Chapter 1

BACKGROUND OF THE PROBLEM

These days the development of modern world was fast due of having advancement in technology which rapidly seeking towards success. Bureau of Jail Management and Penology (BJMP) efficient administration was a prerequisite to a country's national development. According to the Modernization Law 2013 Mandates three key areas first, professionalism of personnel by increasing the numbers. Second, upgrading facilities and equipment. Third, introduction of modern correctional practices. The goal of the research was to create a secure log monitoring system for and inmates to minimize dispute and data loss, as well as to protect the safety and well-being of visitors and inmates by obtaining control and establishing a visitation time frame. To concentrate on how to build and develop a Computer-based Monitoring System that the agency may use to promote safety, monitor visitors, and provide information on users and frequent visits to the jail premises.

Introduction

Over the years, technology has revolutionized our world and daily lives. Technology created amazing tools and resources, putting useful information at our fingertips. Technology is very useful in the fields such as institutions, business, communication, companies, science and even the Learning of Process of old-fashioned way was shifted to technology ways. System exists to these fields to help access information and processes easier and more productive. It is also a big help especially in the office of Bureau of Jail Management and Penology for the purpose of making the work easier for the assigned staff to manage the security of the visitor’s data.

The COVID-19 pandemic has changed life as we know it. How we conduct meetings, how we shop for groceries, and how we catch up with family and friends have all been impacted by the virus. In this COVID-19 pandemic, most of the people rely on technology to control the physical distancing and quarantine measures. In an effort to meet these protocols while trying to maintain status que shifted all tasks from offline to online, resulting in an accelerated diffusion of emerging digital technologies

among ordinary people, while the digital divide further increases between citizens with versus without access to the technology.

This system project focused on how to design and develop a computer-based Monitoring System for Mahayag BJMP to be utilized by the agency to monitor visitors and generate reports on users and frequent visitors of the jail premises. According to Efacility.in (2011) the security requirements of large organizations and infrastructure are challenging and growing increasingly. The flow of this system is first the visitor would be going to sign up and enroll the fingerprint. The authorized personnel would be going to confirm the request. After that the visitor will log in the fingerprint and the temperature would automatically detect. If the temperature of the visitor was high the buzzer would automatically ring and the red led would light, if the temperature was normal the green led would light. The next time they tap the fingerprint the visitor would automatically log out. On their next visit they will just going to open their account using their email and password. At their account there is a button that able to send another request of approval.

The study of Academia entitled "WVSU Visitors Log Monitoring System (Web and LAN)", indicated that the WVSU Visitors Log Monitoring System (Web and LAN) can be made accessible to the personnel and authorized users of West Visayas State University for data safety and data backup any computers. The said study focused on how to design and develop a computer-based Monitoring System for West Visayas State University to be utilized by the agency in promoting safety, to monitor visitors, and generate reports on users and frequent visitors of the Campus premises.

Also, the study of Whitman, R.A (2016) stated that an excellent biometric solution is one that is always being improved upon. This means that there is a constant effort to improve upon the current solution, an effort to improve upon security, ease of use, accuracy, and other quality attributes.

This capstone project used PHP, Hypertext Mark-up Language (HTML), bootstrap, Xampp, MLX90614 temperature scanner, R307 biometric fingerprint, Node MCU 0.9 and Arduino UNO Board. Only registered authorized officers can access the different features and functionalities of the automated monitoring system.

Also, the authorized officer could generate and print reports. The features of the system focused on log-in and log-out services, Visitors Information, Administrator System, list of visitors, visitor's health and statistic report. The main purpose of this project was to keep the accurate record of who has entered the building or premises and to monitor the temperature of the visitors. In that case, the visitors would go through temperature checking to identify if the visitors can enter or not. If the buzzer would ring therefore the visitor can't enter the jail premises. Visitor logs would be kept and save in order to keep staff inform regarding who has been or has not left the premises.

Project Context

The system was all about visitor log monitoring system for Mahayag BJMP. It would record the temperature of the visitor using the temperature scanner. The system would be very useful for monitoring the persons deprived of liberty's (PDL) visitor and for Mahayag BJMP for this system would allow faster logging in and out using biometric and safe keeping of visitor's record.

Moreover, this system could generate records of visitors, time and date in logging in and out and body temperature of the visitors.

Purpose and Description

The Mahayag BJMP was currently using manual process of monitoring its visitors using pen and logbook. But in the proposed project the files of this kind of system would be safer than the manual way of logging in/out because there is tendency that the file would be misplaced, get ripped and get wet. Moreover, the storage of the visitors logbook was limited since the area was small it also consumed so much time in logging in and out.

Creating a system that would allow users to have faster and easier transaction was the sole purpose of this system project. Visitors would sign up the registration form, if verified by the authorized officer they can proceed to checking of contraband only if their body temperature is normal. This system was designed to monitor the logging in and out of the visitors and to record the body temperature of the visitors. It would help the Mahayag BJMP to manage the visitor's data faster and have more

reliable process and secure storage than before. The visitor log monitoring system would be less hassle.

Objectives of the Study

The main objective of the study was to develop a visitor log web-based monitoring system for Mahayag Bureau of Jail Management and Penology. This project aimed to find advantage of conducting a computerize log monitoring of visitor in Mahayag BJMP. Moreover, this project specifically aimed to:

- Record the temperature of the visitors upon entering the jail premises
- Monitor the visitors going in and out using biometric fingerprint inside the jail premises; and
- Generate necessary printed reports on users and frequent visitors of the jail premises.

Scope and Limitations

This system was exclusively for the improvement of the monitoring of visitor who log in and out in Mahayag BJMP which included the following features that can help the persons deprived of liberty, visitors and the Mahayag BJMP personnel to easily monitor the data of the visitors and to record the temperature of the visitors. It could organize and monitor the logging in and out of the visitor using biometric fingerprint. Also, with the use of biometric fingerprint, time and date of logging in and out of the visitor's data would be monitored and stored. Furthermore, this system was develop to provide fast transaction, reliable information to good quality service, and secure the file of the visitors of the jail.

However, this system intended for Mahayag BJMP, visitors can only log in and out through biometric fingerprint. Now, the scope and features of the system were not mentioned would be considered as the limit of this project.

Significance of the Study

This capstone project would be exclusive for Mahayag BJMP, this system would benefit the following individuals:

The visitors would benefit the system since it makes the visitor to log in and out faster and easier. It also benefited the BJMP officer because it can make less paper works. The system could gave a secured storage of data of the visitors. Also, the system benefited the future researchers because this would serve as their reference or guide to make their own research.

Definition of Terms

The following are the definition of terms used in this project work including their meaning.

Arduino UNO Board – is an open-source microcontroller board based on the microchip ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (Shields) and other circuits.

BJMP – Bureau of Jail Management and Penology (BJMP) is mandated to direct, supervise and control the administration and operation of all district, city and municipal jails nationwide with pronged tasks of safekeeping and development of PDL.

Biometric Fingerprint – refers to a security identification and authentication device. It identifies person seeking access to a computing system by determining their physical characteristics through fingerprints.

Log-in and Log -out Services – refers to one of the features of the developed system that will require users to enter their fingerprint to be able to access the proposed BJMP Visitor's Log Monitoring system.

Log Monitoring System – refers to a type of software that monitor log files. It provides a commercial solution for log collection, analysis, and reporting.

Node MCU – is a low-cost open source IoT platform. It initially included firmware which runs on the ESP8266 Wi-Fi SoC from Espressif, and hardware which was based on the ESP-12 module. Later, support for the ESP32 32-bit MCU was added.

Temperature Scanner – refers to a device that automatically reads a person's temperature to determine if it's elevated—signifying a fever.

Visitor – refers to a person who volunteers to pay regular visits to prison inmates.

XAMPP - can serve web pages on the world wide web. A special tool is provided to password-protect the most important parts of the package. XAMPP also provides support for creating and manipulating databases in MariaDB and SQLite among others.

Chapter 2

REVIEW OF RELATED LITERATURE/STUDIES

Technical Background

As of these days, the technology evolves higher on its maximum level. Therefore, the authors actively conduct some research about BJMP's technical problem. A technical problem where the researchers discovered about a slow method of processing of the inside premises. Because of that, the authors of the said title directly got an idea which method should be used for implementing an automated system that would be easier to use for the BJMP's personnel.

Using a high-technological biometric fingerprint scanner, the researchers also considered to provide an automated sensor, called MLX90614 temperature sensor contactless. Hence, the sensor won't work by itself, the researchers also provided an Arduino UNO Board and Node MCU to connect the sensor promptly and work properly. The connection of the Arduino Board was synced to the systems' web to create automated system and produce a high-quality standard of technology. A web-based method was designed to produce and save all the information gathered from the users and the visitors.

The Bureau of Jail Management and Penology in Mahayag was using a manual way of logging in at the premises. Files were used to keep at the file holders of the authorized personnel. The proposed system was designed as a client-server technology as well as a database management system like MySQL. The system could be used and accessible by the authorized personnel and the visitors or user.

The system would be beneficial to the BJMP staff and Visitors which could make the logging in and out faster and easier. The information of the users will be safe and would not be misplace since it would be stored in the system.

Hardware Specification

The following were the minimum compatible hardware materials used:

R307 Biometric Fingerprint

A form of biometric authentication, fingerprint authentication automatically that compares a user's fingerprint to a stored fingerprint template in order to validate a user's identity.

