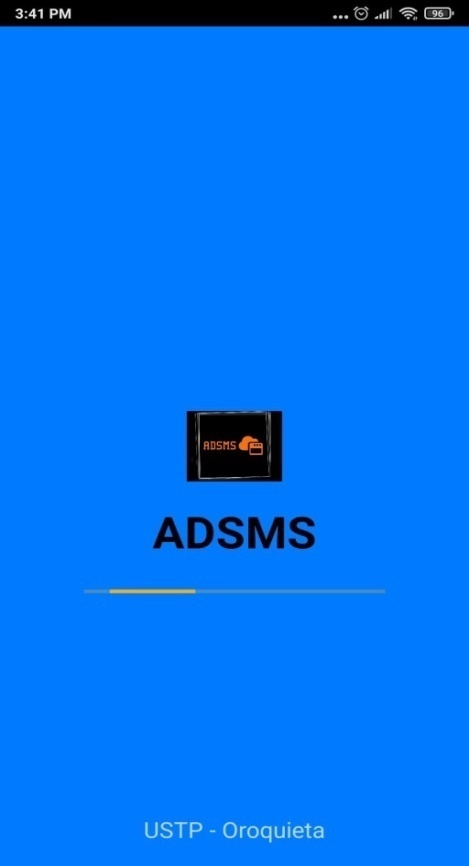
*Figure 4.6 Web Application Login page*



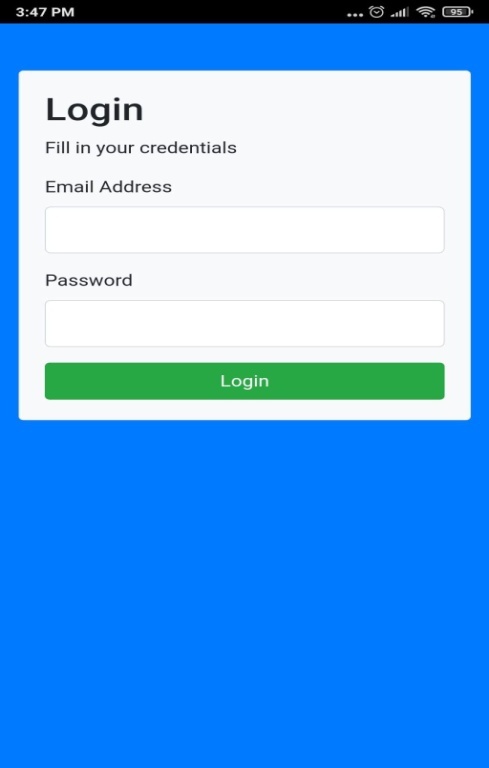
*Figure 4.7 Web Application Registration page*

**4.1.2 Design of Automated Door Security and Monitoring System Mobile Application**

The following figures will display the Mobile Application version of the interfaced System.



*Figure 4.8 Splash Screen Mobile Application*



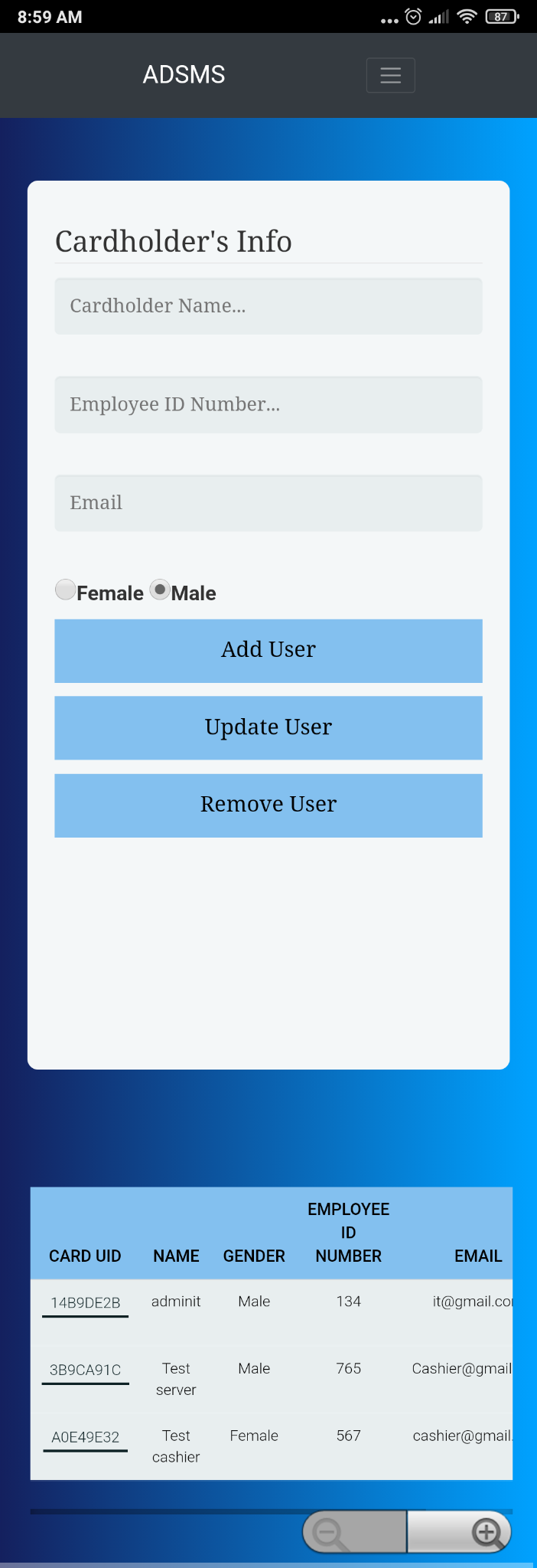
*Figure 4.9 Login Screen Mobile Application*



