

Evaluation on the Performance of the Developed Mobile-Based Registrar School Record Management and E-Payment with SMS Notification

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ABSTRACT

In the current digital era, educational institutions face pressure to update administrative processes to meet stakeholder demands. Manual school registrar record-keeping poses challenges such as inefficiencies, delays, and security risks. To address these issues, an online request and e-payment system for school records management with SMS notification was developed. This solution aims to enhance efficiency by streamlining record requests and payments, leveraging SMS gateways and online payment platforms. Key objectives include designing a user-friendly application and implementing SMS notifications for fee and request updates. While offering convenience to students, alumni, faculty, and staff, challenges such as network coverage and platform compatibility were acknowledged. The researcher employed both the quantitative and qualitative methods to evaluate the system's performance. Based on the gathered and analyzed data, the researcher concluded that the developed system was graded as excellent in terms of functionality, reliability, usability, efficiency, maintainability, portability, security, and compatibility. Thus, the system was successfully designed and developed as envisioned.

Keywords: E- payment system, Online request, School records management, SMS notification

INTRODUCTION

Technology has significantly transformed daily life, including education. Educational institutions face increasing pressure to improve administrative processes to meet the demands of students, parents, faculty, and staff. School registrar records, which contain crucial information about students' academic history, are essential for verifying credits, checking transcript accuracy, and tracking student progress and graduation rates. Managing these records is challenging, particularly when done manually, as it can lead to inefficiencies, security risks, and transcription errors.

A study by Tining and Winarno (2020) demonstrated the effectiveness of combining a Document Management System with an SMS Gateway for improving data accuracy, reliability, efficiency, and cost savings. However, the Bato Institute of Science and Technology still used a manual process for requesting student records, which lead to issues like lengthy paperwork, potential security breaches, transcription errors, and delays in accessing records. These challenges highlighted the need for a more efficient system.

In response, the researcher proposed a mobile-based school record management with an e-payment platform and SMS notifications. This study main objective is to reduce manual tasks, saving time and resources for staff and students; SMS notification feature will provide instant updates and information regarding the students request; e-payment function will streamline fee payments, improving transparency and accountability; mobile access will offer convenient and flexible access to information and tasks; reduce data redundancy and errors by centralizing record management, thereby improving data accuracy; and identify areas for improvement through continuous evaluation using feedback and metrics.

According to Fan et al. (2021) an online payment system that uses Access Control Engine authentication to provide enhanced security and flexibility. This system allows for fine-grained access control and efficient user

authentication.

Several studies, including Alzahrani and Almuhanha (2020), Adeyemi and Akintoye (2020), Anarado and Okafor (2021), Azim and Mohamed (2022), and Mukherjee et al. (2022), introduced systems that incorporate e-payment and SMS notifications to increase efficiency and security in payment processes while providing a convenient payment option for users. These systems make the payment process easier and more efficient and improve user experience.

Tiwari and Singh (2020) created a payment system that allows students to pay their fees via SMS notifications, while educational institutions receive real-time notifications regarding payment status. This secure and user-friendly system provides a transparent record of all transactions.

Alzeer and Farhan (2020) and Kumar and Pandey (2020) focused on developing e-payment systems for universities and students to request academic records online. Wang et al. (2021) and Wong et al. (2022) explored various technologies and architectures to improve academic record requests and e-payment processes in educational institutions.

Wang and Xiao (2022) developed an online academic record request and e-payment system that uses biometrics and SMS notifications for added security. This system is designed to simplify requesting and receiving academic records and enhance their security and privacy.

Cierva (2023) conducted a comprehensive survey involving 1,309 participants to evaluate the performance of the Bato Institute of Science and Technology Online Enrollment System. The survey considered system efficiency, response time, and user experience. The findings indicated that the system received a "Very Good" rating, particularly regarding quick response times and the absence of lags or delays. However, the study suggests room for improvement, especially regarding the system's compatibility with devices like smartphones, tablets, and laptops. Enhancing this compatibility can increase accessibility and convenience for users who prefer various devices.