Figure 2.1 **R307 Biometric Fingerprint**

MLX90614 Temperature Sensor- Contactless

A contactless Infrared Temperature sensor used to measures the surface temperature of an object depending on the emitted IR waves of the target without touching it. It is very useful specially in today's situation, it's contactless to avoid spreading of the said virus. Also measures the average temperature of an area. It is contactless, high precision, high resolution and a fast response sensor.

Figure 2.2 **R307 Biometric Fingerprint**

Laptop

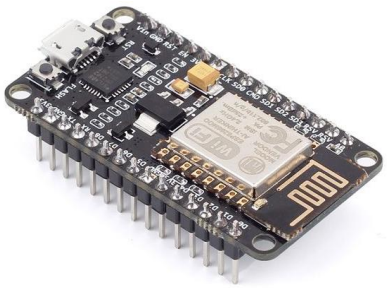
Computers and laptops have high enough specifications to be used to create the website.

Figure 2.3 **Laptop**

Node MCU 0.9 (ESP – 12 Module)

The ESP8266 WIFI module is a self-contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your Wi-FI network.

Figure 2.4 **Node MCU 0.9 (ESP – 12 Module)**



Arduino UNO Board

It is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits.

Figure 2.5 **Arduino UNO Board**

Software Specification

The proponents used PHP as back-end design and Bootstrap, HTML and CSS as front-end tools. Also, Xampp was used as server localhost of the system. Also required windows 10 or higher OS for incase of upgrading the OS, the system would remain in condition.

Programming Environment

PHP is an acronym for "PHP: Hypertext Preprocessor", it is a widely used, open source scripting language and PHP scripts are executed on the server. PHP is a general-purpose scripting language geared towards web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1994.

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

Arduino is an open-source hardware and software company, project, and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices.

The **HyperText Markup Language,** or **HTML** is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript. HTML code ensures the proper formatting of text and images for your Internet browser. Without HTML, a browser would not know how to display text as

elements or load images or other elements. HTML also provides a basic structure of the page, upon which Cascading Style Sheets are overlaid to change its appearance. One could think of HTML as the bones (structure) of a web page, and CSS as its skin (appearance).

Cascading Style Sheets or **CSS** is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. It is used for defining the styles for web pages. It describes the look and formatting of a document which is written in a markup language. It provides an additional feature to HTML and it is generally used with HTML to change the style of web pages and user interfaces.

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP is the most popular software package which is used to set up a PHP development environment for web services by providing all the required software components. During the process of software deployment, most of the web servers use almost similar components, so use of XAMPP provides easy transition from local server to live server. XAMPP is an AMP stack which stands for Cross platform, Apache, MySQL, PHP, perl with some additional administrative software tools such as PHPMyAdmin (for database access), FileZilla FTP server, Mercury mail server and JSP Tomcat server. Other commonly known software packages like XAMPP are WAMP, LAMP, and others. The XAMPP server is used to test PHP pages. It works as local server. It contains a MySQL database to manage or save data on a local server.

Related Literature

According to Efacility (2011) the security requirements of large organizations and infrastructure were challenging and growing increasingly. Visitors should be screened, registered, signed in quickly and allowed to visit only the relevant areas via integration with access control devices. Features of the visitor management system were the following: online requests for appointment, appointment approval and

rejections, Pre-registration of groups and individuals for one or multiple days, Email notifications on requests, approvals and rejections, Visitor self-sign-in using touch screen kiosks, Business card scanning for speedy registrations, Visitor history tracking, Blacklisting of Visitors, Visitor/ contractor – badge / pass printing, and Business card scanning for speedy registrations.

Also, Desousa (2008) stated that Web based application have four core benefits. These are the following: 1) Compatibility. Web based applications are far more compatible across platforms than traditional installed software like web browsers. 2) Efficiency. Everyone hates to deal with piles of paper unless they do not have any other alternatives. The benefit of web-based solution makes services and information available from any web-facilitated Personal Computer (PC). 3) Security of live data. Normally in more complex systems data is moved about separate systems and data sources. In web-based systems, these systems and processes can often be merged by reducing the need to move the data around. Web-based applications also provide an additional security by removing the need for the user to have access to the data and back end servers. 4) Cost Effective. Web-based applications can considerably lower the costs because of reduced support and maintenance, lower requirements on the end user system and simplified plans.

The Jail Inmate and Visitor Tracking System of EDS Innovations was successfully developed and deployed a critical technology currently being used by the Bureau of Jail Management and Penology (BJMP) at its biggest jail facility – Manila City Jail. With over 6,000 inmates, Manila City Jail receives over 500 to 1,000 visitors daily. The task of manually screening, recording and blocking visitors was painfully, laborious and tedious. A visitor normally has to spend at least 2 hours of processing time for every visit. The System has immensely assisted not only the BJMP but also police authorities in obtaining vital information derived from the visitor's logs.

Related Studies

Foreign Studies

Three researchers from the University of Cincinnati and Florida State University wanted to know which types of prisoners get more visits from family,

friends and others. The authors collected data from the Florida Department of Corrections on felony inmates who were admitted to and released from state prisons between November 2000 and April 2002. The scholars examined inmates' demographics as well as criminal and incarceration histories.

A total of 17,921 prisoners were included in the study, 90% of whom were men. The average age of prisoners was 32 years and about one-third were incarcerated for drug offenses. Half of prisoners in the study were black, 42 percent were white, and 8 percent were Latino.

- Inmates received 2.13 visits, on average, during their incarceration. Prison sentences lasted an average of 23 months.
- Younger prisoners received more visits than older ones. On average a 20-year-old had 2.6 visit while a 50-year-old has less than one.
- White prisoners received slightly more visits than Latinos. But whites and Latinos received nearly twice as many as black prisoners, who averaged about one visit.
- Women received slightly more visit than men.
- Individuals held for property and sex crimes received the least visits while those imprisoned for non-violent offenses, including drug offenses, received the most.
- Inmates who had been incarcerated more than once were less likely to be visited than those serving their first sentence.

The study of Bentrupperbäumer, J. M. , O'Farrell and J. P. Reser from School of Tropical Environment Studies and Geography, James Cook University School of Psychology, James Cook University on 2004 aimed to build on past and current research and monitoring of visitor management, coordinating the work of various researchers and land managers to provide a comprehensive and practical system for monitoring all aspects of visitor management. The project provided a necessary link between the research goals of Rainforest CRC Programs 3 and 4, which were essentially concerned with rainforest visitation and usage at regional and local level, respectively.

As stated on the study of M. Olagunju, A. E. Adeniyi and T. O. Oladele stated Staff Attendance System was a simple windows-based attendance system that was specifically developed for small and medium scale companies. This software helped to manage the workforce and track employee time and attendance in an easier way. This software application managed the recordings, control and monitoring of staff absence and lateness. The significance of this application was to make sure that the staff members were punctual and do their jobs on time. Those times, there was there is no proper system to monitor the staff attendance at some companies. Some companies still use the paper-based system to store the records of the employees. With the implementation of this system, paper-based system would be eliminated. This research would help the Administrator to manage recordings, monitoring and tracking the attendance of the employees. It provided an accurate time management for the employees in order to sign in and sign out their attendance. In the paper, the biometrics-based Staff Attendance Monitoring System was developed using Visual Basic Programming Language as front end while Microsoft Access was used as the Database to the backend users.

They also concluded that the newly developed software was more effective and efficient in monitoring staff attendance. If it was implemented, the entire draw backs of the manual system would be eliminated or drastically minimized.

Based from the study of Whitman, R.A (2016) an excellent biometric solution was one that is always being improved upon. This means that there was a constant effort to improve upon the current solution, an effort to improve upon security, ease of use, accuracy, and other quality attributes. An example of such a solution would be signature biometrics. We have seen that originally signature biometrics consisted of on-line and off-line forms. Both forms of this type of biometrics had their pros and cons, however, this form of biometrics has shown that over time there has been a constant effort to improve the technologies itself for better security through a fusion of both.

The study Automated Student Attendance System using Fingerprint Recognition of Sifatnur Rahman, Mahabur Rahman, Md Mijanur Rahman stated that an automated system eliminates the need for paper tracking and instead make use of barcode badges, electronic tags, touch screens, magnetic stripe cards or even

biometrics (fingerprints, retinal scans and facial features). This would make life easier for both the employee and the business as work hours were logged automatically when the employee enters and leaves the office. This would eliminate the possibility of timesheets getting lost or manipulated. It also saved a lot of time for the payroll department since automated systems usually have integrated reporting functionalities which took care of most of the pay processing.

Local Studies

Visitation Services promoted moral and social supports to the inmates. All inmates were allowed to receive visitors during scheduled visiting hours. However, visiting privileges maybe denied in accordance with jail rules and whenever public safety requires, Supplemental Guidelines to the Revised Policy on Visitation in BJMP-manned Jail dated 02 March 2010, BJMP Manual (Revised 2007) and Republic Act No. 7438. Those persons may avail of the service were; “Relatives (Father, mother, legal wife/husband, sons, daughters, brothers/sisters, etc. up to the 4th civil degree of consanguinity), Friends, Religious groups/NGO, Counsel/Lawyer, Common law wife/husband, Medical/Dental Physicians”.

The Requirements of the visitors to enter the BJMP were; Identification Cards/Residence Certificate, Marriage Certificate (Married), Certification from the Barangay if common law partners, Passport, driver’s license, PRC license, etc. the Bureau of Jail Management and Penology does not charge fees for the service.

