PayTrack: A Mobile Application System for MMSU-CIT Organizations

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**CHAPTER I**

**INTRODUCTION**

**Project Context**

At Mariano Marcos State University - College of Industrial Technology (MMSU-CIT), various student organizations operate, such as the Association of Industrial Technology Students (AITS), New Automotive Technology and Rebuilders Organization (NATRO), Society of Experts in Wardrobe and Needleworks (SEWN), Society of Food Innovators and Service Managers (SOFISM), and Association of Computer Technology Students (ACTS). Interest-based groups like the Association of Social Science Students (ASSENTS), 2H Club, Timpuyog Dagiti Mannurat nga Ilocano (TMI), Youth Development Circle (YDC), Kamalayang Pilipino (KAMPIL), Association of Industrial Management Students (AIMS), and the National Service Training Program (NSTP) also exist. While these organizations provide valuable experiences, their financial management still relies on outdated manual processes, making it difficult to keep records accurate and organized.

Currently, payments are collected in person, recorded by hand, and tracked manually. This system is slow, prone to errors, and makes it hard to monitor transactions. Some students delay payments because they need to visit specific offices or meet with officers in person. This also puts pressure on student leaders to maintain accurate records, track unpaid dues, and manage funds properly. Without a clear system, transparency may suffer, leading to trust issues within the organization (Martinez, 2020).

Realizing these challenges, schools, and universities are increasingly turning to digital platforms to administer various other kinds of administrative functions. Studies show that mobile payment systems speed up transactions and reduce costs compared to manual processes. Research by Acosta (2023) found that universities using such systems increased transaction speeds by 70% and cut costs by 60%. A digital payment system would help student organizations better manage their funds, maintain accurate records, and simplify financial transactions for students.

Student organizations contribute significantly to the personal development of the student through providing skills in teamwork and leadership ability. In essence, opportunities are therein available to a student to network, gain experiences, and take part in school activities. However, managing finances can be a challenge. Collecting membership fees, event payments, and other contributions can take time and become difficult to track (Smith, 2021).

This research proposes MMSU-CIT PayTrack, a Mobile Application System designed to simplify financial transactions for student organizations. The app will allow students to pay membership dues and event fees anytime, check their payment history, and receive financial updates from their organization. It will also make it easier for organization officers to track payments, generate reports, and maintain organized records. By reducing manual work, officers can focus more on leading their organizations and engaging with members (Garcia & Torres, 2021).

Supporting digital financial tools like MMSU-CIT PayTrack can improve communication between members and officers, reduce administrative burdens, and make financial transactions more transparent and efficient. This innovation will not only help student organizations operate smoothly but also teach students financial responsibility and integrity. In the long run, it will enhance service delivery, reduce workload, and create a more efficient and well-managed student community at MMSU-CIT.

**Purpose and Description of the Study**

The main aim of this research is to create a mobile application which will improve the efficiency, correctness, and transparency of student organization payment tracking at the College of Industrial Technology. The project seeks to overcome recurrent inefficiencies that relate to conventional payment collection processes, including manual record-keeping, data inaccuracies, and time delays in validating transactions. Through the use of an electronic payment monitoring system, the research aims to create a more responsible and organized process of financial management for the students and organizational heads.

This study involves designing and developing a mobile application system integrating some of the core functionalities with automatic recording of payments and live financial reporting. It will help the students to log payments in a seamless manner and assist the heads of organizations in effective management of transactions with maximum accuracy and ease of access. Finally, it seeks to improve financial operations among student organizations through technology, for efficiency, accountability, and financial oversight.

The purpose of the PayTrack Mobile Application System is to establish a more efficient and transparent system for handling organizational payments within the Mariano Marcos State University - College of Industrial Technology (MMSU-CIT). The goal is to create a secure and convenient mobile platform that will allow members to easily manage and track their payments (fees, dues, events, etc.), while also providing officers with robust tools for financial management and reporting. This app aims to replace current manual and potentially inefficient processes.

**Statement of the Problem**

This study aims to develop a Student Organization Payment Application for Mariano Marcos State University - College of Industrial Technology. Specifically, it aims to answer the following:

1. What is the existing process used by MMSU-CIT Student Organization in collecting payments from the student member?
2. What are the problems encountered by the students in following the existing payment processes?
3. What application can be developed to address these problems?
4. What is the level of acceptability of the developed application in terms of:
5. Functionality suitability;
6. Performance efficiency;
7. Usability;
8. Reliability;
9. Security;
10. Maintainability; and
11. Portability.