*Figure 4.10 Cardholders information Screen Mobile Application*

****

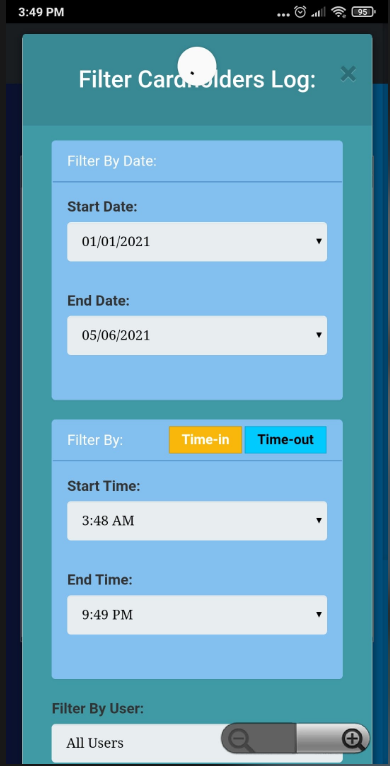
*Figure 4.11 Home Screen Mobile Application*



*Figure 4.12 Add/remove cardholders Screen Mobile Application*



*Figure 4.13 Cardholders’ logs Screen Mobile Application*



*Figure 4.14 Filter logs Screen Mobile Application*

**4.2 Discussions**

This section discusses the functions of the two systems combined to create the system.

Door Security Device – Using the RFID Tag and Reader to monitor the door through the NodeMCU V3 and linked wirelessly to the client's smartphone/personal computer via the wireless router, this system would provide a more reliable and convenient form of system.

Monitoring System – It will track and monitor all visitors to the client's facility. The system can be accessed through the internet (because it is a web-based interface) or via an Android application and it will show logs of who entered at what time of day.

**CHAPTER 5**

**CONCLUSIONS AND RECOMMENDATIONS**

**5.1 Conclusions**

We discovered the current state of the door locking system in all facilities of the University of Science and Technology of the Southern Philippines – Oroquieta Campus after thorough research and review of the gathered data. The University's doors are all manually operated with traditional keys, and there is no security system in place to keep track of who has access to the facility. Our research team then performed extensive research in order to provide the State University with a more reliable and modernized system that can track every personnel who’s going to enter in the building.

As a result, we, the research team, are confident that the proposed Automated Door Security and Monitoring System that will provide the University of Science and Technology of the Southern Philippines – Oroquieta Campus and its employees with a safer, more modern, cost-effective, user-friendly, and convenient atmosphere.

**5.2 Recommendations**

After a thorough study, the researchers strongly recommend the following:

* The client should provide a more secure system to the selected offices for it is one of the parts of the University.
* The proposed system of the researchers is the strongly ideal system for the University’s selected offices.

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**APPENDICES**

**SNIPPETS OF CODE**

**LOGIN.PHP**

<?php

// Include db config

require\_once 'psignum/db.php';

// Init vars

$email = $password = '';

$email\_err = $password\_err = '';

// Process form when post submit

if($\_SERVER['REQUEST\_METHOD'] === 'POST'){

// Sanitize POST

$\_POST = filter\_input\_array(INPUT\_POST, FILTER\_SANITIZE\_STRING);

// Put post vars in regular vars

$email = trim($\_POST['email']);

$password = trim($\_POST['password']);

// Validate email

if(empty($email)){

$email\_err = 'Please enter email';

}

// Validate password

if(empty($password)){

$password\_err = 'Please enter password';

}

// Make sure errors are empty

if(empty($email\_err) && empty($password\_err)){

// Prepare query

$sql = 'SELECT name, email, password FROM users WHERE email = :email';

// Prepare statement

if($stmt = $pdo->prepare($sql)){

// Bind params

$stmt->bindParam(':email', $email, PDO::PARAM\_STR);

// Attempt execute

if($stmt->execute()){

// Check if email exists

if($stmt->rowCount() === 1){

if($row = $stmt->fetch()){

$hashed\_password = $row['password'];

if(password\_verify($password, $hashed\_password)){

} else {

// Display wrong password message

$password\_err = 'The password you entered is not valid';

}

}

} else {

$email\_err = 'No account found for that email';

}

} else {

die('Something went wrong');

}

}

// Close statement

unset($stmt);

}

// Close connection

unset($pdo);