The study of Perucho, R.C (2017) indicated that the WVSU Visitors Log Monitoring System (Web and LAN) could be made accessible to the personnel and authorized users of West Visayas State University for data safety and data backup any computers. Only registered users were allowed to access the different features and functionalities of the automated monitoring system. The features of the system will focused on: log-in and log-out services, Visitors Information, Administrator System, database backup, list of visitors and statistic report. Thus, the project focused on how to design and develop a computer-based Monitoring System for West Visayas State University to be utilized by the agency in promoting safety, to monitor visitors, and generate reports on users and frequent visitors of the Campus premises.

Based on the study that was uploaded in Aquilan, J. (2014) the proponents aimed to design and develop an automated monitoring system for BJMP that would monitor visitors of the jail, provide accurate and reliable reports, promote awareness to individuals about the safety rules of BJMP. The monitoring system could be made accessible to the personnel and authorized users of BJMP for data safety and data back-up any computers. Only registered users were allowed to access the different features and functionalities of the automated monitoring system.

The features of the system would focus on log-in and log-out services, Visitors Information, Administrator System, database back-up, list of visitors and statistic report.

In addition, the study Computerized Login and Logout System was developed for Bignay National Highschool to know the number of students in the room and monitor also the attendance of the students. The system could also help the teachers lessen their work by getting the name of students for their attendance.

The study Balmes (2016), "Online Day to Day Monitoring System for Lyceum of the Philippines University-Batangas", stated that the system can make tasks faster and easier without hassle for the dean and faculty member. The researcher deemed the system to be of great contribution to the colleges of Lyceum of the Philippines University-Batangas. Based on the findings of their study that have been presented in the study and actual development of the system, "Online Day to Day Monitoring System for Lyceum of the Philippines University", it could be claimed that the manual day to day monitoring system was much less efficient and the problems encountered by the faculty members and Dean contributed to the ineffectiveness and inefficiency of the existing manual system. The system was a great help to the dean and faculty members because it will lessen the conflicts encountered by the users.

Synthesis

According to the literature and studies that were reviewed from the study of Desousa (2008), Benefits of Web Based System “Web based application have four core benefits; 1.) Compatibility, 2.) Efficiency, 3) Security, 4.) Cost Effective”. The research system project was somehow related to the cited literature and studies above.

The cited literature and studies were related to proposed project but not everything was the same. The researchers created the project as web based not android. Lastly, the researchers made the project specifically for the BJMP in Mahayag, Zamboanga del Sur.

Chapter 3

DESIGN AND METHODOLOGY

The proponents of the system entitled Visitor Log Monitoring System for Mahayag Bureau of Jail Management and Penology, applied the Rapid Application Development.

Figure 3.1 shows the Rapid Application Development model. The technique of this method was to first identify the project's scope, after identifying the project's scope is to build a prototype with frequent iterations. Then, create a workable application and optimize the application and deliver it.

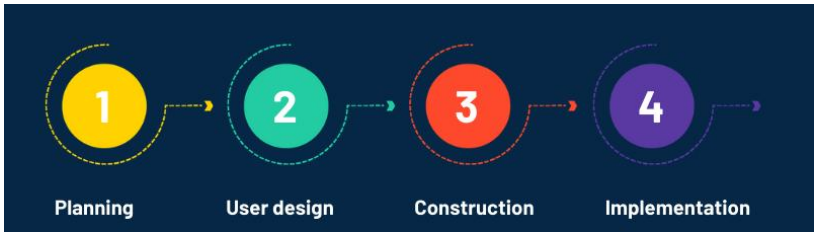


Figure 3.1 **Rapid Application Development Model**

Planning

Figure 3.2 shows the current process of logging in and out at Mahayag BJMP. The first step of their process was to present the requirements, then after presenting it, visitors would write their name and date of visitation in logbook. The visitor would now have time to visit the inmate, then after the visitation, logging out is required for the visitors.

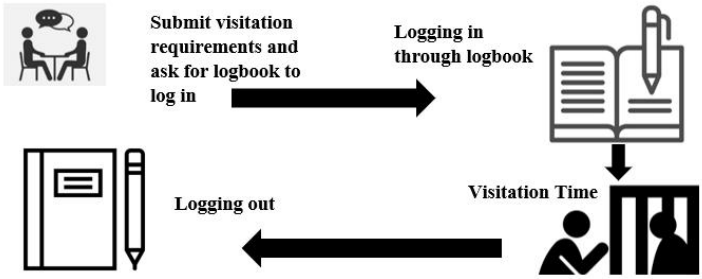


Figure 3.2 **Current Visitor Log Monitoring**

During this phase, the researchers had surfed the internet to gather ideas on how to develop a visitor log monitoring system and what were the needed requirements to develop the propose system.

User Design

At this phase, the researchers created a data flow diagram of the propose system to know the flow of inputting data into the system.

Figure 3.3 the data flow diagram shows the process of logging in and out of visitor in the proposed system. In this process, the assigned officer or the administrator of the propose project would login. The officer/administrator could now add visitors. After adding all the data needed, the visitor could now login and logout through biometric fingerprint. On the next visit, the visitor no longer needs to register their information on the system. For them to log in and out, the visitor would directly put their finger on the biometric fingerprint.

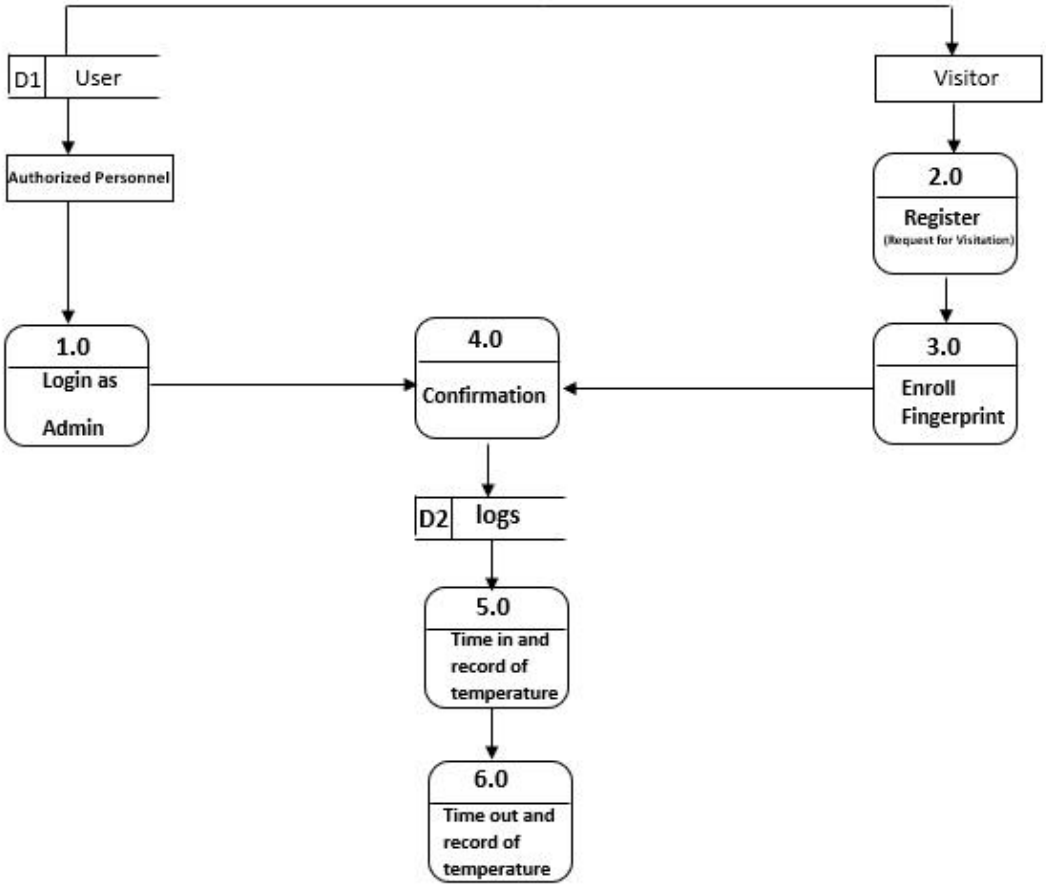


Figure 3.3 **Data Flow Diagram**

In this phase, the researchers indicate a prototyping flowchart method. Prototype Flowchart is an experimental process of a system considering the prototypes of varying degrees of fidelity to capture design concepts and user tests. It is placed to help identify where to input the data and how to use the entire system.

Figure 3.4 shows the process of a prototyping flowchart. The process of the entire system where the user could eventually access the system correctly. The use of this flowchart is to help the user understand its process. Where to start and where to finish. As shown below, the diagram contains decision making. It is defaulted by the input and output processes. Where the input 1 is to detect the fingerprint ID and temperature of the visitors and process it. While the input 2 is to input a fingerprint of the visitors and enrolled it to register.