Chung and Kim (2020) and Nikolaidou et al. (2021) found that developing mobile-based payment systems for university students could optimize payment processing and enhance the user experience. Al-Emran and Shaalan (2020) discovered that using mobile-based e-payment systems in higher education could offer several benefits, such as faster payments, less administrative work, and more transparency. Gao et al. (2021) used the modified UTAUT model to comprehend user adoption behavior of mobile payment in higher education, emphasizing the significance of performance expectancy, effort expectancy, security, and social influence. Suratno et al. (2022) found that a simple user interface design enhances acceptance of mobile-based payment technology, with trust in its security and reliability playing a more crucial role. Szymczyk and Wojciechowski (2023) proposed a Bluetooth mobile payment system for schools that is fast, secure, and easy to use without extra hardware.

Alsulaiman (2021) conducted a study on adopting mobile payment systems, highlighting the significance of security, perceived usefulness, ease of use, and consumer service quality. Customers prioritized the safety of their data and passwords and were more likely to use mobile payment systems if they were convenient and cost-efficient. Lu and Churchill (2020) emphasized trust as the most crucial factor for consumers to adopt mobile payment technology, whereas perceived risk acted as a barrier to adoption. Usefulness, ease of use, and social influence significantly encouraged consumers to use mobile payment technology. Lee et al. (2021) found that factors such as ease of use, trust, advantage, and intention significantly influenced students' adoption of mobile payment technology, with university students being more likely to use it. Bista and Shim (2020) identified convenience, accessibility, and security as some of the significant benefits of mobile payment but also acknowledged challenges such as trust, compatibility, and infrastructure, suggesting areas for future research.

Mao et al. (2020) used the Grey Lotka-Volterra Model to study the competitive and cooperative relationship between third-party online payment systems and online banking in China, concluding that this model was superior in predicting their relationship during the pandemic. Verma and Sharma (2022) highlighted the crucial role of customer experience and convenience in building trust, increasing digital payment adoption, and driving customer satisfaction. They also suggested that payment service providers prioritize secure, user-friendly

payment systems that meet customer needs. These studies demonstrate the potential of technology to streamline online payment and transaction processes in educational institutions, improving efficiency, security, and user experience.

To summarize, the studies indicate that payment systems based on mobile phones provide various advantages, including quicker and more precise payment processing, better payment security, and higher user satisfaction. Elements such as simplicity, perceived usefulness, and social impact motivate users to use mobile payment technology. Nonetheless, the adoption and usage of mobile payments are still encountering obstacles related to issues such as trust, compatibility, and security.

ARCHITECTURAL FRAMEWORK

Figure 1 illustrates the architectural framework of the mobile-based registrar school records management with e-payment and SMS notification, incorporating essential components to ensure seamless functionality and integration. At its core is a robust backend server that manages critical functions, including user accounts, course databases, payment processing, and communication protocols. This backend server is the system's backbone, facilitating smooth operation and interaction with other components. The system's front end comprises a mobile application interface, offering users an intuitive platform for registration, course selection, and payment tasks. This front end interacts with external Application Programming Interfaces (APIs) to integrate e-payment gateways, ensuring secure and efficient transaction processing.

Furthermore, the system integrates with Short Message Service (SMS) gateways to deliver real-time notifications to users upon registration, online request of documents and completion of payments. This feature enhances user engagement and provides timely updates on transaction status. A centralized database lies at the system's heart, storing crucial data, including user information, course details, payment records, and transaction history. This database ensures data integrity and accessibility across the system, facilitating seamless operations and efficient management of information. Security measures such as encryption protocols and authentication mechanisms are implemented to safeguard sensitive information, ensuring privacy and confidentiality.

This architectural framework combines backend infrastructure, frontend mobile application development, external API integration, and database management to deliver a comprehensive school registrar records management solution with e-payment and SMS notification capabilities.

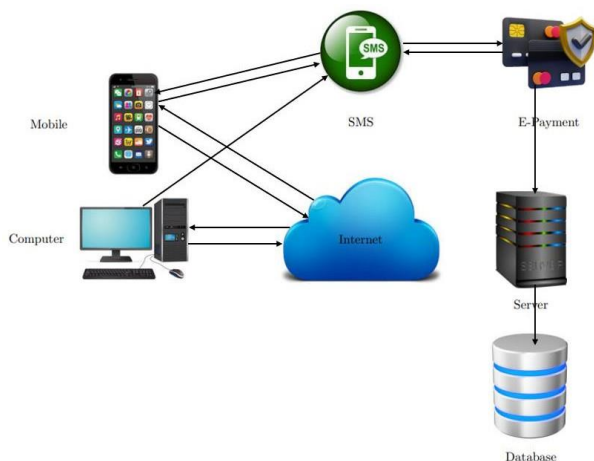


Fig.1 Architectural framework

MATERIALS AND METHODS

The researcher employed both quantitative and qualitative methods in a sequential manner. Quantitative research involved gathering data on the system's performance from targeted users, while qualitative methods included interviews and supplementary observations. The study adopted an exploratory case study approach to examine individuals' experiences, employing an interpretive method for analyzing findings.