}

?>

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<meta http-equiv="X-UA-Compatible" content="ie=edge">

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-beta.2/css/bootstrap.min.css" integrity="sha384-PsH8R72JQ3SOdhVi3uxftmaW6Vc51MKb0q5P2rRUpPvrszuE4W1povHYgTpBfshb" crossorigin="anonymous">

<title>Login To Your Account</title>

</head>

<body class="bg-primary">

<div class="container">

<div class="row">

<div class="col-md-6 mx-auto">

<div class="card card-body bg-light mt-5">

<h2>Login</h2>

<p>Fill in your credentials</p>

<form action="<?php echo $\_SERVER['PHP\_SELF']; ?>" method="POST">

<div class="form-group">

<label for="email">Email Address</label>

<input type="email" name="email" class="form-control form-control-lg <?php echo (!empty($email\_err)) ? 'is-invalid' : ''; ?>" value="<?php echo $email; ?>">

<span class="invalid-feedback"><?php echo $email\_err; ?></span>

</div>

<div class="form-group">

<label for="password">Password</label>

<input type="password" name="password" class="form-control form-control-lg <?php echo (!empty($password\_err)) ? 'is-invalid' : ''; ?>" value="<?php echo $password; ?>">

<span class="invalid-feedback"><?php echo $password\_err; ?></span>

</div>

<div class="form-row">

<div class="col">

<input type="submit" value="Login" class="btn btn-success btn-block">

</div>

<div class="col">

<a href="register.php" class="btn btn-light btn-block">No account? Register</a>

</div>

</div>

</form>

</div>

</div>

</div>

</div>

</body>

</html>

**REGISTER.PHP**

<?php

// Include db config

require\_once 'db.php';

// Init vars

$name = $email = $password = $confirm\_password = '';

$name\_err = $email\_err = $password\_err = $confirm\_password\_err = '';

// Process form when post submit

if($\_SERVER['REQUEST\_METHOD'] === 'POST'){

// Sanitize POST

$\_POST = filter\_input\_array(INPUT\_POST, FILTER\_SANITIZE\_STRING);

// Put post vars in regular vars

$name = trim($\_POST['name']);

$email = trim($\_POST['email']);

$password = trim($\_POST['password']);

$confirm\_password = trim($\_POST['confirm\_password']);

// Validate email

if(empty($email)){

$email\_err = 'Please enter email';

} else {

// Prepare a select statement

$sql = 'SELECT id FROM users WHERE email = ?';

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo "SQL\_Error\_Select\_device";

exit();

}

else{

mysqli\_stmt\_bind\_param($result, "s", $email);

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

// Attempt execute

if($row = mysqli\_fetch\_assoc($resultl)){

// Check if email exists

if($row > 1){

$email\_err = 'email already taken';

}

}

/\* else {

echo "Something went wrong";

// Close statement

exit();

}\*/

}

}

// Validate name

if(empty($name)){

$name\_err = 'Please enter name';

}

// Validate password

if(empty($password)){

$password\_err = 'Please enter password';

} elseif(strlen($password) < 6){

$password\_err = 'Password must be at least 6 characters ';

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<meta http-equiv="X-UA-Compatible" content="ie=edge">

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-beta.2/css/bootstrap.min.css" integrity="sha384-PsH8R72JQ3SOdhVi3uxftmaW6Vc51MKb0q5P2rRUpPvrszuE4W1povHYgTpBfshb" crossorigin="anonymous">

<title>Register An Account</title>

</head>

<body class="bg-primary">

<div class="container">

<div class="row">

<div class="col-md-6 mx-auto">

<div class="card card-body bg-light mt-5">

<h2>Create Account</h2>

<p>Fill in this form to register</p>

<form action="<?php echo $\_SERVER['PHP\_SELF']; ?>" method="POST">

<div class="form-group">

<label for="name">Name</label>

<input type="text" name="name" class="form-control form-control-lg <?php echo (!empty($name\_err)) ? 'is-invalid' : ''; ?>" value="<?php echo $name; ?>">

<span class="invalid-feedback"><?php echo $name\_err; ?></span>

</div>

<div class="form-group">

<label for="email">Email Address</label>

<input type="email" name="email" class="form-control form-control-lg <?php echo (!empty($email\_err)) ? 'is-invalid' : ''; ?>" value="<?php echo $email; ?>">

<span class="invalid-feedback"><?php echo $email\_err; ?></span>

</div>

<div class="form-group">

<label for="password">Password</label>

<input type="password" name="password" class="form-control form-control-lg <?php echo (!empty($password\_err)) ? 'is-invalid' : ''; ?>" value="<?php echo $password; ?>">

<span class="invalid-feedback"><?php echo $password\_err; ?></span>

</div>

<div class="form-group">

<label for="confirm\_password">Confirm Password</label>

<input type="password" name="confirm\_password" class="form-control form-control-lg <?php echo (!empty($confirm\_password\_err)) ? 'is-invalid' : ''; ?>" value="<?php echo $confirm\_password; ?>">