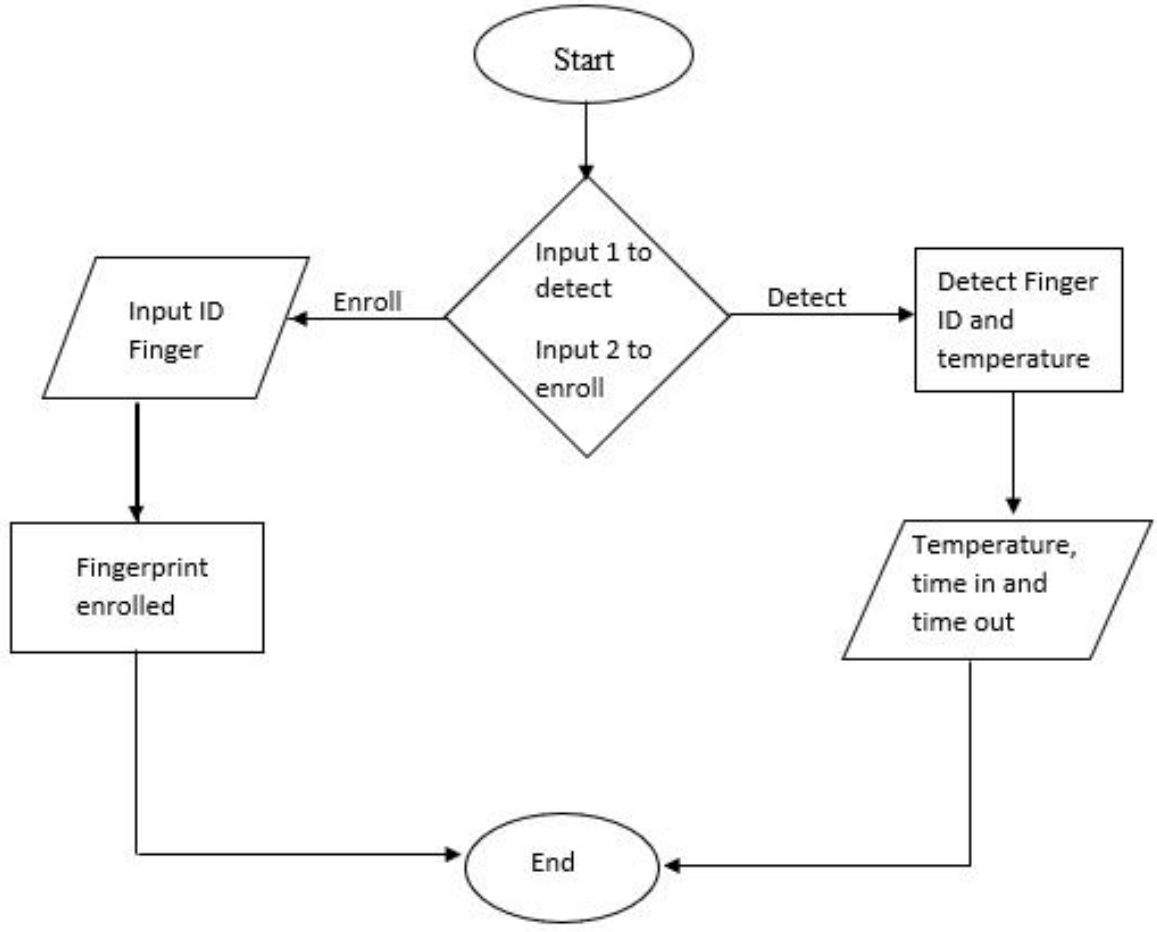


Figure 3.4 **Prototype Flowchart**

The researchers conclude a use case model to use for a graphical deception of a user's possible interactions with the system.

Figure 3.5 shows the use case model that will discuss the appropriate works of an authorized personnel and a jail visitor during its registering session. It is figured prominently that the authorized personnel have the power to logged in the system first, and then the visitor significantly register itself and sent a visitation request to the admin user or authorized personnel through the use of the system's power. And to confirm the request, the authorized personnel should check the data inserted by the visitors if it is perfectly completed. After the confirmation, the authorized personnel should assist and ask the visitor to input the time record of logging in and the record of the temperature itself. It is shown also in the diagram, that the visitor should input its time in and time out record together with its body temperature. While on the other hand, the authorized personnel will send a report of the time in and time out of the visitor.

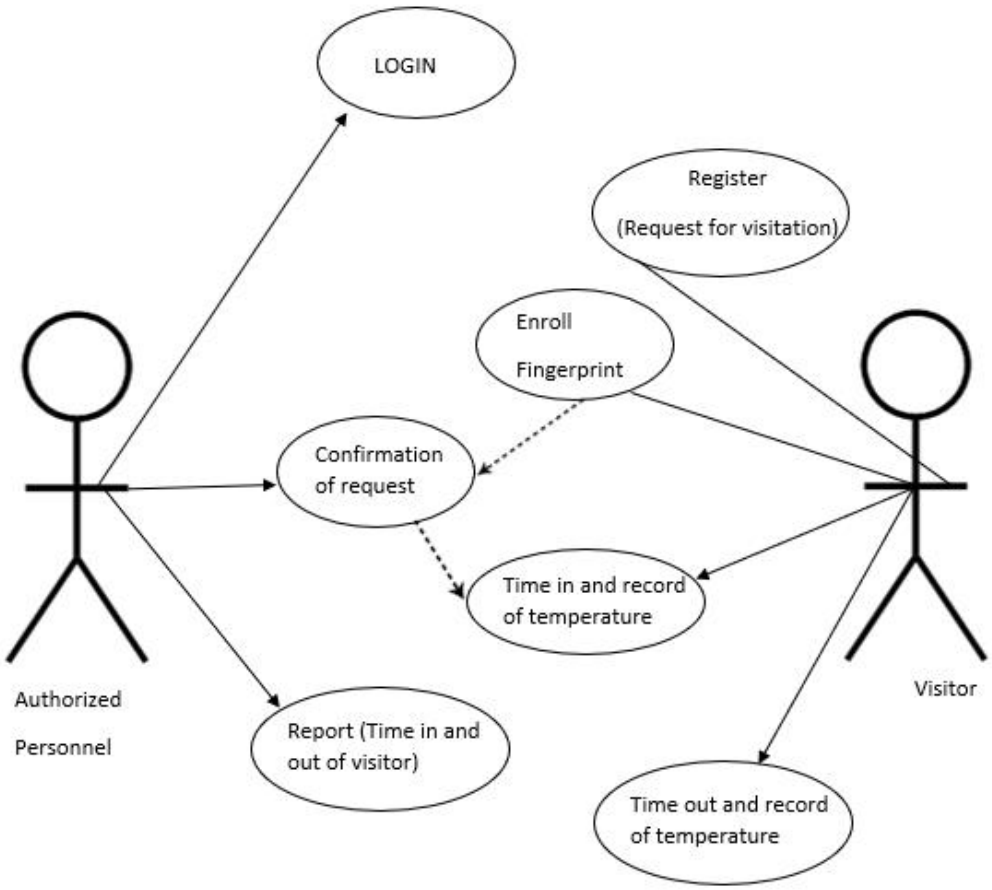


Figure 3.5 **Use Case Model**

Chapter 4

DEVELOPMENT, TESTING AND IMPLEMENTATION

Description of the Prototype

The system described an automation process which corresponds to the traditional work of the jail premises. It was designed to develop a kind of system that helps authorized personnel, jail guards, prisoners and visitors to logged in/out and input an information properly.

Jail guards were the personnel inside the jail who control the surrounding or the jail premises. Prisoners on the otherhand were the person whom caged by a prison's grills. Lastly, visitors were persons who need to input their information in the automated system before they can go inside the jail.

Authorized personnel were the person in-charge of the system who has the authority to approve or decline the request of the visitors. And the personnel who has the right to control the visiting hour and a visiting session. As mentioned above, only the authorized personnel can give any authority to approve or decline the visitors request.

Gantt Chart

The researchers' point of view of the Gantt Chart, table 4.1 showed the time space of working with the program and how many weeks and months it took to finish the tasks and to develop the system. It was also shown below the use of color palette to recognize each difficulty level of working from beginning to end. The color in clues the length work of variety tasks. The color bars were shown to define the use of time during visible days.

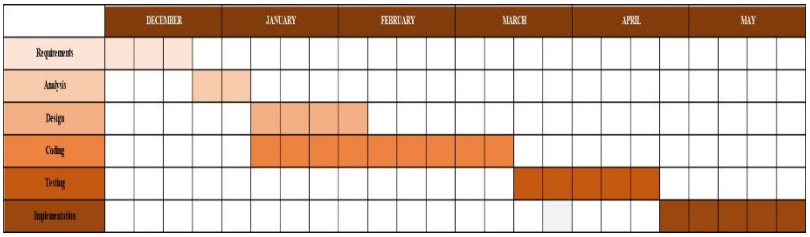


Table 4.1 **Gantt Chart**

Development

At this phase of documentation, the researchers created an interface which shows growth and progress of the system which took three (3) months to finish as shown in figure 4.1. During its duration, the researchers took some interview from the Mahayag Bureau of Jail Management and Penology for the existing works of the inside premises to get some more information to be used for developing the system project. The researchers gather to use a webpage coding of Cascading Style Sheets (CSS), Hypertext Mark-up Language (HTML), Bootstrap, jQuery and JavaScript that integrated the design of the system and Hypertext Pre-Processor (PHP) for the integration of the codes: XAMPP as a server, Arduino for hardware was Biometric fingerprint and temperature.

However, the system was defined to use such kind of programming languages to mold a perfect development of the said project. It included discussion and gathered further information about the system especially for the possible weaknesses and negative side of the project. It was necessary for them to procure a flame boosting experience on using the BJMP Log-in system that has necessary to save data in a private process.

The researchers designed an algorithm for different types of user due to the rapid increase of technology and gadgets. The researchers created a graphical

interface that was flexible to any gadgets in the market.

Figure 4.1 **Dashboard**

Figure 4.1 contain the complete information of a system user. Information that was saved or store in the database where as visible to the rightful user. The data contain only the information about the account owner.

Dash board was perfectly secured since only the rightful account owner has only the access.