The research was conducted at the office of the registrar of Bato Institute of Science and Technology, Brgy. Dolho, Bato, Leyte. To test the system's performance, the respondents were asked to answer the survey questions through Google Forms. One hundred (100) respondents from the Bato Institute of Science and Technology participated in the survey (see Figure 2). Students and alumni were respondents because they were the primary concern regarding the request and the payment process. Next were the registrar's office staff because they managed the institution's whole process.

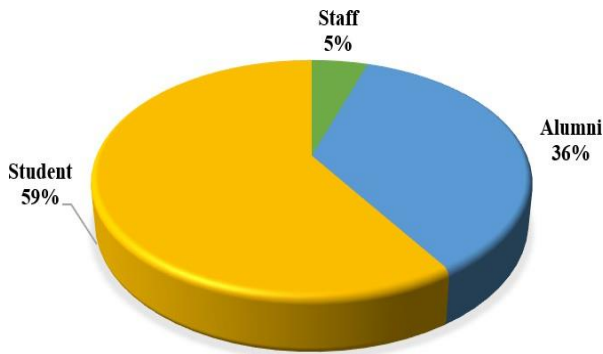


Fig.2 Graphical illustrations of the respondents

The researcher evaluated the mobile-based and online payment system using the Product Quality-ISO 25010, providing a comprehensive framework for assessing quality. An adaptive questionnaire ensured accurate feedback, tailored to users' roles and knowledge levels. The evaluation of e-payment utilized both qualitative and quantitative methods, gathering feedback from students, alumni, and staff. Additionally, a usability study assessed the mobile application's ease of use and functionality. Overall, the research instrument facilitated a more efficient and convenient way for school management and stakeholders to access and manage important school information, with evaluations ensuring ongoing effectiveness and improvement.

Table I: Product Quality – Iso 25010

Characteristic	Sub-Characteristics	Definition
Functionality	<i>Functional Completeness</i>	The degree to which the set of functions covers all the specified tasks and user objectives.
	<i>Functional Correctness</i>	The degree to which the functions provide the correct results with the needed precision.
Reliability	<i>Functional Appropriateness</i>	The degree to which the functions facilitate the accomplishment of specified tasks and objectives.
	<i>Time Behavior</i>	The degree to which a product's response processing times and throughput rates meet requirements.
Efficiency	<i>Capacity</i>	The maximum limits of a product's performance related to processing capacity, data storage capacity, etc.
Usability	<i>Understandability</i>	The degree to which users can understand whether a product suits their needs, how to use it, and how to interpret its output.
	<i>Learnability</i>	The degree to which users can learn to use a product effectively, efficiently, free from risk, and with satisfaction.
	<i>Operability</i>	The degree to which a product has attributes that make it easy to operate and control.
Portability	<i>Adaptability</i>	The degree of adaptability of software pertains to its capacity to be tailored for various specified environments without necessitating additional actions or means.
Security	<i>Integrity</i>	The degree to which a system, product, or component prevents unauthorized access to or modification of computer programs or data.
	<i>Confidentiality</i>	The degree to which a product ensures that data is accessible only to those authorized to have access.
Compatibility	<i>Interoperability</i>	The degree of the software's capability to interact and exchange data with other systems or components smoothly and efficiently.

Table 1 is adapted from our specific approach to designing and developing a mobile-based Registrar School Record Management and E-payment system. These characteristics and sub-characteristics can be used to evaluate the developed system.

The researcher used the ISO 25010 specifically addresses software product quality and provides a detailed framework for assessing various quality attributes such as functionality, reliability, usability, efficiency, maintainability, compatibility, security and portability. While other ISO standards may focus on different aspects like processes (ISO 9001) or management systems. ISO 25010 is directly relevant for evaluating the software's quality and performance. This makes it the most appropriate standard for ensuring the application meets high-quality standards and user expectations.