<span class="invalid-feedback"><?php echo $confirm\_password\_err; ?></span>

</div>

<div class="form-row">

<div class="col">

<input type="submit" value="Register" class="btn btn-success btn-block">

</div>

</div>

</form>

</div>

</div>

</div>

</div>

</body>

</html>

**INDEX.PHP**

<?php

session\_start();

if(!$\_SESSION['email']) {

header("location: login.php");

}

?>

<!DOCTYPE html>

<html>

<head>

<title>Users</title>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<link rel="icon" type="image/png" href="images/favicon.png">

<script type="text/javascript" src="js/jquery-2.2.3.min.js"></script>

<script type="text/javascript" src="js/bootstrap.js"></script>

<link rel="stylesheet" type="text/css" href="css/Users.css">

<script>

$(window).on("load resize ", function() {

var scrollWidth = $('.tbl-content').width() - $('.tbl-content table').width();

$('.tbl-header').css({'padding-right':scrollWidth});

}).resize();

</script>

</head>

<body>

<?php include'header.php';

ini\_set('display\_errors', 1);

?>

<main>

<section>

<!--User table-->

<div class="table-responsive slideInRight animated" style="max-height: 400px;">

<table class="table">

<thead class="table-primary">

<tr>

<th>Name</th>

<th>Employee ID Number</th>

<th>Gender</th>

<th>Card UID</th>

<th>Date</th>

<th>Device</th>

</tr>

</thead>

<tbody class="table-secondary">

<?php

//Connect to database

include'connectDB.php';

$sql = "SELECT \* FROM users WHERE add\_card=1 ORDER BY id DESC";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo '<p class="error">SQL Error</p>';

}

else{

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

if (mysqli\_num\_rows($resultl) > 0){

while ($row = mysqli\_fetch\_assoc($resultl)){

?>

<TR>

<TD><?php echo $row['username'];?></TD>

<TD><?php echo $row['serialnumber'];?></TD>

<TD><?php echo $row['gender'];?></TD>

<TD><?php echo $row['card\_uid'];?></TD>

<TD><?php echo $row['user\_date'];?></TD>

<TD><?php echo $row['device\_dep'];?></TD>

</TR>

<?php

}

}

}

?>

</tbody>

</table>

</div>

</section>

</main>

</body>

</html>

**GETDATA.PHP**

<?php

//Connect to database

require 'connectDB.php';

date\_default\_timezone\_set('Singapore');

$d = date("Y-m-d");

$t = date("H:i:s");

if (isset($\_GET['card\_uid']) && isset($\_GET['device\_token'])) {

$card\_uid = $\_GET['card\_uid'];

$device\_uid = $\_GET['device\_token'];

$sql = "SELECT \* FROM devices WHERE device\_uid=?";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo "SQL\_Error\_Select\_device";

exit();

}

else{

mysqli\_stmt\_bind\_param($result, "s", $device\_uid);

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

if ($row = mysqli\_fetch\_assoc($resultl)){

$device\_mode = $row['device\_mode'];

$device\_dep = $row['device\_dep'];

if ($device\_mode == 1) {

$sql = "SELECT \* FROM users WHERE card\_uid=?";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo "SQL\_Error\_Select\_card";

exit();

}

else{

mysqli\_stmt\_bind\_param($result, "s", $card\_uid);

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

if ($row = mysqli\_fetch\_assoc($resultl)){

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

//An existed Card has been detected for Login or Logout

exit();

}

}

else if ($row['add\_card'] == 0){

echo "Not registerd!";

exit();

}

}

else{

echo "Not found!";

exit();

}

}

}

else if ($device\_mode == 0) {

//New Card has been added

$sql = "SELECT \* FROM users WHERE card\_uid=?";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo "SQL\_Error\_Select\_card";

exit();

}

else{

mysqli\_stmt\_bind\_param($result, "s", $card\_uid);

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

//The Card is available

if ($row = mysqli\_fetch\_assoc($resultl)){

$sql = "SELECT card\_select FROM users WHERE card\_select=1";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo "SQL\_Error\_Select";

exit();

}

else{

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

if ($row = mysqli\_fetch\_assoc($resultl)) {

$sql="UPDATE users SET card\_select=0";

$result = mysqli\_stmt\_init($conn);

echo "succesful";

exit();

}

}

}

}

}

}

else{

echo "Invalid Device!";

exit();

}

}

}

if(isset($\_GET['door'])){

$sql = "SELECT mode FROM door\_mode";

$result = mysqli\_query($conn, $sql);

if (mysqli\_num\_rows($result) > 0) {

while($row = mysqli\_fetch\_assoc($result)) {

if($row['mode'] == 1){

echo "open";

}

}

} else {

echo "0 results";

}

$mode = 0;

$sql="UPDATE door\_mode SET mode=?";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo "SQL\_Error\_insert\_logout1";

exit();

}

else{

mysqli\_stmt\_bind\_param($result, "s", $mode);

mysqli\_stmt\_execute($result);

}

}

if(isset($\_GET['second'])){

}

}

?>

**MANUALOPEN.PHP**

<?php

require 'connectDB.php';

if (!empty($\_GET)) {

$mode = 1;