**Objectives of the Study**

This study aims to develop the PayTrack Mobile Application System is to enhance financial transactions within student organizations at the Mariano Marcos State University - College of Industrial Technology (MMSU-CIT). Specifically, it seeks to:

1. Determine the existing payment processes used by MMSU-CIT Student Organization.
2. Identify the problems encountered by students in the existing payment processes.
3. Design, develop, and implement an application to address these issues.
4. Evaluate the acceptability of the developed application in terms of:
5. Functionality suitability;
6. Performance efficiency;
7. Usability;
8. Reliability;
9. Security;
10. Maintainability; and
11. Portability.

**Scope and Limitation of the Study**

The PayTrack Mobile Application System will be develop to facilitate the financial management of student organizations at the Marian Marcos State University-College of Industrial Technology. The study, therefore, becomes a digital platform that will assist in processing the collection of memberships distribution, payment of events, and other financial transactions with accuracy, expediency, and transparency.

This study covers the design, development, and implementation of the MMSU-CIT PayTrack Mobile Application System. The system is intended to serve two primary user groups, namely student organization members and organization officers. Student organization members will use the app to pay dues, track their financial contributions, receive notifications, and access transaction records. Organization officers such as treasurers, presidents, and other officers will manage payment records, track outstanding balances, generate financial reports, and send announcements regarding financial obligations.

The study focuses on key functionalities such as digital payment processing, automated financial tracking, notification systems, financial reporting, and secure access. Digital payment processing will allow students to pay dues and fees using the app through PayMongo as the third-party payment gateway, providing digital receipts for verification. Automated financial tracking will ensure real-time transaction updates for both members and officers. A notification system will send alerts for pending payments, deadlines, and financial announcements. Financial reporting will enable organization officers to generate reports to ensure transparency and accountability. Secure access will include user authentication to protect financial data and restrict access to authorized individuals.

Implementation of the app will take place exclusively within MMSU-CIT, catering specifically to its student organizations. The system will be used by student organization members and officers. The app will be developed as an Android-based mobile application and introduced through training sessions for organization officers, followed by a phased rollout for student members. Since real-time updates and transaction tracking require an internet connection, the app's functionality will depend on internet availability.

Despite its extensive features, the study has several limitations. The initial version of the app is developed for Android devices only, with no support for iOS at this stage due to resource constraints. Since real-time updates and transactions rely on an internet connection, the app may have limited functionality in offline mode. The application is designed solely for use within MMSU-CIT student organizations, and adaptation to other universities or colleges would require modifications. The app is available only to verified MMSU-CIT student organization members and officers to ensure data security and relevance. The study does not include integration with external banking systems or digital wallets beyond those predefined by the university.

**Significance of the Study**

This study will aim to strengthen the organizational financial management system of the MMSU-CIT, particularly in handling payment transactions for student organizations such as the Association of Industrial Technology Students (AITS), New Automotive Technology and Rebuilders Organization (NATRO), Society of Experts in Wardrobe and Needleworks (SEWN), Society of Food Innovators and Service Managers (SOFISM), Draftsmen, Designers, and Developers (3D Guild), and Association of Computer Technology Students (ACTS), along with other interest-based groups like ASSENTS, 2H Club, TMI, YDC, AIMS,RCYC, NUMS, RCYC, MATHS, ICPFS, SETS, ELGO, KAMPIL, and NSTP. The MMSU-CIT Organization Payments- PayTrack will serve as a novel technology— a platform designed for tracking payments and ensuring financial transparency for each organization member.

The study will be beneficial to the following:

**MMSU-CIT Organization Officers**. The study's findings will significantly enhance their data processing, making financial tasks, dues collection, and communication of financial information more efficient.

**MMSU-CIT Organization Members**. The study will provide members with a convenient platform to track payment statuses, receive announcements related to finances, and access real-time updates on financial activities within their organization.

**MMSU-CIT Organization Advisers**. The study's findings will significantly enhance their data processing, making financial tasks, dues collection, and communication of financial information more efficient.