Statistical tools (see Table 2) were used to interpret the data. Interpreting results involves understanding the insights gained from the data analysis and conclusion.

Table 2: Statistical Tool (Five Point Likert Scale)

Limits of Scale	Interpretation
4.21-5.00	Excellent
3.21-4.20	Very Good
2.61-3.20	Good
1.81-2.60	Fair
1.00-1.80	Poor

Weighted mean was used to measure the general response of the survey samples, whether they agreed with a given statement or not (Mellijor, 2023).

The formula for calculating the weighted average is as follows:

Where:

\bar{X} - Mean

f - Weight is given to each respondent

x – Number of respondents

n - Total number of respondents

Mean

Percentage

$$\bar{X} = \frac{\sum fx}{n}$$

$$P = \frac{x}{n} 100$$

The developed system was implemented after following the phases of the modified waterfall model. The researcher surveyed the institution. The survey aims to evaluate the effectiveness of the Performance of the developed system in improving the efficiency and accuracy of academic records management and payment processing. The staff used web browsers like Chrome, Edge, Safari, and Mozilla to access the web page and test functionality, reliability, usability, efficiency, maintainability, portability, security, and compatibility. The alumni/students were also asked to download the mobile application to evaluate the e-payment and request within the mobile. Each user will be asked to log in to the system, and some users, like the alumni, were asked to register first to get their username and password as part of the testing. The Uniform Resource Locator (URL) of the system for the central login is <https://recordsandepayment.com/login> with the help of a web hosting provider, specifically GoDaddy. The URL for alumni registration is

<https://recordsandepayment.com/requestor/register>. Moreover, the URL for the Android app is <https://expo.dev/artifacts/eas/bJxk8TNLep4YoifuCjPKiU.apk>. Figure 3 shows the user's main login page. Figure 4 shows the registration form for alumni who still need to create an account. Figure 5 is the main login for the mobile application.

The users (respondents) were asked to navigate to the login page using their accounts. After a successful login, the user is redirected to their account dashboard. From there, the user can access the functions relevant to their role. Once the user completes their tasks, logging out of the system is recommended to avoid unauthorized access to their account.

Once the users had completed their task, the researcher asked them to answer the survey through Google Forms (<https://rb.gy/bpn2q1>). After the survey was completed, the researcher calculated the percentage. The statistical tool provides a general view of the study's whole scenario. This also includes the scaling system, which the researcher used to monitor the respondent's interpretation of facts. The Likert scale was used to interpret the items in the questionnaire. These data were based on the respondents' responses.

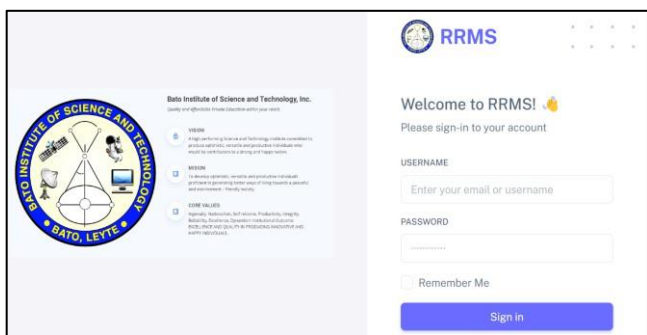


Fig.3 Main login page

Figure 3 showcases the Main Login Page, serving as the primary access point for users to enter their accounts within an application or website. Users input their existing username and password and then proceed by clicking the "Sign In" button to gain access to their account dashboard. It is emphasized that users should maintain account security by logging out after each session, especially when using shared or public computers.

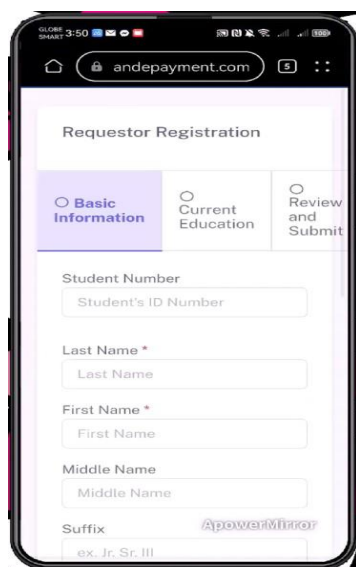


Fig.4 Registration form

Figure 4 presents the Registration Form explicitly designed for alumni/students who do not have an existing account. Users must fill out all the necessary details, including personal information such as name, email address, contact number, and date of birth. Users can submit the form for account creation upon completing all required fields. Subsequently, users await an SMS message containing their username and password.