$sql="UPDATE door\_mode SET mode=?";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo "SQL\_Error\_insert\_logout1";

exit();

}

else{

mysqli\_stmt\_bind\_param($result, "s", $mode);

mysqli\_stmt\_execute($result);

echo "success";

}

header("location: index.php");

}

?>

**db.php**

<?php

// DB Credentials

$servername = "localhost";

$username = "khel"; //put your phpmyadmin username.(default is "root")

$password = "Eimei"; //if your phpmyadmin has a password put it here.(default is "root")

$dbname = "phploginapp";

// Attempt to connect to MySQL

$conn = mysqli\_connect($servername, $username, $password, $dbname);

if ($conn->connect\_error) {

die("Database Connection failed: " . $conn->connect\_error);

}

**logout.php**

<?php

// Init session

session\_start();

// Unset all session values

$\_SESSION = array();

// Destroy session

session\_destroy();

// Redirect to login

header('location: login.php');

exit;

**header.php**

<head>

<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css">

<link rel='stylesheet' type='text/css' href="css/bootstrap.css"/>

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.0/css/bootstrap.min.css">

<link rel="stylesheet" type="text/css" href="css/header.css"/>

</head>

<header>

<!-- <div class="header">

<div class="logo">

<a href="index.php">ADSMS</a>

</div>

</div> -->

<nav class="navbar navbar-expand-lg navbar-dark bg-dark">

<a class="navbar-brand" href="home.php">ADSMS</a>

<button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarNavDropdown" aria-controls="navbarNavDropdown" aria-expanded="false" aria-label="Toggle navigation">

<span class="navbar-toggler-icon"></span>

</button>

<div class="collapse navbar-collapse" id="navbarNavDropdown">

<ul class="navbar-nav">

<li class="nav-item">

<a class="nav-link" href="devices.php">Devices</a>

</li>

<li class="nav-item dropdown">

<a class="nav-link dropdown-toggle" href="#" id="navbarDropdownMenuLink" role="button" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

Manage Cardholders

</a>

<div class="dropdown-menu" aria-labelledby="navbarDropdownMenuLink">

<a class="dropdown-item" href="index.php"><span class="glyphicon glyphicon-user"></span> Cardholders</a>

<a class="dropdown-item" href="ManageUsers.php"><span class="glyphicon glyphicon-th-large"></span> Add/Remove Cardholders</a>

<a class="dropdown-item" href="UsersLog.php"><span class="glyphicon glyphicon-th-list"></span> Cardholders Log</a>

</div>

</li>

</ul>

<ul class="nav navbar-nav navbar-right">

<li><a class="logout" href="logout.php"><span class="glyphicon glyphicon-log-out"></span> Logout</a></li>

</ul>

</div>

</nav>

</header>

**UsersLog.php**

<?php

session\_start();

if (!isset($\_SESSION['email'])) {

header("location: login.php");

}

?>

<!DOCTYPE html>

<html>

<head>

<title>Users Logs</title>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<!-- <link rel="icon" type="image/png" href="icon/ok\_check.png"> -->

<link rel="stylesheet" type="text/css" href="css/userslog.css">

<script type="text/javascript" src="js/jquery-2.2.3.min.js"></script>

<script src="https://code.jquery.com/jquery-3.3.1.js"

integrity="sha1256-2Kok7MbOyxpgUVvAk/HJ2jigOSYS2auK4Pfzbm7uH60="

crossorigin="anonymous">

</script>

<script type="text/javascript" src="js/bootbox.min.js"></script>

<script type="text/javascript" src="js/bootstrap.js"></script>

<script src="js/user\_log.js"></script>

<script>

$(window).on("load resize ", function() {

var scrollWidth = $('.tbl-content').width() - $('.tbl-content table').width();

$('.tbl-header').css({'padding-right':scrollWidth});

}).resize();

</script>

<script>

$(document).ready(function(){

$.ajax({

url: "user\_log\_up.php",

type: 'POST',

data: {

'select\_date': 1,

}

}).done(function(data) {

$('#userslog').html(data);

});

<input type="radio" id="radio-two" name="time\_sel" class="time\_sel" value="Time\_out" />

<label for="radio-two">Time-out</label>

</div>

</div>

<div class="panel-body">

<label for="Start-Time"><b>Start Time:</b></label>

<input type="time" name="time\_sel\_start" id="time\_sel\_start">

<label for="End -Time"><b>End Time:</b></label>

<input type="time" name="time\_sel\_end" id="time\_sel\_end">

</div>

</div>

</div>

</div>

<div class="row">

<div class="col-lg-4 col-sm-12">

<label for="Fingerprint"><b>Filter By User:</b></label>

<select class="card\_sel" name="card\_sel" id="card\_sel">

<option value="0">All Users</option>

<?php

require'connectDB.php';

$sql = "SELECT \* FROM users WHERE add\_card=1 ORDER BY id ASC";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo '<p class="error">SQL Error</p>';