**MMSU-CIT - Office of Student Affairs and Services (OSAS)**. By promoting responsible financial practices and strengthening accountability within student organizations, the app will help OSAS to reach its objective of having a well-managed and transparent student environment. Additionally, the app will serve as a valuable tool for OSAS in monitoring organizational finances and ensuring compliance with university regulations.

**Future Researchers**. The project will provide researchers with hands-on experience in developing mobile solutions for organizational management and financial tracking, further enhancing their knowledge and skills in the field.

**Definition of Terms**

To facilitate the understanding of this study, different terms are defined herein.

**Organizations.** This refers to the student-led groups inside MMSU-CIT that facilitate extra-curricular activities for the general development of skills and networking while requiring financial management for events and membership dues.

**Mobile App.** This refers to application software designed for mobile devices that allows users to accomplish specific tasks, such as financial transactions more conveniently on their smartphones.

**MMSU-CIT PayTrack.** This refers to the mobile software application specifically developed for student organizations of the Mariano Marcos State University - College of Industrial Technology to make the payment collection, tracking, and reporting process more effective.

**Mobile Payment System.** This refers to an online platform for financial transactions made by mobile devices that support convenience and accessibility.

**Notification System.** This refers to an option available under PayTrack for notifying users on due payments, confirmations, and other financial announcements.

**Transaction History.** This refers to a digital record logging all payments done in the PayTrack app for users to refer to when they wish to check past transaction history.

**User Authentication.** This refers to a feature that provides security such that authorized members and officers only have access to the financial records and capabilities of the app.

**Transparency.** This refers to the capacity to provide complete clarity, accuracy, and accessibility of financial records ensuring trust across participants.

**Compatibility.** This refers to the ability of the application to run perfectly on different mobile devices and operating systems such as Android or iOS, while maintaining a consistent user experience across different screen sizes.

**Functionality Suitability.** This refers to the extent to which PayTrack meets the required features and capabilities to completely and accurately satisfy the particular payment processing needs of MMSU-CIT organizations.

**Maintainability.** This refers to the extent to which the PayTrack application can be modified, updated, and repaired to address bugs, improve existing features, or adapt to new requirements and changes in the MMSU-CIT payment landscape.

**Performance Efficiency.** This refers to the speed at which transactions are processed on PayTrack, the minimal resource requirements such as battery and memory, and how well it handles load when multiple users access it simultaneously before any significant lag or performance degradation occurs.

**Portability.** This refers to the extent to which PayTrack operates effectively and can be transferred from one environment to another (e.g., across different mobile platforms or versions) with minimal modification or effort.

**Reliability.** This refers to the ability of PayTrack to process payments consistently and accurately under normal operating conditions, ensuring uninterrupted payment service.

**Security.** This refers to the wide range of measures inside PayTrack that protect sensitive financial data, user credentials, and transaction details from unauthorized access, cyber threats, or fraudulent activities.

**Usability.** This refers to how easily the members and administrators of MMSU-CIT organizations can find, understand, and use the features of the PayTrack application, through an intuitive interface, clear instructions, and accessibility features for diverse users.

**CHAPTER II**

**REVIEW OF RELATED LITERATURE**

**Local Studies**

**Digital Payment Systems in Student Organizations**

Financial management in various student organizations has greatly improved since the implementation of digital payment systems. As such, studies have shown that a great number of them still do manual processes like using handwritten ledgers and collecting fees in person, which makes the whole process error-prone and inefficient (Johnson & Lee, 2022). The lack of financial transaction automation normally results in delays, miscalculations, and lack of transparency that makes the organizations unable to conform with accurate financial records. To counteract this phenomenon, Universities and colleges have started to initiate their adoption of digital platforms to put into order the administrative duties assuring correct tracking of membership fees, participation in events, and other financial transactions.

Within MMSU-CIT, student organizations such as the Association of Computer Technology Students, the Society of Electrical Technology Students, and the Association of Industrial Technology Students are having troubles related to payments management. Common issues include fee-tracking, cash-flow transparency, and clearing up debts arising due to human error in manual data entry. Digital payment systems promise such an improvement, from heightening communication to improving accuracy and convenience. Student organizations can be more financially accountable and their officers to reduce their burden through the systematic recording of all payments once the transition to digital payment platforms is made.

Furthermore, research pointed to enriched participation and engagement from the members of student organizations with the adoption of digital payment solutions due to the improved ease in transactions.