These two figures represent crucial aspects of the user experience within the system. The Main Login Page serves as the initial point of interaction, providing a secure gateway for users to access their accounts. On the other hand, the Registration Form caters specifically to new users, offering a streamlined process for creating accounts and gaining access to the system's functionalities.

The system aims to enhance user trust and satisfaction by ensuring a user-friendly interface and prioritizing account security measures such as password protection and session management. These features help ensure a smooth and safe user experience, encourage involvement, and facilitate effective interaction with the system's functionalities.

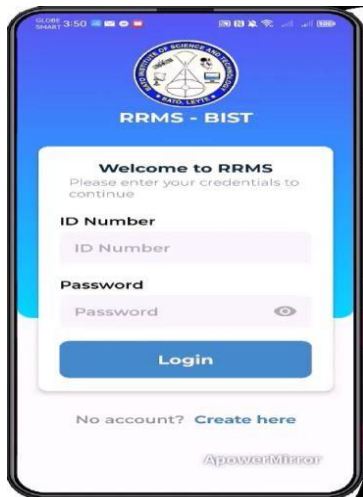


Fig.5 Main login for android mobile

Figure 5 illustrates the main login page of a mobile application. It is the central access point for users to sign in to their existing accounts or create new ones. The page offers a straightforward interface, giving users two options upon landing: signing in with existing credentials or creating a new account.

For users with existing accounts, the process is streamlined. They input their username and password and proceed by clicking the "Login" button. This direct sign-in approach ensures quick and efficient access to their accounts, enhancing user experience and satisfaction. On the other hand, the registration process is equally easy to understand for new users who wish to create an account. They are guided to the registration form section, where they provide necessary details such as name, email, birthday, and contact number. This streamlined registration process simplifies account creation, reducing obstacles and encouraging user adoption.

By offering this dual functionality on the main login page, the mobile application optimizes user experience by catering to the needs of both existing and new users. This approach facilitates seamless transitions between signing in and creating accounts and contributes to users.

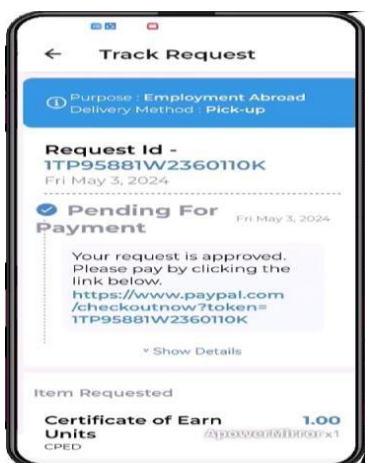


Fig.6 Request status

Figure 6 illustrates the Request Status feature within the system, offering users visibility into their submitted requests' current state or progress. This feature is designed to inform users about where their request stands and any actions required. The Request Status feature typically includes various status labels or indicators, such as "Request Placed," "Payment Required," "Preparing documents," or "Completed." These status updates serve as a roadmap for users, guiding them through the journey of their requests and providing clarity on their current status within the system.

Moreover, the Request Status feature includes real-time updates to inform users about any changes or developments regarding their requests. By keeping users informed of the latest information, it will also ensure that the system is transparent and accountable.

The Request Status feature enhances systems' transparency, efficiency, and accountability. By providing users with clear visibility into the progress and outcome of their requests, this feature empowers users to stay informed and actively participate in the process.



Fig.7 SMS notifications

Figure 7 is the SMS notification feature in the developed mobile-based registrar school record management and e-payment system ensures that alumni or students receive timely updates and alerts directly on their mobile phones. This include notifications about the payments and status of the request of their academic records enhancing communication and ensuring that they are well-informed.