}

else{

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

while ($row = mysqli\_fetch\_assoc($resultl)){

?>

<option value="<?php echo $row['card\_uid'];?>"><?php echo $row['username']; ?></option>

<?php

}

}

?>

</select>

</div>

<div class="col-lg-4 col-sm-12">

<label for="Device"><b>Filter By Device department:</b></label>

<select class="dev\_sel" name="dev\_sel" id="dev\_sel">

<option value="0">All Departments</option>

<?php

require'connectDB.php';

$sql = "SELECT \* FROM devices ORDER BY device\_dep ASC";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo '<p class="error">SQL Error</p>';

}

else{

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

while ($row = mysqli\_fetch\_assoc($resultl)){

?>

<option value="<?php echo $row['device\_uid'];?>"><?php echo $row['device\_dep']; ?></option>

<?php

}

}

?>

</select>

</div>

<div class="col-lg-4 col-sm-12">

<label for="Fingerprint"><b>Export to Excel:</b></label>

<input type="submit" name="To\_Excel" value="Export">

</div>

</div>

</div>

</div>

<div class="modal-footer">

<button type="button" name="user\_log" id="user\_log" class="btn btn-success">Filter</button>

<button type="button" class="btn btn-secondary" data-dismiss="modal">Cancel</button>

</div>

</form>

</div>

</div>

</div>

<!-- //Log filter -->

<div class="slideInRight animated">

<div id="userslog"></div>

</div>

</section>

</main>

</body>

</html>

**ManageUsers.php**

<?php

session\_start();

if (!isset($\_SESSION['email'])) {

header("location: login.php");

}

?>

<!DOCTYPE html>

<html>

<head>

<title>Manage Users</title>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<link rel="icon" type="image/png" href="images/favicon.png">

<link rel="stylesheet" type="text/css" href="css/manageusers.css">

<script type="text/javascript" src="js/jquery-2.2.3.min.js"></script>

<script src="https://code.jquery.com/jquery-3.3.1.js"

integrity="sha1256-2Kok7MbOyxpgUVvAk/HJ2jigOSYS2auK4Pfzbm7uH60="

crossorigin="anonymous">

</script>

<script type="text/javascript" src="js/bootbox.min.js"></script>

<script type="text/javascript" src="js/bootstrap.js"></script>

<script src="js/manage\_users.js"></script>

<script>

$(window).on("load resize ", function() {

var scrollWidth = $('.tbl-content').width() - $('.tbl-content table').width();

$('.tbl-header').css({'padding-right':scrollWidth});

}).resize();

</script>

<script>

$(document).ready(function(){

$.ajax({

url: "manage\_users\_up.php"

}).done(function(data) {

$('#manage\_users').html(data);

});

setInterval(function(){

$.ajax({

url: "manage\_users\_up.php"

}).done(function(data) {

$('#manage\_users').html(data);

});

},5000);

});

</script>

</head>

<body>

<?php include'header.php';?>

<main>

<div class="form-style-5 slideInDown animated">

<form enctype="multipart/form-data">

<div class="alert\_user"></div>

<fieldset>

<legend> User Info</legend>

<input type="hidden" name="user\_id" id="user\_id">

<input type="text" name="name" id="name" placeholder="User Name...">

<input type="text" name="number" id="number" placeholder="Employee ID Number...">

<input type="hidden" name="email" id+"email">

</fieldset>

<fieldset>

<legend> Additional Info</legend>

<label>

<label for="Device"><b>User Department:</b></label>

<select class="dev\_sel" name="dev\_sel" id="dev\_sel" style="color: #000;">

<option value="0">All Departments</option>

<?php

require'connectDB.php';

$sql = "SELECT \* FROM devices ORDER BY device\_name ASC";

$result = mysqli\_stmt\_init($conn);

if (!mysqli\_stmt\_prepare($result, $sql)) {

echo '<p class="error">SQL Error</p>';

}

else{

mysqli\_stmt\_execute($result);

$resultl = mysqli\_stmt\_get\_result($result);

while ($row = mysqli\_fetch\_assoc($resultl)){

?>

<option value="<?php echo $row['device\_uid'];?>"><?php echo $row['device\_dep']; ?></option>

<?php

}

}

?>

</select>

<input type="radio" name="gender" class="gender" value="Female">Female

<input type="radio" name="gender" class="gender" value="Male" checked="checked">Male

</label >

</fieldset>

**Export\_Excel.php**

<?php

//Connect to database

require'connectDB.php';

$output = '';

if(isset($\_POST["To\_Excel"])){

$searchQuery = "";

$Start\_date = "";

$End\_date = "";

$Start\_time = "";

$End\_time = "";

$card\_sel = "";

//Start date filter

if ($\_POST['date\_sel\_start'] != 0) {

$Start\_date = $\_POST['date\_sel\_start'];

$\_SESSION['searchQuery'] = "checkindate='".$Start\_date."'";

}

else{

$Start\_date = date("Y-m-d");

$\_SESSION['searchQuery'] = "checkindate='".date("Y-m-d")."'";