**ePay Mobile Payment System**

The University of the Philippines’ ePay system serves as an example of a digital financial platform designed to facilitate student payments. Martinez et al. (2021) found that ePay increased the timeliness of payments while reducing manual errors in financial records. The system allows students to pay dues through mobile devices, receive payment alerts, track transaction history, and obtain digital receipts. The shift to digital will increase transparency and accountability for student organization finances. It also reduces the chances of theft and malfeasance involved with fund management, fostering a secure setup for student organizations because there is no cash changing hands at all.

Plus, because of the convenience of online payment options, the collection of membership dues from many students becomes so easy since most of the time, they will complete transactions when multiple online payment options are on the table. The introduction of similar payment systems in MMSU-CIT student organizations can ensure efficiency and ease of financial management for both students and organization officers.

**Foreign Literature  
Mobile Payment Systems in Academic Institutions**

On an international level, mobile payment systems have transformed the finance landscape within academic institutions. A study by Adams and Thompson (2022) found that many universities across the board are adopting mobile payment solutions to allow their students to pay, tuition fees, book fees, and other dues through secure digital platforms. Not only does this relieve administrative burden, but it also works towards the better engagement and satisfaction of the students, simply offering them a seamless experience in making payments with accurate tracking of all transactions involved. The integration of mobile payment technologies in educational institutions has led to more efficient financial management while also lessening dependency on methodical record-keeping and manual computation within such institutions.

**Mobile Governance and Financial Management**

Mobile governance (m-governance) has revolutionized the manner of handling all financial transactions within the institutions. Research conducted by Acosta (2023) found that mobile payment platforms cut out 60 to 70 percent of time and cost generally applied by manual systems in the past. This has automated the financial processes and rendered them more accurate and efficient in terms of fund collection, minimizing human error and accountability of the fund collected (Garcia & Torres, 2021). Further, digital payment systems offer a more appealing experience in the sense of fostering greater financial inclusion, giving the students from diverse backgrounds a unique chance to cater for the logistical aspects of their payments.

**Related Systems**

**PayPal and G-Cash in Student Financial Transactions**

Many students' organizations across the globe have integrated mobile payment platforms, such as PayPal and G-Cash, for fee collections. These platforms provide fast, secure, and cost-effective solutions through mobile wallets, QR codes, and secure payment gateways (Acosta, 2023). Integrating these systems within learning institutions would facilitate better financial management and better precision in monitoring payments. This mobile wallet usage would also lessen the need to handle cash transactions, therefore lessening fund mishandling and risks of theft.

Mobile payments are supposed to enhance accountability as they can produce instant and semi-automated receipts and provide instant payment notifications, which allows students to keep track of their transactions in real-time. Such digital undertakings play an integral part in minimizing errors and financial inconsistency in student organizations.

**Barangay and University Digital Payment Systems**

Digital payment systems have been introduced gradually by various local government units and universities to facilitate financial dealings. The Barangay Management System (BMS) encloses automatic fee collection and real-time reporting, which is practically what the MMSU-CIT PayTrack Mobile Application System seeks to establish. With this, they are in step with the global trends of digital finance, where institutions use technology in managing secure and efficient financial transactions. They serve as a model of how the financial dealings of institutions may be done in a very efficient manner while still guaranteeing the exactness, safety, and easy accessibility to users within the sphere of education. As stated above, today's universities have also set up the payment systems which are integrated into the student portal. Payments can be done easily through them for tuition fees, library fines, and organizational dues. These include ease to allow digital transactions to ease the burden of overhead and accountability to consider a safe handling of cash.

**Synthesis**

The importance of digital payment solutions in student organizations has been highlighted in research as positively impacting financial transparency, efficiency, and convenience. Mobile payment acceptance studies by various academic institutions have shown automation is reducing errors, streamlining administrative processes, and enhancing user satisfaction. Given their ePay system, and others such as PayPal and G-Cash internationally, one can justifiably conclude what has been shown viable as mobile financial solutions for student organizations has been proven and tested already with the previous technologies already in practice.