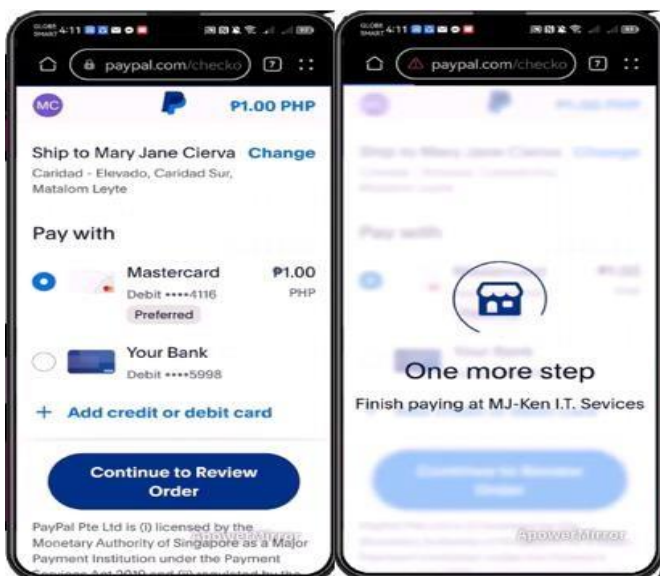


Fig.8 Payment through PayPal

Figure 8 is the payment feature through PayPal in the developed mobile-based registrar school record management system allows for secure and convenient online fee transactions. Alumni or the students can easily make payments for their online request directly through the mobile app, simplifying the payment process and ensuring timely financial management.

RESULTS AND DISCUSSIONS

The researcher surveyed the BIST to evaluate its performance and consider improvements. Along with the survey, one hundred (100) respondents completed the questionnaire and participated in the survey. The participants were instructed to use any web browser, such as Chrome, Mozilla or any kind of web browser, to access the webpage for usability testing and to assess the system's performance. Each participant had to log into their account for the test. The performance of the developed system was determined in terms of functionality, reliability, usability, efficiency, maintainability, portability, security, and compatibility.

Below are the portion analyses and interprets the data from the users' evaluation of the Bato Institute of Science and Technology developed system, which they used during the online survey.

Table 3: Performance of the System in Terms of Functionality

Items	Frequency					Mean	Interpretation
	E	V	G	F	P		
The system performs the tasks required.	90	6	4	0	0	4.86	Excellent
The result is as expected.	89	7	4	0	0	4.85	Excellent
The system interacts with another system.	88	8	4	0	0	4.84	Excellent
The system prevents unauthorized access.	90	7	3	0	0	4.87	Excellent
Average						4.86	Excellent

Table 3 presents the Performance of the Developed Mobile-based School Registrar Records and E-Payment with SMS Notification in terms of functionality, as assessed by users. Across all evaluated aspects, the system received consistently high ratings, indicating excellent performance. Firstly, regarding task performance, 90% of respondents affirmed that the system effectively performs the required tasks. Similarly, 89% of users reported that the system's outcomes aligned with their expectations. Additionally, a significant majority (88%) acknowledged the system's ability to interact seamlessly with other systems, reflecting efficient integration and interoperability. Moreover, the system's security measures, particularly its ability to prevent unauthorized access, received positive feedback from 90% of respondents. The mean scores for all evaluated items were consistently high, averaging 4.86 out of 5, indicating an excellent overall performance rating.

Table 3: Performance of the System in Terms of Reliability

Items	Frequency					Mean	Interpretation
	E	V	G	F	P		
Most of the faults in the system have been eliminated over time.	90	6	4	0	0	4.86	Excellent
The system is capable of handling errors.	90	8	2	0	0	4.88	Excellent
The system needs to notify the user about the wrong data entry.	90	8	2	0	0	4.88	Excellent
The software resumes working, and restores lost data after a failure.	90	7	3	0	0	4.87	Excellent
Average						4.87	Excellent

Table 4 shows the reliability assessment results for the Developed Mobile-based School Registrar Records and E-Payment with SMS Notification, demonstrating high performance and user satisfaction levels across various aspects. Firstly, users reported that most faults in the system had been effectively eliminated over time, with 90% of respondents affirming this statement. This indicates a proactive system maintenance and troubleshooting approach, resulting in a reliable and stable system environment. Additionally, the system was praised for its capability to handle errors, with 90% of users acknowledging its effectiveness in managing and mitigating errors. This reflects robust error-handling mechanisms and procedures, improving the system's reliability.

Furthermore, 90% of respondents positively rated the system's ability to notify users about incorrect data entry, highlighting its role in ensuring data accuracy and integrity. Lastly, the system demonstrated resilience in the face of failures, with 90% of users reporting that the software resumes working and restores lost data after a failure. The mean scores for all evaluated items were consistently high, averaging 4.87 out of 5, indicating an excellent overall performance rating regarding reliability.

