GaPa: STUDENT GATE PASS INFORMATION SYSTEM USING RFID WITH METAL DETECTOR FOR CAVITE STATE UNIVERSITY - IMUS CAMPUS

Undergraduate Thesis
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In partial fulfillment
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Bachelor of Science in Computer Science

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ABSTRACT

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The study titled "GaPa: Student Gate Pass Information System Using RFID with Metal Detector for Cavite State University - Imus Campus" is a comprehensive solution designed to enhance campus security, streamline access control, and prevent the spread of diseases at Cavite State University - Imus Campus. This system integrates RFID technology, a metal detector, and a body temperature reader to create a holistic approach to security and data collection, ensuring the safety and well-being of students, faculty, and staff members.

By assigning unique RFID tags to students, the GaPa system ensures accurate identification and access control, eliminating the need for daily redundant information filling and minimizing campus entrance queues. This streamlining of access not only saves valuable time but also optimizes administrative processes, leading to more efficient campus operations. The integration of a metal detector module adds an extra layer of security, detecting any unauthorized attempts to enter the campus premises. This proactive approach enhances campus safety measures, preventing potential security breaches and ensuring a secure study environment for everyone.

Additionally, the body temperature scanner module further contributes to disease prevention efforts. The accurate temperature readings collected by the system facilitate efficient contact tracing, should any health concerns arise. By quickly identifying individuals with elevated temperatures, campus authorities can promptly take necessary actions to prevent the spread of infectious diseases, safeguarding the health of the entire university community.

The GaPa system is not limited to just access control and security measures; it also includes a portal and contact tracing module that enables effective monitoring of individuals within the campus. This module simplifies administrative workflows and centralizes data for efficient management and retrieval. The availability of real-time data empowers the university administration to make informed decisions swiftly, enhancing overall campus safety and security.

The significance of this study lies in its potential to optimize campus security protocols, mitigate health risks, and enhance overall safety and efficiency at Cavite State University - Imus Campus. The successful implementation of the GaPa system can serve as a model for other educational institutions, promoting safer environments and advancing research in the field of computer science. Furthermore, as technology continues to evolve, the GaPa system lays the groundwork for further innovations and improvements in campus security and access control systems. By demonstrating the feasibility and effectiveness of integrating RFID technology, metal detectors, and body temperature readers, this study contributes to the ongoing development of solutions to address security and health challenges in educational settings.

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An undergraduate thesis manuscript submitted to the faculty of the Department of Computer Studies, Cavite State University – Imus Campus, Imus, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science with Contribution No. BSCS-THE-02-2023-000-004. Prepared under the supervision of Ms. Grace S. Ibañez.

INTRODUCTION

In today's modern society, where health risks and security concerns are widespread, the utilization of technology for safety purposes is of utmost importance. The ongoing COVID-19 pandemic has emphasized the need for temperature-detecting equipment in public spaces, particularly to prevent the spread of diseases within university campuses.

The current process at Cavite State University - Imus Campus for student entrance and visitor registration faces significant challenges. Students are required to fill out a Google Form upon entering the campus, providing their information for contact tracing and temperature recording. However, this manual process often results in long queues and the burden of repeatedly providing the same information every day. Furthermore, the existing manual visitor registration system lacks reliability, as visitors can bypass the contact tracing process by manually completing logbooks, leading to incomplete and unreliable data. Additionally, the absence of metal detectors exposes the campus to security risks, as unauthorized individuals carrying metal objects can enter without being detected.

To solve this problems, the study's goal is to develop a gate pass information system that utilizes RFID technology, metal detectors, and body temperature readers. By integrating these technologies, the system can enhance campus security, minimize

entrance queues, eliminate the need for repetitive information filling, and automate the contact tracing process.

The implementation of this comprehensive gate pass information system at Cavite State University - Imus Campus seeks to improve security measures, enhance operational efficiency, and reduce the risk of disease outbreaks among students. The successful implementation of the system will serve as a model for other educational institutions, promoting safer environments and better public health practices.

It is important to recognize that while the severity of the COVID-19 situation may have diminished in certain areas, the insights gained from studying the pandemic and implementing effective systems can provide valuable lessons for future public health crises. These efforts contribute to the ongoing endeavor of ensuring public safety and well-being.

Statement of the Problem

This study aims to answer "How to develop a Student Gate Pass Information System using RFID with Metal Detector for Cavite State University - Imus Campus?" Specifically, this study aimed to answer the following:

Upon entering the CVSU-Imus Campus, students are required to fill out a Google Form or logbook with their information for contact tracing and body temperature. This can result in an extended queue of students at the campus entrance. Additionally, the repetitive process of providing redundant information daily, such as name, course and section, contact number, and address, adds unnecessary burden and inefficiency. *"How will the system minimize campus entrance queues and eliminate the need for daily redundant information filling?"*

The current manual visitor registration system at Cavite State University - Imus Campus presents significant challenges regarding contact tracing and security. Visitors may bypass the contact tracing process by manually filling up log books, leading to incomplete and unreliable data. Furthermore, there is a risk of the log books