The MMSU-CIT PayTrack Mobile Application System aims to address the financial management issues of student organizations raised in this written context. It spells out what the system will do: automate fee collection, provide alert notifications when payment is made, and prepare real-time financial reports. This will boost transparency and efficiency in transaction processing within the student organization. Hence is in line with the global trend on mobile payment acceptance to give benefit to MMSU-CIT student organizations of a managed, secure, and effective financial system

The implementation of a mobile payment system would make MMSU-CIT come alive and running, letting the student organizations fulfill their objectives, minimize financial discrepancies, and finally improve the overall student experience. Thus, digital payment solutions modernize financial transactions, elevate the level of accountability, and increase the accessibility, placing MMSU-CIT right in front of the innovative development of student organization management.

**Conceptual Framework**

The conceptual paradigm shows the developmental process of the study. This study will employ the Input-Process-Output (model). The IPO model provides a simplified representation of the flow of resources, data, and activities within a system. It helps in understanding how inputs are transformed into outputs through the processes implemented by the system. This model is valuable for analyzing and designing systems, identifying dependencies, and optimizing processes for efficiency and effectiveness.

The first box presents the input of the study that includes the existing process used by MMSU-CIT organizations in collecting payments and the problems encountered by students in using the existing process.

The second box presents the process of the study that involves the development of a mobile application that streamlines the payment process for MMSU-CIT organizations, ensuring ease of use and efficiency, as well as the acceptability of the system among users.

The third box presents the output of the study, which is the PayTrack: A Mobile Application for MMSU-CIT Organizations Payment.

OUTPUT

Paytrack: A Mobile Application System

Organization Payments

PROCESS

Development of a mobile application.

Ensures the ease of use and efficiency, as well as the acceptability of the system among users.

INPUT

Existing process used by CIT organizations in collecting payments.

Problems encountered by students in using the existing process.

Figure 1. Conceptual Framework

**CHAPTER III**

**TECHNICAL BACKGROUND**

**Description of the Project**

MMSU-CIT PayTrack is a Mobile Application System dedicated to streamlining and automating financial management operations of student organizations within MMSU-CIT. The app is instrumental in taking the place of traditional manual collection and payment tracking systems that experience errors, inefficiency, and delays. Using digital payment processing, automated financial tracking, and real-time reporting provides a secure and user-friendly platform for both organization members and officers. Members can pay membership dues, event fees, and other contributions; whereas officers manage records of payment, prepare financial reports, and notify members. It is enhanced with transparency and accountability by seeing that there is a digital record of all transactions subjected to authorized user access.  
  
 This is designed to configure and solve the problems faced by student organizations in financial management with delayed payments, manual record-keeping errors, and transparency in financial transactions. The app targets Android devices to be accessible to most students. Features include authenticating users, secure payment gateways, and real-time updates for improving usability and security. It lessens the burden of administration on student leaders while promoting responsibility within student membership. This project sought to fit into the ongoing goal of the university to have a computerized solution to improve administrative efficiency while engaging students.

**Use Case Diagram**

The use case diagram illustrates how different persons engage with the system to get things done. It provides a comprehensive picture of what the system can do and how users can utilize the feature. This kind of visualization helps users through frameworks to understand core functions of systems and how such entities are linked to each other.

The system has three user roles in general, such as Admin, Organization Representative, and User. Each of the roles has given set of responsibilities and tasks.

**Admin**: It is responsible for the overall management of the system concerning payments, maintaining user accounts, financial reporting, and notification purposes. Additionally, the admin handles all requests regarding payment requests and organizations by approval processes, making sure things go smooth and perfect.

**Organization Representative**: This role centers on submitting payment requests, managing the payment request tracking status, payment history view, and account management. Mostly concerned with keeping organizational payments organized and up to date.

**User**: It involves personal payments, payment announcements, payment confirmations, and profile update. All these things are targeting making payments fast and easy while informing users about the relevant updates.

The case diagram illustrates how each user will interact with the system so that one can precisely identify what features are required and how they fit in within the application.

For the mobile interface, this is designed to be very user-friendly and quite easy in terms of navigation; there is actually a collapsible sidebar or bottom navigation to get to feature quickly. Tasks have been presented in lists or cards for straightforward scrolling with interactive buttons and icons for login, payments, notifications, and other uncomplicated actions.

**Use Case Diagram**

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**Figure 1: Use Case Diagram of MMSU-CIT PayTrack (Admin)**Figure 1: Illustrates the Admin role in the MMSU-CIT PayTrack system**.** The admin plays an important role in managing all activities in the backend, thus ensuring seamless and efficient payment tracking and management. S/he logs in to the system in a safe manner to access and manage the core functions of the platform. Activities under the purview of the admin include payment management: processing and tracking payments and approving or denying payment requests made by representatives of organizations.