}

//End date filter

if ($\_POST['date\_sel\_end'] != 0) {

$End\_date = $\_POST['date\_sel\_end'];

$\_SESSION['searchQuery'] = "checkindate BETWEEN '".$Start\_date."' AND '".$End\_date."'";

}

//Time-In filter

if ($\_POST['time\_sel'] == "Time\_in") {

//Start time filter

if ($\_POST['time\_sel\_start'] != 0 && $\_POST['time\_sel\_end'] == 0) {

$Start\_time = $\_POST['time\_sel\_start'];

$\_SESSION['searchQuery'] .= " AND timein='".$Start\_time."'";

}

elseif ($\_POST['time\_sel\_start'] != 0 && $\_POST['time\_sel\_end'] != 0) {

$Start\_time = $\_POST['time\_sel\_start'];

}

//End time filter

if ($\_POST['time\_sel\_end'] != 0) {

$End\_time = $\_POST['time\_sel\_end'];

$\_SESSION['searchQuery'] .= " AND timein BETWEEN '".$Start\_time."' AND '".$End\_time."'";

}

}

//Time-out filter

if ($\_POST['time\_sel'] == "Time\_out") {

//Start time filter

if ($\_POST['time\_sel\_start'] != 0 && $\_POST['time\_sel\_end'] == 0) {

$Start\_time = $\_POST['time\_sel\_start'];

$\_SESSION['searchQuery'] .= " AND timeout='".$Start\_time."'";

}

elseif ($\_POST['time\_sel\_start'] != 0 && $\_POST['time\_sel\_end'] != 0) {

$Start\_time = $\_POST['time\_sel\_start'];

}

//End time filter

if ($\_POST['time\_sel\_end'] != 0) {

$End\_time = $\_POST['time\_sel\_end'];

$\_SESSION['searchQuery'] .= " AND timeout BETWEEN '".$Start\_time."' AND '".$End\_time."'";

}

}

//Card filter

if ($\_POST['card\_sel'] != 0) {

$card\_sel = $\_POST['card\_sel'];

$\_SESSION['searchQuery'] .= " AND card\_uid='".$card\_sel."'";

}

//Department filter

if ($\_POST['dev\_sel'] != 0) {

$dev\_uid = $\_POST['dev\_sel'];

$\_SESSION['searchQuery'] .= " AND device\_uid='".$dev\_uid."'";

}

$sql = "SELECT \* FROM users\_logs WHERE ".$\_SESSION['searchQuery']." ORDER BY id DESC";

$result = mysqli\_query($conn, $sql);

if($result->num\_rows > 0){

$output .= '

<table class="table" bordered="1">

<TR>

<TH>ID</TH>

<TH>Name</TH>

<TH>Serial Number</TH>

<TH>Card UID</TH>

<TH>Device ID</TH>

<TH>Device Dep</TH>

<TH>Date log</TH>

<TH>Time In</TH>

<TH>Time Out</TH>

</TR>';

while($row=$result->fetch\_assoc()) {

$output .= '

<TR>

<TD>'.$row['id'].'</TD>

<TD>'.$row['username'].'</TD>

<TD>'.$row['serialnumber'].'</TD>

<TD>'.$row['card\_uid'].'</TD>

<TD>'.$row['device\_uid'].'</TD>

<TD>'.$row['device\_dep'].'</TD>

<TD>'.$row['checkindate'].'</TD>

<TD>'.$row['timein'].'</TD>

<TD>'.$row['timeout'].'</TD>

</TR>';

}

$output .= '</table>';

header('Content-Type: application/xls');

header('Content-Disposition: attachment; filename=User\_Log'.$Start\_date.'.xls')

echo $output;

exit();

}

else{

header( "location: UsersLog.php" );

exit();

}

}

?>

**server.ino**

#include <ESP8266WebServer.h>

#include <ESP8266HTTPClient.h>

#include <SPI.h>

#include <MFRC522.h>

#include <ArduinoJson.h>

#define SS\_PIN D2 //--> SDA / SS is connected to pinout D2

#define RST\_PIN D1 //--> RST is connected to pinout D1

MFRC522 mfrc522(SS\_PIN, RST\_PIN); //--> Create MFRC522 instance.

#define ON\_Board\_LED 2 //--> Defining an On Board LED, used for indicators when the process of connecting to a wifi router

#define relay 0

//const char\* ssid = "USTP Oroquieta, ITEAC";

//const char\* password = "IT\_2020\_02";

const char\* ssid = "vivo 1603";

const char\* password = "egBOC3434";

const char\* device\_token = "6593040ff007ad74";

const char\* fingerprint = "09:60:E7:EE:66:3A:8A:20:9C:09:EF:27:A8:F7:A2:66:4B:A0:C2:53";

String URL = "https://adsmstech.tech/getdata.php";

String getData, Link;

ESP8266WebServer server(80); //--> Server on port 80

int readsuccess;

byte readcard[4];

char str[32] = "";

String StrUID;

boolean state;

void setup() {

WiFi.mode(WIFI\_STA);