Testing

The completion of the system required testing and debugging to ensure a perfect performance of the said project. The researchers conducted a System Usability Scale (SUS) way of testing at the random possible visitors of the BJMP. Where thus additional helping information that was gathered were being added to the system to have more efficient and convenient flow of the system. The researchers also did the way of testing about the flexibility and compatibility of the system to make sure how and what kind of capacity the system had.

Figure 4.2 **Testing**

Implementation Plan

After satisfying the request of the client and all the reviewing and updating, the researchers were ready for implementing the system for regular use in the target institution.

Table 4.2 presents the implementation plan of the proponents for the system.

Activity	Target Date	Resources Required	Person Involve	Expected Output	Remarks
Full system implementation	May 2022	Laptop,	BJMP Authorized personnel, Visitor	This system will be fully implemented and integrated	

				to the BJMP	

Table 4.2 **Implementation Plan**

Chapter 5

RESULT, DISCUSSION, CONCLUSION AND RECOMMENDATION

RESULTS AND DISCUSSION

- **Record the temperature of the visitors upon entering the jail premises**

The system project delivered a visitor log monitoring system for Mahayag Bureau of Jail Management and Penology for the benefit of the jail premises' visitor and authorize officer.

Figure 5.1 shows the record of the visitor's temperature upon entering the jail premises where the visitor should put their hand near the temperature scanner after signing up and enrolling their fingerprint and it would automatically detect the temperature of the visitor. If the temperature of the visitor is >37 degree Celsius or higher the buzzer would automatically ring and if the temperature is ≤37 degree Celsius and below the authorized officer allowed the visitors to enter the jail premises after checking of contraband.

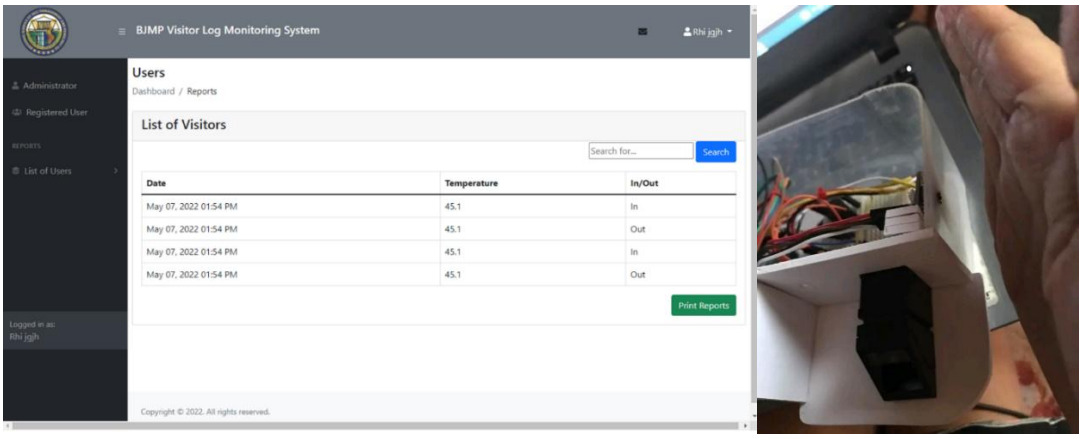


Figure 5.1 **Visitor temperature record**

- **Monitor the visitors going in and out using biometric fingerprint inside the jail premises**

Figure 5.2 shows monitor the visitors going in and out using biometric fingerprint inside the jail premises. If the visitor was already registered, the next time they tap the fingerprint the visitor would automatically log in or log out. In this phase, it shows how many times the visitors enter the jail premises, what date and time and the temperature of the visitor.

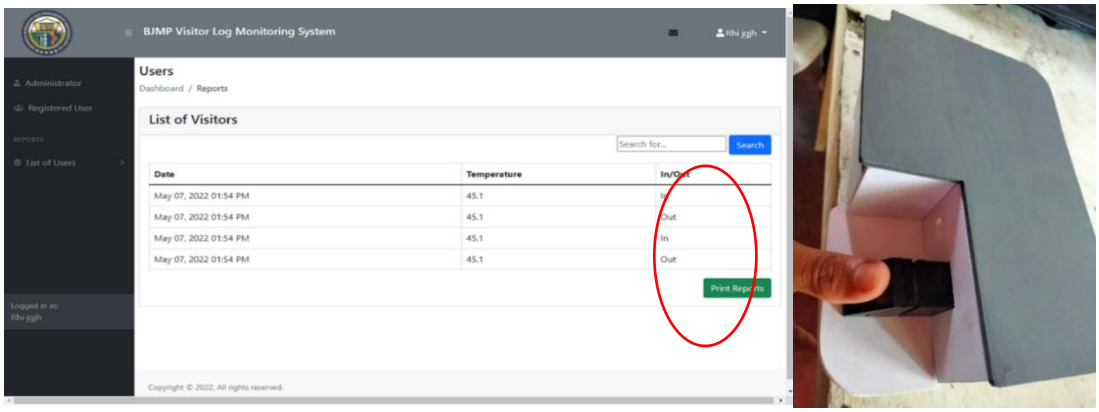


Figure 5.2 **Monitor logging in/out using biometric**

- **Generate necessary printed reports on users and frequent visitors of the jail premises**

Figure 5.3 shows monthly printed reports on users and frequent visitors of the jail premises. It shows the date and time on when the visitors logged in or out the jail premises, the temperature of the visitors.

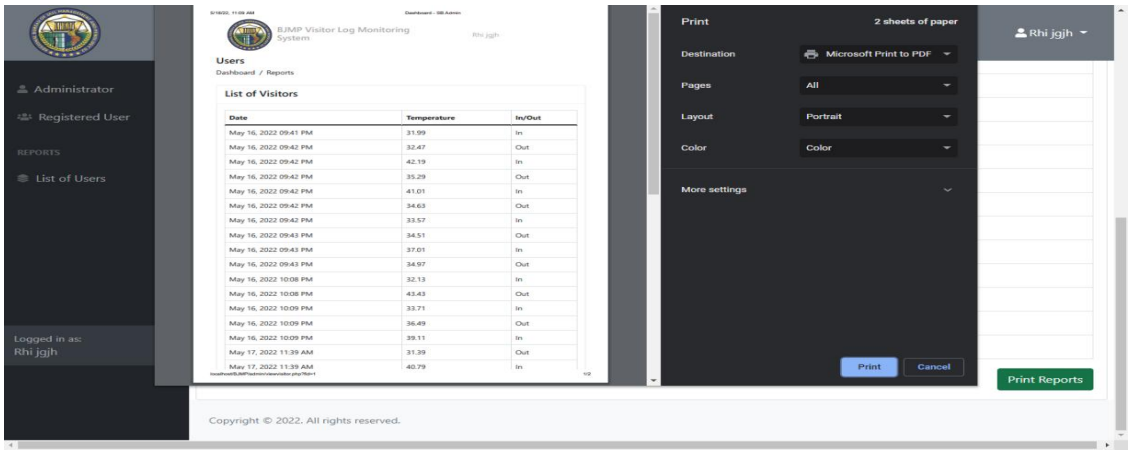


Figure 5.3 **Generate reports**

Conclusions

The proponents concluded that the system should be implemented at Mahayag Bureau of Jail Management and Penology for it was useful in visiting hours.

The said system was developed to provide a secured and large storage space for the data information of the visitors, jail guards, and other users. The information saved in the database were secured and the records were confidential. The capstone met all the objectives of the study of which: could record the temperature of the visitors upon entering the jail premises; monitor the visitors going in and out using biometric fingerprint inside the jail premises; and can generate necessary printed reports on users and frequent visitors of the jail premises.

The system was made to help define the jail premises happenings especially during visiting hours. The system was undoubtedly profitable and beneficial to the BJMP's facility and establishment in terms of monitoring visitors or guests who visit the facility. However, this would not be the reason for concern because the project is regarded to be the solution on the problem of effectively monitoring visitors and convicts. Implementing the BJMP visitor log monitoring system would give an efficient way of processing all critical information and keeping track of records, particularly monitoring them. By implementing the system, all the flaws in the traditional approach would be addressed, and an electronic method would be implemented, making monitoring operations more efficient and effective.

Recommendation

We recommended the System in an institution which caters vast number of people because through this, it would limit the timed-consumed. The system has a lot of feature such as exact body temperature tool and fast logging of information system. All the data input remain confidential therefore we concluded that these systems would very useful in Jail Management for fast and harmonized management through

advanced technological studies. This system could be used also to the establishment that still using manual logging in and out.

We recommended the future researchers should focus on improving the features of the system for better result.