Another responsibility of admins is to generate financial reports for analyzing the system's financial health and sending notifications to keep users informed about updates or significant announcements. They are also responsible for the management of organizations by changing their official particulars. The input under organization management consists of user account management: adding new users, assigning those users to given roles, resetting passwords, or deactivating accounts that have been idle. This all-encompassing duty defines the continued effectiveness of the admin in operating and maintaining the MMSU-CIT PayTrack Mobile Application System.

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**Figure 2: Use Case Diagram of MMSU-CIT PayTrack (Organization Representative)**Figure 2: The organization representative is the primary user for submitting and tracking payments for their organization. They initiate securely logging into the system to access all payments features. After logging in, they submit payments, including necessary details and supporting documents.

Once a payment request is submitted, the representative may track its status to ensure prompt and accurate processing. They may also monitor payment history to look back at previous transactions and payment details. Through these functions, the organization representative organizes a clear financial record of transactions for transparent and accountable payment management.

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**Figure 3: Use Case Diagram of MMSU-CIT PayTrack (User)**

Figure 3: Users interact with the app to manage their personal payments and stay updated on payment-related announcements. They start by logging in securely to access the app’s features. Once authenticated, users can make payments quickly and efficiently through the mobile interface.

In addition to completing payments, users receive payment confirmations to ensure their transactions were successfully processed. They also have access to view public payment announcements, which provide important updates and notifications. Additionally, users can update their profile information to keep their account details accurate and current. Through these essential functions, the user experience is designed to be intuitive and straightforward, promoting easy payment management and information access.

**Entity-Relationship Diagram**

This Entity-Relationship Diagram (ERD) defines a system for student information and payment tracking. The student entity contains information regarding students such as StudentID; full name; course; major; year level; section. Each student gets to be enrolled in a course identified by CourseID and course name. Within a course, students may specialize in a major, which comprises MajorID (that is linked to a course).

The system also interrogates student fees by the Council Fees entity which records different types of fees with their amounts for the Academic Year and semester. Fees have to be paid by students, and such payments are captured in the Payments entity. The entity accommodates, among others, PaymentID, the student who made the payment, the fee paid for, the amount paid, the date of payment, mode of payment, and payment status.

The relationships indicated in the ERD describe how these students enroll for courses and majors while also being mandated to settle council fees. Payments guarantee the proper tracking of students' financial obligation. The system thus helps track student registrations, their dues, and payments and manage the whole process.

**A diagram of a company

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**System Feature Matrix**

The Manage Payments function allows the admin to record, update, and track all payment transactions made through the system, ensuring accurate and comprehensive financial records. Through the Approve Payment Requests feature, the admin can review and either approve or reject payment submissions made by organization representatives, maintaining transparency and accountability. The Generate Financial Reports function enables the admin to compile detailed financial statements and summaries, providing insights into the system’s financial performance and allowing for data-driven decision-making.

The Send Notifications feature helps the admin distribute important updates and reminders to all users, ensuring they remain informed of recent activities and relevant announcements. Additionally, the Manage Organizations function grants the admin control over maintaining and updating organization records, including organization names, representatives, and contact information. Through the Manage User Accounts function, the admin can add, update, or deactivate user profiles, as well as reset passwords and assign roles, maintaining secure and structured access to the system.

On the other hand, the Submit Payment Request feature allows the organization representative to initiate a payment process by providing necessary details and supporting documents. They can also utilize the Track Payment Status function to monitor the progress and outcome of their submitted requests. The View Payment History feature gives the organization representative access to a record of completed transactions, allowing them to track payments and maintain accurate financial documentation.

Regular users of the MMSU-CIT PayTrack mobile application system can make payments through the Make a Payment function, which guides them through a step-by-step process to complete their transactions. After successful payments, users receive a confirmation message through the Receive Payment Confirmation function, ensuring them that their transaction has been processed. The View Payment Announcements function enables users to stay updated on important notices related to payments, deadlines, or policy changes. Users can also update their personal details using the Update Profile function, keeping their information accurate and up to date.

The MMSU-CIT PayTrack Mobile Application System and website interface are designed with user-friendly navigation, offering intuitive access to all essential functions. Interactive buttons, dropdown menus, and clear labels make it easy for admins, organization representatives, and users to navigate the system effortlessly. The system's secure login ensures that only authorized individuals can access sensitive data and perform operations according to their role.

