**“Web Based Students Attendance Monitoring System”**

**A Capstone Project**

**------------------------------------------------**

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**Bachelor of Science in Information Technology**

**--------------------------------------------------**

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**CERTIFICATION**

This Capstone Project entitled **“Web Based Students Attendance Monitoring System”,** was prepared and submitted by **Joshua Acena, Christelle Neri Frial, Nicole Rabbon, Maria Cristina Anicoche, Reynaldo Quinalayo, James Ronel Soliven,** and **Arnold Bueno Sanche,** in partial fulfillement of the requirements of Degree **Bachelor of Science in Information Technology,** has been examined and recommended for **Oral Defense.**

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**DEDICATION**

This research paper is lovingly dedicated to our respective parents who have been our constant source of inspiration. They have given us determination and discipline to tackle any task without their love and support this Mini Capstone Project would not have been made possible.

**-*Nicole Rabbon***

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We dedicate this manuscript to our family, friends, and mentors.

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***-Maria Cristina Anicoche***

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**ABSTRACT**

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The Web Based Students Attendance Monitoring System is design to tracks and records the presence or absence of students in Ilocos Sur Community College, Bachelor of Science Technology, Third year Students. This study allows educators and administrators to keep track students’ attendance patterns and to ensure compliance with attendance policies.

The goal of this study was to enhance and streamline the process of tracking and managing student attendance in education institution. Improve the efficiency of attendance tracking by replacing manual methods with an automated system, reducing the time and effort required by teachers and administrators.

**CHAPTER I**

**THE PROBLEM**

**Introduction**

The term “technology” refers to the application of scientific knowledge and skills for practical purposes, typically involving the creation and use of tools, machinery, systems, and processes to address specific need, solve problems, or achieve goals in various fields. Absenteeism is a complicated and pervasive problem that negatively affects a large quantity of students. Students with attendance issues are at danger for a variety of bad outcomes, which includes negative academic performance, elevated family conflict/ problems and capacity maltreatment from loss of adult supervision (Kearney & Albano, 2007). Additionally, attendance issues often lack of the important assets to manage the issues effectively. It is an alarming issue for administrators, teachers, parents, and the society, in addition to for the students in particular. It may also imply low performance of teachers, student dissatisfaction of the schools services or loss of or poor educational and non-academic systems or rules that address the issues or factors influencing or reinforcing this behavior. Parents are financially stressed for having their children to stay longer in school, having to re enroll them in subjects, where they fail because of excessive absences (Clores, 2009).

When a student chooses to be absent from school, they suffers a lack of studying and educational time leading to poor social and educational achievements. This isn’t always to point out the monetary loss if the student is enrolled in a private school. As they constantly misses studying opportunities in school, they may eventually drop out of school moving directly to lives of delinquency, crime, poverty, and unemployment.

**Statement of Objectives**

This study aimed to develop a Web Based Students Attendance Monitoring System of the students from Bachelor of Science in Information Technology, Third year Students.

Specifically, it aimed to:

1. Determine the current challenges and limitations of the existing manual attendance monitoring system for web-based students.

a. Authentication Issues

b. Limited Engagement Tracking

c. Difficulty in Record Management

**Significance of the Study**

This study is intended for various sets of people who could benefit from the system. This provide efficient and effective attendance checking through an organized system. This would be beneficial to the school in lessening time. The developed system would have a significant benefit on the following:

**Students.** The Students will be able to monitor their absences. Making them aware of their own absences.

**Teachers.** The Teachers will be able monitor attendance much easier and faster. They will be able to concentrate on their lesson plan for the day and will not be bothered during their class hours every time there are parent inquiries.

**Researchers.** The developed system would help the researchers enhance and apply their knowledge in software development and research writing.

**Future Researchers.** The Future Researchers can build upon this study by exploring additional features and functionalities, such as integrating biometric authentication or analyzing attendance patterns to identify potential areas for improvement.

**Scope and Delimitations**

This study is focused on the “Web Based Students Attendance Monitoring System of the students from Bachelor of Science in Information Technology, Third year Students”. Features can track attendance in real-time, providing up-to-the-minute information on the student participation, secure login mechanisms to ensure that only authorized users, such as students and faculty, can access attendance data and automation of attendance marking to reduce manual efforts and enhance accuracy, possibly through integration with online class platforms.

**Chapter II**

**REVIEW RELATED LITERATURE AND METHODOLOGY**

**Review of Related Literature**

**An Effective Attendance Monitoring System with Fraud Prevention Technique for Educational Institutions**

An Attendance Monitoring System (AMS) is proposed for educational institutions. The novel aspect of this work is to integrate a password-protected attendance counting module with the system. The module can effectively limit the fraudulent activities in attendance monitoring process. Besides that, some constraints are proposed to increase the security of the AMS. Based on the constraints a new system is designed to maintain the attendance data and the user information. The aim of this research is to design an effective AMS using the Radio Frequency Identification (RFID) technology to prevent fraudulence. Besides, the attention is given to the usability and the efficiency of the system. For this purpose, a usability testing named System Usability Scale (SUS) is used after implementing the system in the real world. (khander M Qaiduzzaman 2018).

**Multimodal student attendance management system (MSAMS)**

Effective student attendance management in higher educational institutions represents a big challenge for faculty members that need fast and accurate approaches. The traditional attendance manual approach is prone to spoofing and wasting a lot of faculty/students time and poor accuracy especially in the case of large student numbers. This paper presents an effective solution for the real-time student attendance management problem in large lecture halls. (Ain Shams 2018).