Table 5: Performance of the System in Terms of Usability

Items	Frequency					Mean	Interpretation
	E	V	G	F	P		
The user comprehends how to use the system quickly.	92	6	2	0	0	4.9	Excellent
The user learns to use the system quickly.	91	7	2	0	0	4.89	Excellent
The user utilizes the system without much effort.	90	7	3	0	0	4.87	Excellent
The system's interface looks good.	82	14	4	0	0	4.78	Excellent
Average						4.86	Excellent

Table 5 summarized the usability assessment of the Developed Mobile-based School Registrar Records and E-Payment with SMS Notification, indicating a high level of user satisfaction and effectiveness in terms of usability. The findings revealed that users quickly comprehended how to use the system, with 92% affirming this statement, suggesting an intuitive interface and navigation. Additionally, 91% reported a quick learning curve, indicating accessibility to users of varying expertise levels. Most users (90%) found the system easy to utilize, highlighting its efficiency in day-to-day operations. Moreover, 82% liked the system's interface, indicating a visually appealing design that enhanced user experience. Overall, the mean scores for all evaluated items were consistently high, averaging 4.86 out of 5, reflecting excellent performance in usability.

Table 6: Performance of the System in Terms of Efficiency

Items	Frequency					Mean	Interpretation
	E	V	G	F	P		
The system responds quickly to the user.	91	7	2	0	0	4.89	Excellent
The system's execution time is appropriate.	91	7	2	0	0	4.89	Excellent
The software utilizes resources efficiently.	91	6	3	0	0	4.88	Excellent
Average						4.89	Excellent

As shown in Table 6, the efficiency assessment of the Developed Mobile-based School Registrar Records and E-Payment with SMS Notification indicates high user satisfaction and effectiveness regarding system responsiveness, execution time, and resource utilization. Firstly, users reported that the system responds quickly to their inputs, with 91% of respondents affirming this statement. This suggests that the system's performance meets user expectations regarding responsiveness, facilitating smooth and efficient interaction with the system.

Additionally, 91% of users reported that the system's execution time is appropriate, indicating that tasks are completed within a reasonable timeframe, contributing to user productivity and satisfaction. Moreover, most users (91%) stated that the software utilizes resources efficiently, reflecting optimized resource allocation and management within the system. The mean scores for all evaluated items were consistently high, averaging 4.89 out of 5, indicating an excellent overall performance rating regarding efficiency.

Table 7: Performance of the System in Terms of Maintainability

Items	Frequency					Mean	Interpretation
	E	V	G	F	P		
The system faults can be easily diagnosed.	90	8	2	0	0	4.88	Excellent
The system continues functioning when changes are made.	90	7	3	0	0	4.87	Excellent
The software can be tested quickly.	90	7	3	0	0	4.87	Excellent
Average						4.87	Excellent

Table 7 presented the maintainability assessment of the Developed Mobile-based School Registrar Records and E-Payment with SMS Notification, indicating a high level of user satisfaction and effectiveness in diagnosing faults, accommodating changes, and facilitating testing. Users reported that system faults could be easily diagnosed, with 90% affirming this statement, suggesting practical tools and processes for issue identification and resolution. Additionally, 90% reported that the system continued functioning when changes were made, indicating flexibility and adaptability. Most users (90%) stated that the software could be tested easily, reflecting well-defined testing procedures. Overall, mean scores for all evaluated items were consistently high, averaging 4.87 out of 5, indicating excellent performance in maintainability.

Table 8: Performance of the System in Terms of Portability

Items	Frequency					Mean	Interpretation
	E	V	G	F	P		
The system can be moved to other environments.	89	8	3	0	0	4.86	Excellent
The software can be installed easily.	90	7	3	0	0	4.87	Excellent
Average						4.87	Excellent

As shown in Table 8 the portability assessment of the Developed Mobile-based School Registrar Records and E-Payment with SMS Notification reveals high user satisfaction and effectiveness regarding system mobility and ease of installation. Firstly, users reported that the system can be moved to other environments, with 89% of respondents affirming this statement. While this percentage is lower compared to other items, it still indicates a significant portion of users acknowledging the system's portability, suggesting that the system can be relocated to different environments quickly. Additionally, 90% of users reported that the software can be installed quickly, indicating a streamlined installation process that minimizes complexity and user effort. The mean scores for both evaluated items were consistently high, averaging 4.87 out of 5, indicating an excellent overall performance rating regarding portability.