**CHAPTER IV**

**METHODOLOGY**

This chapter presents the methods that will be used in this study to examine the process of gathering the necessary data and information. This includes research design, research instruments, population and sampling, inclusion/exclusion criteria-data collection procedures, statistical treatment, and ethical considerations.

**Research Design**

The study will use Research and Development (R&D) methodology as the nature of the study will employ the input-process-output (IPO) model.

In this study, the researchers will identify the problems/challenges encountered by MMSU-CIT Organizations in Tracking Payment of Students and will be subjected to analysis. Findings will be the basis for the development/designing of Mobile Application For Payment Tracking.

The researchers will identify what application can be developed to address these problems/challenges by conducting a survey.

And, the researchers will determine the acceptability of the in terms of developed system in terms of Functionality, Suitability, Performance Efficiency, Usability, Reliability, Security, Maintainability, Portability.

**Research Instruments**

This study will utilize a researcher-made questionnaire to identify the problems encountered by the respondents in Tracking Payments. This will serve as the basis in developing/designing Mobile application for Payment Tracking.

In addition, the researchers will use the ISO/IEC 25010 to identify the acceptability of the product. ISO/IEC 25010:2011 provides the leading models for assessing software products. This is a significant contribution towards establishing the delivery performance of software processes and proposed improvements.

**Population and Sampling Procedure**

The population of the study will comprise of 50 students, all organization advisers and organization officers. The researchers will employ random sampling in the selection of respondents.

**Data Collection Procedure**

The data gathering process for this research study will encompass several interconnected stages.

Before any data collection can commence, the researchers will seek first the formal permission to conduct the study from the University Research and Ethics Review Board (URERB). The researchers will ensure and will check that respondents' rights will be respected and that ethical considerations will be met.

Upon receiving the clearance, the researchers will also seek approval from the administration of MMSU-CIT to conduct the study. The researchers will conduct face-to-face interviews and use survey questionnaire with the respondents as a group, and actual participation to get a stronger idea and well understanding about the study.

The researchers will provide full guidance and administration of the answers to help the respondents in completing the survey form. To facilitate the data collection and to avoid disruptions, the respondents will be given 15-20 minutes to complete the survey form at their convenience.

After gathering the data, there will be a thorough understanding and interpretation to be made in the analysis.

Respondents will be given enough time to answer the questionnaire at their leisure to avoid disrupting their daily activities. The data gathering period will only be 2 months.

**Statistical analysis**

To collect the information required for the study, the researchers will use researcher-made survey questionnaire to be verified by the panel. Following data collection, the researchers will employ weighted mean to examine the project's overall acceptability.

Range Mean  Descriptive Interpretation

4.50-5.00  Descriptive Interpretation

3.50-4.49  Very Acceptable (VA)

2.50-3.49   Moderately Acceptable (MA)

1.50-2.49  Slightly Acceptable (SA)

1.00-1.49  Not Acceptable (NA)

**Ethical Considerations**

Before gathering data, the researchers will secure an ethical clearance from the URERB to ensure that the research is compliant with ethical standards and that the rights of all participants will be respected. Then, permission to conduct the study will be requested from MMSU-CIT.

More significantly, before administering the actual data collection and distribution of survey questionnaire, the respondents' informed consent will be obtained first.

The selected participants must be given an advance copy of the informed consent form, as well as a notation in the Interview Schedule for the Respondents indicating that their participation in the survey is voluntary. They will be given a letter in which they will be asked to help determine (2 months) Payment Tracking Mobile Application System in terms of Functionality, Suitability, Performance Efficiency, Usability, Reliability, Security, Maintainability, Portability.

All sources will be properly cited during data processing and analysis. The researcher guarantees that all legal rights will be granted to the creator and the sources of data used in the study. All data gathered and submitted will be protected from unauthorized access by making the data available only to the researchers.

The study will not share or discuss respondents' personally identifiable information or other data. The names of the respondents and other sensitive information are considered in terms of confidentiality.

The respondents will be informed of the risks and benefits of participating in the study as well as the level of involvement needed. After a year, the copies of the completed questionnaires will be mechanically destroyed. The respondents will be informed that the copy of the study and findings of the study will be placed in the library.