REFERENCES

Aquilan, J. (2014) *BJMP Visitors Log Monitoring System (Web and LAN)*. Retrieved from https://www.inettutor.com/source-code/bjmp-visitors-log-monitoring-system-web-and-lan/

Balmes, I. (2016) *Online Day to Day Monitoring System for Lyceum of the Philippines University Batangas*. Retrieved from https://www.researchgate.net/publication/303687944_Online_Day_to_Day_Monitoring_System_for_Lyceum_of_the_Philippines_University_-Batangas

Efacility (2011) *Visitor Management System*. Retrieved from http://www.efacility.in/Visitor_Management_Software/Lobby_Management_System. html#.U

Olagunju et al,. (2018) *Staff Attendance Monitoring System using Fingerprint Biometrics*. Retrieved from https://www.researchgate.net/publication/323221513_Staff_Attendance_Monitoring_System_using_Fingerprint_Biometrics

Perucho, R. (2017) *WVSU Visitors Log Monitoring System (Web and LAN)*. Retrieved from https://www.academia.edu/34222894/WVSU_Visitors_Log_Monitoring_System_We b_and_LAN

Rahman et al,. (2018) *Automated Student Attendance System using Fingerprint Recognition*. Retrieved from https://www.researchgate.net/publication/324279029_Automated_Student_Attendance_System_using_Fingerprint_Recognition

Reser et al,. (2004) *Visitor Monitoring System for the Wet Tropics World Heritage Area*. Retrieved from https://www.wettropics.gov.au/site/user-assets/docs/FinalVMSVol2.pdf

Sia, M. (2018) *Jail Inmate and Visitor Tracking System*. (EDS)

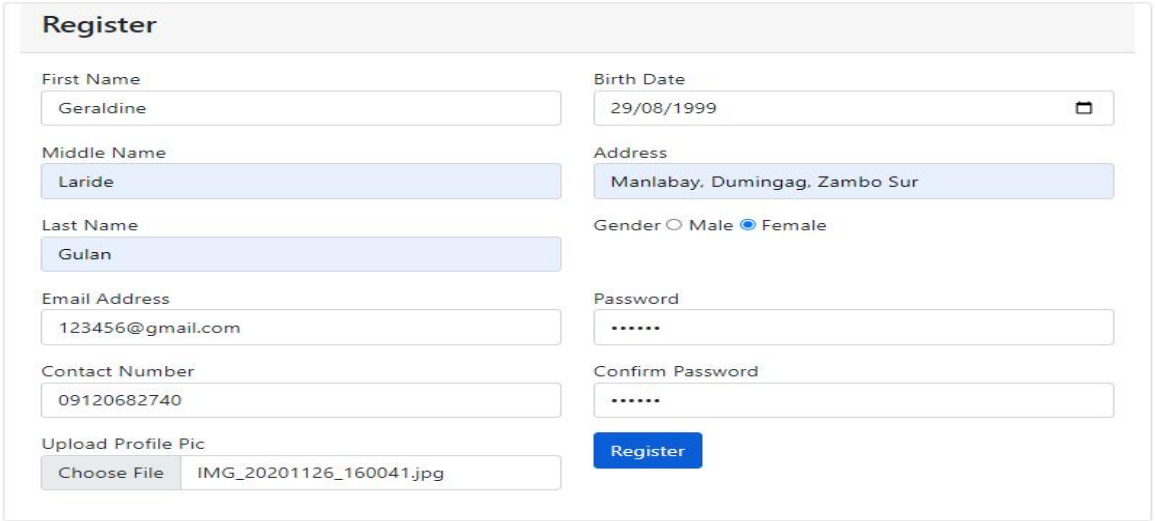
Whitman, R. (2016) *Information Security: A Study on Biometric Security Solutions for Telecare Medical Information Systems*. Retrieved from https://scholars.unh.edu/cgi/viewcontent.cgi?article=2083&context=thesis

APPENDIX "A"

User's Manual

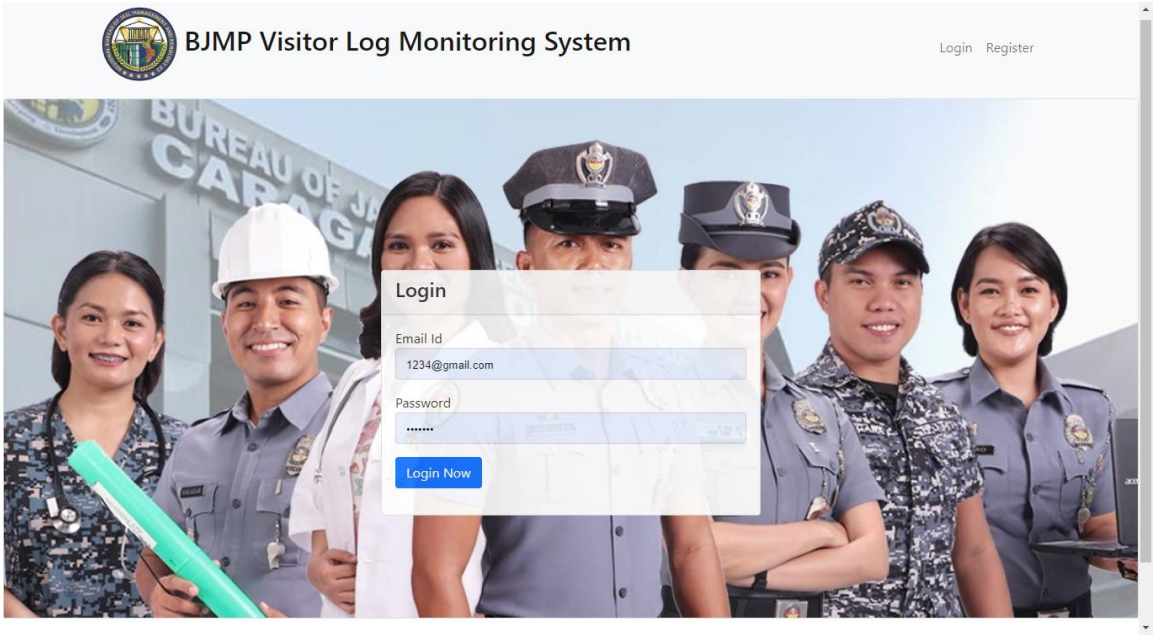
Welcome Page

The welcome page of the system is what the first page the user would see. In this page, the user can find (2) two buttons namely Login and Register. If the user would choose register, the register page will appear.



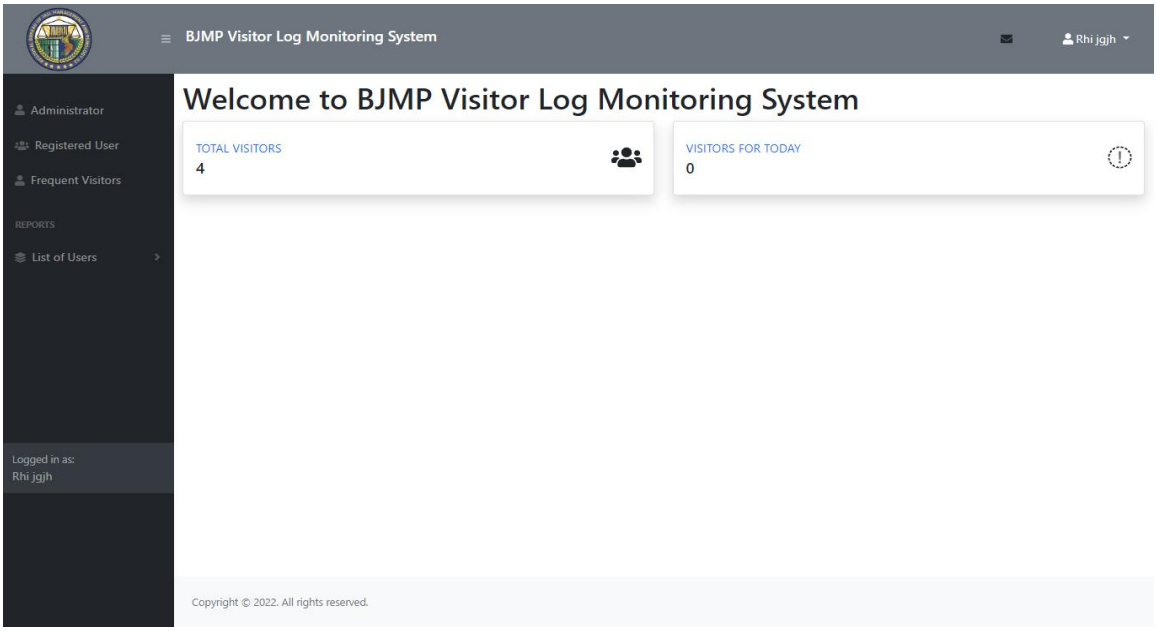
Register Page

This is where the user will register their account if ever, they don't have an account, or they visit the jail premises for the first time.



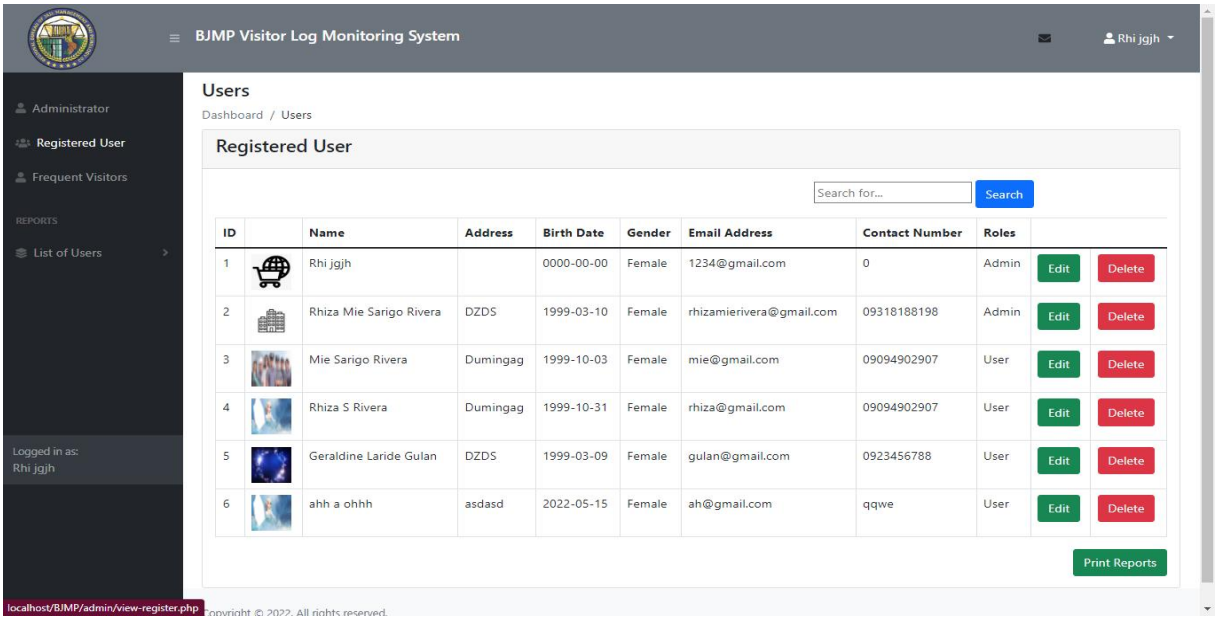
Login Form

In the Login page, the user would enter their registered username and password and click login for them to enter the system.