Table 9: Performance of the System in Terms of Security

Items	Frequency					Mean	Interpretation
	E	V	G	F	P		
The software ensures the confidentiality of data.	90	7	3	0	0	4.87	Excellent
The software prevents unauthorized access and modification to computer programs and data.	90	8	2	0	0	4.88	Excellent
The software requires the authentication of users	90	8	2	0	0	4.88	Excellent
A system log is maintained.	90	7	3	0	0	4.87	Excellent
Average						4.88	Excellent

Measuring access control, validation, and authorized destruction should be implemented to prevent unauthorized access, alteration, or destruction of records, essential to a secured record management system (ISO 15489-1:2016).

Table 9 provides data on the security performance of the Developed Mobile-based School Registrar Records and E-Payment with SMS Notification. The security assessment reflects a high level of user satisfaction and effectiveness in ensuring data confidentiality, preventing unauthorized access and modification, requiring user authentication, and maintaining a system log. Users reported that the software provides data confidentiality, with 90% affirming this statement, indicating robust measures to protect sensitive information. Additionally, 90% reported that the software prevents unauthorized access and modification, highlighting its effectiveness in enforcing access controls. Most users (90%) stated that the software requires user authentication, suggesting implemented mechanisms to verify user identities. Furthermore, 90% reported maintaining a system log, indicating user activity monitoring. Overall, mean scores for all evaluated items were consistently high, averaging 4.88 out of 5, indicating excellent performance in security.

Table10: Performance of the System in Terms of Compatibility

Items	Frequency					Mean	Interpretation
	E	V	G	F	P		
The software performs its required functions efficiently while sharing a familiar environment and resources without negatively impacting any other product/s.	91	5	4	0	0	4.87	Excellent
The software allows two or more systems, products, or components to exchange and use the information.	92	6	2	0	0	4.9	Excellent
Average						4.89	Excellent

As shown in Table 10, the compatibility assessment of the Developed Mobile-based School Registrar Records and E-Payment with SMS Notification showcases a high level of user satisfaction and effectiveness in terms of efficient functionality within a shared environment and seamless exchange of information between systems. Firstly, users reported that the software performs its required functions efficiently while sharing a typical environment and resources, with 91% of respondents affirming this statement. This indicates that the system operates effectively alongside other products or components without causing adverse impacts, ensuring smooth coexistence within the shared environment. Additionally, 92% of users reported that the software allows for exchanging and utilizing information between two or more systems, products, or components, highlighting its

compatibility and interoperability capabilities. The mean scores for both evaluated items were consistently high, averaging 4.89 out of 5, indicating an excellent overall performance rating regarding compatibility.

The overall data on the performance of the developed system shows that the overall remarks and responses were "Excellent." The survey results showed that the system became effective along with the implementation and thus ended up with excellent remarks.

CONCLUSIONS AND RECOMMENDATION

Conclusion

The researcher concluded that fully implementing the " Mobile-based Registrar Records Management System with E-Payment and SMS Notification" achieved the study's main objective. Specifically:

1. Implementation of the system is expected to reduce manual tasks in administrative work, saving time and resources for staff and students.
2. The system's SMS notification feature will enable instant communication and updates, ensuring timely information dissemination.
3. Electronic payment functionality will streamline fee payments, enhancing financial transparency and accountability.
4. Mobile accessibility will provide convenience and flexibility for stakeholders to access information and perform tasks.
5. Centralizing school record management will minimize data redundancy and errors, improving data accuracy.
6. Continuous evaluation through user feedback and performance metrics will identify areas for further improvement.

Overall, respondents were highly satisfied with the system's effectiveness and found it convenient to use at BIST Institution.

Recommendation

The accessibility of a mobile application is vital for reaching a diverse user base and maximizing its effectiveness. Given the rapid evolution of technology and the importance of convenience, it's crucial to ensure that applications are available across multiple platforms. Restricting access to a single operating system, like iOS, may exclude a significant portion of potential users. Therefore, it's essential to prioritize inclusivity when developing mobile applications to ensure broad utility and reach.

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