**Student Attendance System**

Today’s era demands for highly skilled people able to adapt to constant changes and innovate not only to ensure their sustainability and success in the global market but also to promote economic growth. To achieve this goal, it is of paramount importance to reduce dropout rates and increase graduation rates for school students. So far, there are indications that regular school attendance contributes to student success not only within the school framework but also in real life. Nevertheless, the data reveal that a high percentage of students drop-out of school in secondary education, which means that several high-potential candidates do not continue their studies in higher education. Moreover, it seems that the importance of student attendance and its impact on student achievement has received little attention. (EdTech 2019).

With the present advances in technology such as; recognition systems, control systems, design of smart devices, IOT and other projects, tremendous research work has been carried out lately to eradicate the problems associated with the old, cumbersome and less efficient ways of monitoring attendance to a more efficient, automated, less cumbersome and digital systems. In attempt to replace older systems with more efficient ones, various attendance systems have been deployed. (Abubakar et al 2018).

Used a fingerprint module (sensor), wireless communication network (WIFI), visual basic and MySQL (database) to convert the wired fingerprint recognition system to a wireless finger print recognition through the Wi-Fi network to the user computer only where the database is situated. The limitation of this design is that the range of the communication is about 500m and the information is only available in one system. (Ms. Jagruti et al 2018) presented a simple and portable approach to student attendance in the form of an IoT based system that uses fingerprint scanner and stores the data securely over the cloud and data can be retrieved whenever the teacher wants it.

**Attendance monitoring system**

School attendance is a baseline factor in determining student success. (Great Schools Staff, 2016) The attendance is important because students are more likely to succeed in academics when they attend school consistently. It’s difficult for the teacher and the class to build their expertise and growth if a large number of students are often absent. In addition to falling behind in academics, students who are not in school on a regular basis are more likely to get into difficulty with the law and cause problems in their communities. (itsourcecode 2019).

An attendance monitoring system, including: an attendance module for generating daily records of students, the daily records identifying the time when the students enter the school premises and leave the campus for dismissal time; A database module in communication with the attendance module for generating student attendance record and data to aid in the management and regulation of the human resource personnel concerned. A means for creating and maintaining student's identification and personal records; A means for generating daily records of students, the daily records identifying the time when the students enter the school premises and leave the campus for dismissal time; and a means for generating students' attendance information to aid in management of resources from the students' identification and personal records and the daily time records (Jones and Rickenbacker, 2018).

School attendance is very vital for the child’s success in education and learning, it helped esnsure that the child is not left behind socially and developmentally. It helped the students maximize their time and learning opportunities in school. Attendance also helped provide enough time for the students to develop core skill, talents that helped build their foundation for the nearing future (Education.vic.gov.au, 2018).

Solis Gatekeeper is a tool that provides the easiest way to assist the human resource personnel concerned in attendance monitoring for this time-consuming process. The most common means of tracking students' attendance in school is by enforcing the students to manually sign the attendance sheet, which is normally a burden for students, class secretaries and also for other school personnel in charge. For instance, when students forgot their Identification cards, they manually sign the attendance sheet provided upon entering the school by the security personnel in charge, also the class secretaries and class advisers took down notes in the attendance sheets provided by the Prefect of Discipline. This instance is burdensome and most likely need more effort and time. In terms of attendance analysis and validity, the human resource personnel concerned also has to perform manual computation to obtain the students’ attendance percentage, which normally consume a lot of time (Agrawal and Bansal, 2018).

Barcode system, can be a powerful tool in helping to manage students’ attendance throughout working school day and also enhance classroom security and validity of attendance records. Barcode system has been applied to solve problems where it is necessary track the students' attendance record, upon entering the campus or the students' time in and upon leaving the school premises during dismissal time. Barcode system is used in regulating, monitoring, and storing personal data automatically and saving it on the schools' database records. Barcode systems have been widely used in many different application areas, such as: product tracking through manufacturing and assembly, control of inventory, parking lot access and control, container tracking, ID badges and access control, equipment tracking in hospitals, etc. A Barcode system primarily comprises of a barcode, a barcode scanner, and a backend database. Barcode Tags contains a very limited amount of data. It is typically just an identifier on a database of that particular product. In the case of UPC codes there is a standardized database so your code is assigned to you for each product. In 2D and larger barcodes you can pretty much put in whatever information you like. Barcode system is a technology that is used to collect information automatically by scanning and identifying information embedded in the barcode using a barcode scanner, to identify, categorize and track them. Barcode systems have been widely used in many different application areas, such as: product tracking through manufacturing and assembly, control of inventory, parking lot access and control, container tracking, equipment tracking in hospitals, etc. A barcode system primarily comprises of barcode tags, barcode scanner, and a backend database to store the information or data (Barcodesinc.com, 2018).

**Operational Definition of Terms**

For a better understanding of the terms used in the study, the following terms are hereby defined.

**Student Attendance.** The presence of a student in class, recorded electronically through manual entry into the system.

**Real-time Monitoring.** The ability of the system to capture and update attendance data instantly, allowing administrators and teachers to access the most recent attendance information without delays.

**User Roles.** A feature that sends automated alerts and messages to users, such as teachers, students, and administrators, regarding important events like absenteeism or low attendance.

**Authorization.** The process of granting specific permissions and access rights to users based on their roles, ensuring that users can only perform actions appropriate to their assigned responsibilities.

**Dashboard.** The main interface of the system where users, based on their roles, can view summarized information and perform key task related to attendance monitoring, course management, and user profiles.

**Data Analysis and Reporting.** The functionality allowing users, particularly administrators and teachers, to generate and interpret reports on attendance data, providing insights into patterns, trends, and overall performance.

**Security Measures.** Protocols and features implemented to safeguard user data and system integrity, including encryption of sensitive information.