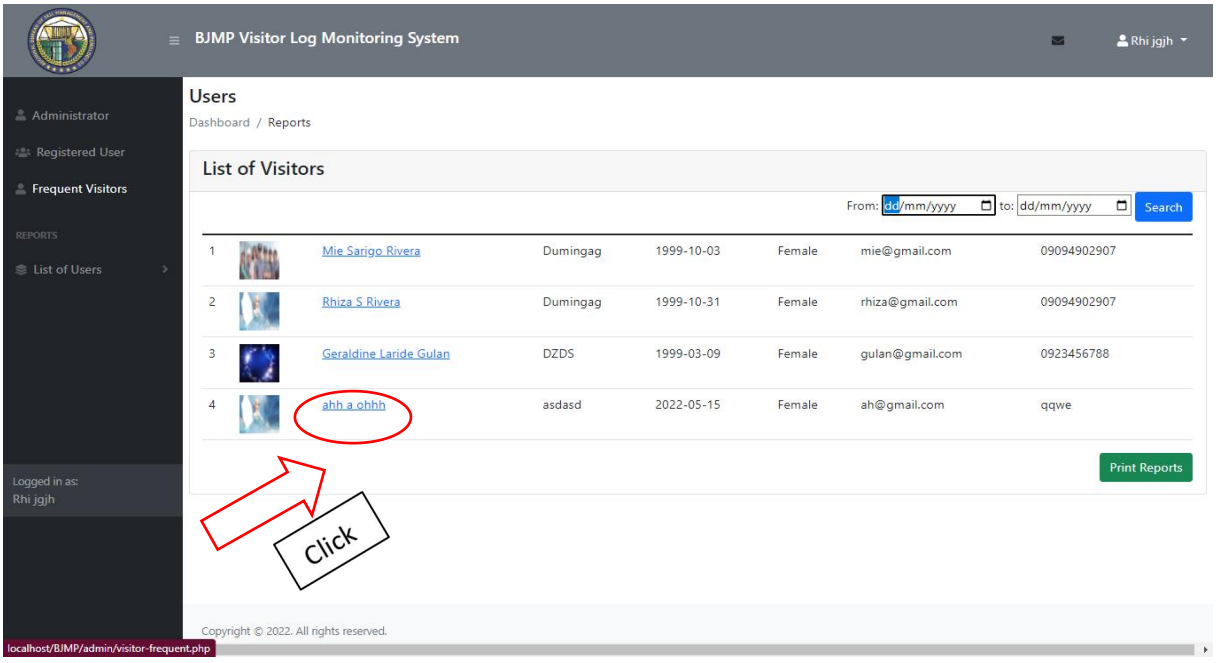
Dashboard

After successfully logging in the system, the user will see the dashboard. This system also has its navigation bar to navigate wherever on the system and to easily find pages the user wants to go.



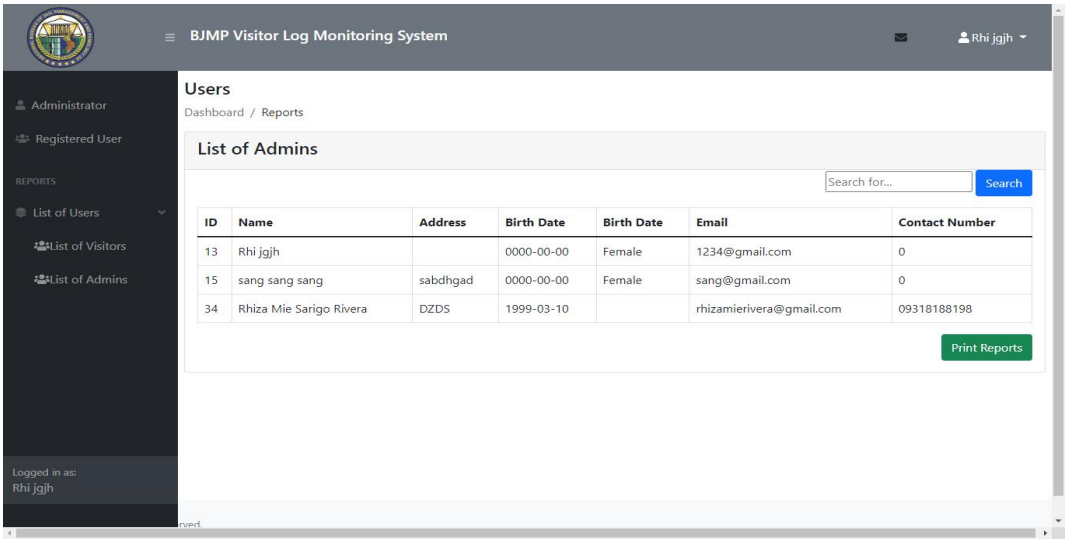
Registered User

In the Register User Page, you can see here the list of the Registered User where the authorized personnel can delete it and edit.



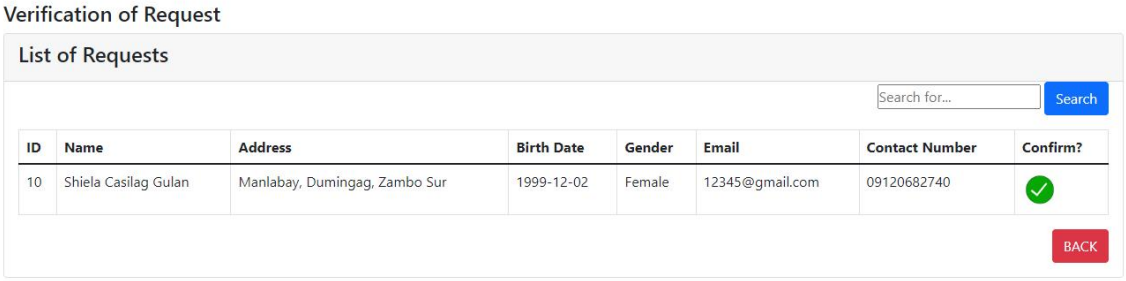
List of Visitors-Users

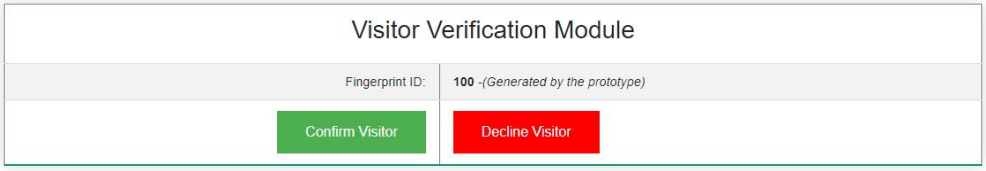
At this phase when the authorized personnel click one of the visitors, they will see the list of the time record of the visitor and their temperature.



Administrator

At this phase, authorized user can see the lists of admins who log in the system and some of their personal information like address, birthdate, gender, Email and contact number.





Verification of Request

The admin confirms or decline the request of approval of the visitors who want to enter at the jail premises.

APPENDIX “B”