Serial.begin(115200); //--> Initialize serial communications with the PC

SPI.begin(); //--> Init SPI bus

mfrc522.PCD\_Init(); //--> Init MFRC522 card

WiFi.begin(ssid, password);

delay(500);

Serial.print("Local port: ");

pinMode(relay,OUTPUT);

pinMode(ON\_Board\_LED,OUTPUT);

digitalWrite(ON\_Board\_LED, HIGH); //--> Turn off Led On Board

//----------------------------------------Wait for connection

Serial.print("Connecting");

while (WiFi.status() != WL\_CONNECTED) {

Serial.print(".");

//----------------------------------------Make the On Board Flashing LED on the process of connecting to the wifi router.

digitalWrite(ON\_Board\_LED, LOW);

delay(250);

digitalWrite(ON\_Board\_LED, HIGH);

delay(250);

}

digitalWrite(ON\_Board\_LED, HIGH); //--> Turn off the On Board LED when it is connected to the wifi router.

//----------------------------------------If successfully connected to the wifi router, the IP Address that will be visited is displayed in the serial monitor

Serial.println("");

Serial.print("Successfully connected to : ");

Serial.println(ssid);

Serial.print("IP address: ");

Serial.println(WiFi.localIP());

Serial.println("Please tag a card or keychain to see the UID !");

Serial.println("");

}

//------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------//

//-----------------------------------------------------------------------------------------------LOOP---------------------------------------------------------------------------------------//

void loop() {

// put your main code here, to run repeatedly

readsuccess = getid();

if(readsuccess) {

digitalWrite(ON\_Board\_LED, LOW);

HTTPClient http; //Declare object of class HTTPClient

String UIDresultSend, postData;

UIDresultSend = StrUID;

//Post Data

getData = "?card\_uid=" + String(UIDresultSend) + "&device\_token=" + String(device\_token); // Add the Card ID to the GET array in order to send it

Link = URL + getData;

http.begin(Link, fingerprint); //Specify request destination

http.addHeader("Content-Type", "application/x-www-form-urlencoded"); //Specify content-type header

int httpCode = http.GET(); //Send the request

String payload = http.getString(); //Get the response payload

if (httpCode == 200) {

if (payload.substring(0, 5) == "login") {

String user\_name = payload.substring(5);

// Serial.println(user\_name);

state = 1;

}

else if (payload.substring(0, 6) == "logout") {

String user\_name = payload.substring(6);

// Serial.println(user\_name);

state = 1;

}

else if (payload == "succesful") {

}

else if (payload == "available") {

}

delay(100);

http.end(); //Close connection

}

else {

Serial.println("ERROR");

}

Serial.println(UIDresultSend);

Serial.println(httpCode); //Print HTTP return code

Serial.println(payload); //Print request response payload

http.end(); //Close connection

delay(500);

digitalWrite(ON\_Board\_LED, HIGH);

}

WiFiClient client;

const char \* host = "192.168.254.132"; //default IP address

const int httpPort = 80;

if (!client.connect(host, httpPort)) {

Serial.println("connection failed");

return;

}

// We now create a URI for the request. Something like /data/?sensor\_reading=123

String url = "/data/";

url += "?sensor\_reading=";

url += "{\"sensor\_reading\":\"sensor\_value\"}";

url.replace("sensor\_value", String(state));

// This will send the request to the server

client.print(String("GET ") + url + " HTTP/1.1\r\n" +

"Host: " + host + "\r\n" +

"Connection: close\r\n\r\n");

unsigned long timeout = millis();

while (client.available() == 0) {

if (millis() - timeout > 15000) {

Serial.println(">>> Client Timeout !");

client.stop();

return;

}

}

handleLIGHT();

}

int getid() {

if(!mfrc522.PICC\_IsNewCardPresent()) {

return 0;

}

if(!mfrc522.PICC\_ReadCardSerial()) {

return 0;

}

Serial.print("THE UID OF THE SCANNED CARD IS : ");

for(int i=0;i<4;i++){

readcard[i]=mfrc522.uid.uidByte[i]; //storing the UID of the tag in readcard

array\_to\_string(readcard, 4, str);

StrUID = str;

}

mfrc522.PICC\_HaltA();

return 1;

}

void array\_to\_string(byte array[], unsigned int len, char buffer[]) {

for (unsigned int i = 0; i < len; i++)

{

byte nib1 = (array[i] >> 4) & 0x0F;

byte nib2 = (array[i] >> 0) & 0x0F;

buffer[i\*2+0] = nib1 < 0xA ? '0' + nib1 : 'A' + nib1 - 0xA;

buffer[i\*2+1] = nib2 < 0xA ? '0' + nib2 : 'A' + nib2 - 0xA;

}

buffer[len\*2] = '\0';

}

void handleLIGHT() {

if(state == 1) {

Serial.println(" | relay ON");

digitalWrite(relay,HIGH);

delay(2000);

digitalWrite(relay,LOW);

state = 0;

}

else {

Serial.println(" | relay OFF");

digitalWrite(relay,LOW);

delay(2000);

digitalWrite(relay,LOW);

}

}

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