Source Code

REGISTER

```
<?php
session_start();
include('admin/config/dbcon.php');



if(isset($_POST['register_btn']) && isset($_FILES['image']))

{

   echo "<pre>";
         print_r($_FILES['image']);
         echo "</pre>";

   $fname = mysqli_real_escape_string ($con, $_POST['fname']);
   $mname = mysqli_real_escape_string ($con, $_POST['mname']);
   $lname = mysqli_real_escape_string ($con, $_POST['lname']);
   $address = mysqli_real_escape_string ($con, $_POST['address']);
   $bdate = mysqli_real_escape_string ($con, $_POST['bdate']);
   $gender = mysqli_real_escape_string ($con, $_POST['gender']);
   $email = mysqli_real_escape_string ($con, $_POST['email']);
```

```
$contact = mysqli_real_escape_string ($con, $_POST['contact']);
$password = mysqli_real_escape_string ($con, $_POST['password']);
$confirm_password = mysqli_real_escape_string ($con, $_POST['cpassword']);
$img_name = $_FILES['image']['name'];
      $img_size = $_FILES['image']['size'];
      $tmp_name = $_FILES['image']['tmp_name'];
      $error = $_FILES['image']['error'];

      if ($error === 0)
{
            if ($img_size > 125000)
   {
                  $em = "Sorry, your file is too large.";
               header("Location: register.php?error=$em");
            }
   else
   {
                  $img_ex = pathinfo($img_name, PATHINFO_EXTENSION);
                  $img_ex_lc = strtolower($img_ex);

                  $allowed_exs = array("jpg", "jpeg", "png");

                  if (in_array($img_ex_lc, $allowed_exs))
      {
```

```
                $new_img_name = uniqid("IMG-", true).'.'.$img_ex_lc;
                $img_upload_path = 'uploads/'.$new_img_name;
                move_uploaded_file($tmp_name, $img_upload_path);
        }
        else
        {$_SESSION['message']="upload failed";
        header("Location: register.php");
        exit(0);
        }
      }
   }


if ($password == $confirm_password)
{
  $checkemail = "SELECT email FROM users WHERE email='$email'";
  $checkemail_run = mysqli_query ($con, $checkemail);

  if (mysqli_num_rows($checkemail_run)>0)
   {
     $_SESSION['message']="Email Already Exists";
     header("Location: register.php");
     exit(0);
  }
```

```
  else
  {
    $user_query = "INSERT INTO users (fname, mname, lname, address, bdate, gender, email, password, contact) VALUES ('$fname', '$mname', '$lname', '$address', '$bdate', '$gender', '$email','$password','$contact')";
    $user_query_run= mysqli_query ($con, $user_query);

    //get last saved id from users
    $getid = "SELECT id FROM users order by id desc limit 1";
    $getidd = mysqli_query ($con, $getid);
    foreach($getidd as $row)
    { $lid=$row['id'];}

    //save to visitor request tabble
    $user_query1 = "INSERT INTO visit_request (pid,status,dt) VALUES ('$lid', '0',now())";
    $user_query_run1= mysqli_query ($con, $user_query1);

    if ($user_query_run)
    {
     $_SESSION['message']="Registered Successfully, Please wait for the approval ! <br> Visit BJMP-Mahayag to access your account!";
     header("Location: login.php");
     exit(0);
```

```
        }
        else
        {
         $_SESSION['message']="Something Went Wrong!";
         header("Location: register.php");
         exit(0);
        }
    }

}
else
{
    $_SESSION['message']="Password doesn't match! ";
    header("Location: register.php");
    exit(0);
}
}
else
{
header("Location: register.php");
exit(0);
}
?>
```

TEMPERATURE

```
<?php
if(isset($_GET['fid']))
{
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "bjmp";
$fid=$_GET['fid'];
$temperature=$_GET['temperature'];
// Create connection
$conn = new mysqli($servername, $username, $password, $dbname);
// Check connection
if ($conn->connect_error) {
  die("Connection failed: " . $conn->connect_error);
}
//
$query = "select * from logs where fid='$fid' order by id desc limit 1";
$query_run = mysqli_query($conn, $query);
if(mysqli_num_rows($query_run) > 0)
{
  foreach($query_run as $row)
  {
    $inouts=$row['inouts'];
```

```
    $sinouts='';
    if($inouts=='In')
    {
      $sinouts='Out';
    }
    else
    {
      $sinouts='In';
    }
    //echo $sinouts;
      $sql2 = "INSERT INTO logs (log1, fid, inouts,temperature)VALUES (now(), $fid,
'$sinouts','$temperature')";
      if ($conn->query($sql2) === TRUE) {
        echo "New record created successfully";
      } else {
        echo "Error: " . $sql2 . "<br>" . $conn->error;
      }
  }
}
else
{
  $sql = "INSERT INTO logs (log1, fid, inouts,temperature)VALUES (now(), $fid,
'In','$temperature' )";
if ($conn->query($sql) === TRUE) {
```

```
  echo "New record created successfully";
} else {
  echo "Error: " . $sql . "<br>" . $conn->error;
}
}
//
$conn->close();
}
?>
```

REPORTS

```
<button onclick="window.print();" class = "btn btn-success float-end">Print
Reports</button>
```

APPENDIX “C”

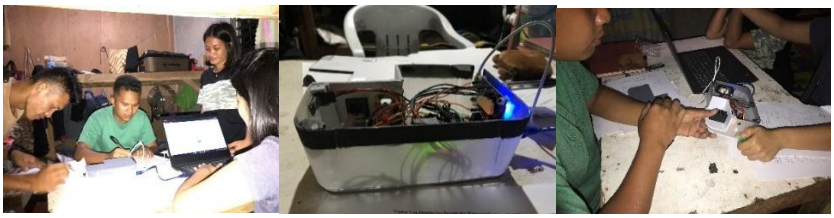
Photo Documentation

This picture was taken during and after our final defense.

Picture of the adviser upon checking the documents and testing the system.

The researchers together with the panelists and the adviser during the mock defense.

A picture during the survey and testing of the system assisted by the researchers.



APPENDIX "D"

Poster Paper

BJMP Visitor Log Monitoring System

INTRODUCTION

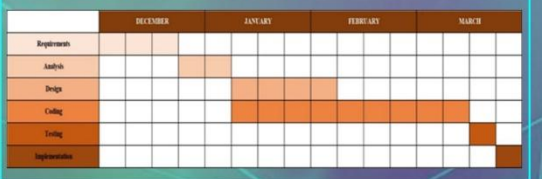
BJMP Visitor Log Monitoring System, focuses on how to design and develop a computer-based Monitoring System for Mahayag BJMP. Its purpose is to utilized the system in promoting safety, monitor the visitors, and generate reports on users and frequent visitors of the jail premises. In addtion, technology is very useful in the fields such as institutions, business, communication, companies, science and even the Learning of Process of old-fashioned way was shifted to technology ways. System exists to these fields to help access information and processes easier and more productive. It is also a big help especially in the office of Bureau of Jail Management and Penology for the purpose of making the work easier for the assigned staff to manage the security of the visitor's data.

OBJECTIVES

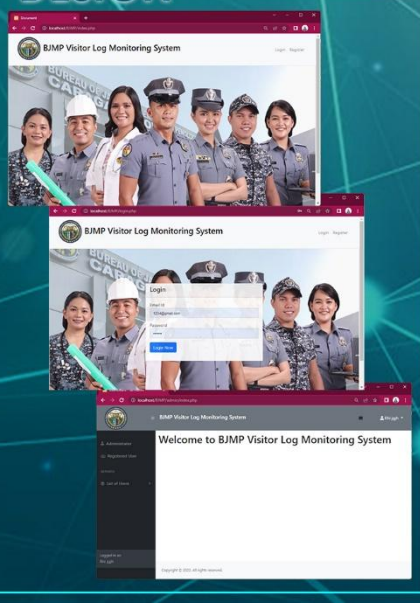
- Record the temperature of the visitors upon entering the jail premises
- Monitor the visitors going in and out using biometric fingerprint inside the jail premises
- Generate necessary printed reports on users and frequent visitors of the jail premises

METHODOLOGY

GANTT CHART



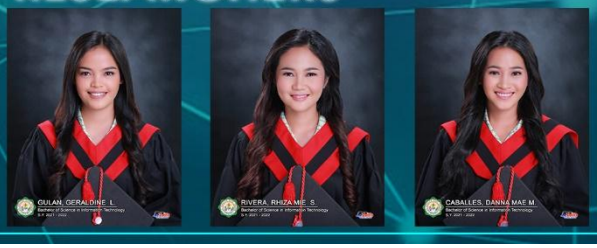
DESIGN



CONCLUSION

-The system is developed to provide and large storage space for data information of the visitors, jail guards, and other user.
- The information that saved in the database are secured.
- The system is made to help define the jail premises happenings especially during visiting hours.
- The system is undoubtedly profitable and beneficial to the BJMP's facility and establishment in terms of monitoring visitors or guests who visit the facility.

RESEARCHERS



VISITOR LOG MONITORING SYSTEM FOR MAHAYAG BUREAU OF JAIL MANAGEMENT AND PENOLOGY

Rhiza Mie S. Rivera
Lo. Timonan, Dumingag, ZDS
rhizamierivera@gmail.com

Geraldine L Gulan
Manlabay, Dumingag, ZDS
geraldinelaridegulan@gmail.com

Danna Mae M. Caballes
Upper Timonan, Dumingag, ZDS
caballesdannamae8@gmail.com

Zenon A. Matos Jr.,MIT
Adviser

ABSTRACT

This study aimed to help the Bureau of Jail Management and Penology for efficient and fast managing of visitors data including actual body temperature through the system. It specifically used a webpage coding of Cascasing Style Sheet, Bootstrap and HTML.

In this competitive technology world, the impact of IT contributes major role in all real time system. Every Jail premises conduct logging in/out, scanning and checking the visitor's baggage before they can enter the jail premises. Logging in has a long process of inputting personal data.

The researchers gather to use a webpage coding of Cascading Style Sheets (CSS), Hypertext Mark-up Language (HTML), Bootstrap, jQuery and JavaScript that integrates the design of the system and Hypertext Pre-Processor (PHP) for the integration of the codes XAMPP as a server.

Visitors can sign up in website through online and if verified by the authorized officer they can enter in the jail premises only if their body temperature is normal. This system records the temperature of the visitors upon entering the jail premises, monitor the visitors going in and out using biometric fingerprint inside the

jail premises and generate printed reports on users and frequent visitors of the jail premises. This capstone will help the Mahayag BJMP to manage the visitor's data faster and have more reliable process and secure storage than before.

The capstone project is a computer-based system that keeps track of visitors' information as well as the visit log for reporting purposes. It's also a major aid, especially in the Bureau of Jail Management Penology's office for making the job of the assigned employees managing the security of visitors' data easier.

Keywords: visitors data security, monitoring visitors