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ICTO Service and Activity System with SMS

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Abstract

The study titled "Information and Communications Technology Office Service and Activity System with Short Messaging Service" focuses on improving the current processes of the Information and Communications Technology Office through the development of a comprehensive system. The researcher identified problems within the existing processes and drew inspiration from prior arts and the Iterative Software Process Model to develop the Platform with SMS Notification. To evaluate the effectiveness of the system, the researcher used the ISO 25010:20r15 Software Quality Instrument and employed a Descriptive Research Design. The feedback from the respondents justified the study's objectives, leading to the conclusion that all objectives were successfully met. The software was found to exhibit "Very High" effectiveness in terms of various Software Quality Characteristics. The study recommends the full implementation of the developed system in the operational environment of the University. This implementation would bring about an upgrade from manual to automated and paperless recording processes, facilitated by Information Technology solutions. Furthermore, the study encourages future researchers to enhance the developed system by incorporating better features and expanding its scope to cover additional processes. The Study utilized the refreshed servers from the existing information systems that contributes to the maximization of the available resource to its potential use.

Keywords: *automation; chatbot; descriptive research design; sms notification*

1. Introduction

The Information and Communications Technology Office is operating under the Office of the University President: This means that the ICT Office is a department or unit that functions within the administrative framework of the university. It falls under the authority of the Office of the University president, which is the highest administrative position in the university hierarchy.

The ICT Office is mandated to plan, implement, and maintain the IT Infrastructure of the University. This indicates the specific purpose or duty assigned to the Office of the University president. In this case, the mandate is related to the IT infrastructure of the university. The IT infrastructure refers to the systems, networks, hardware, software, and other technological components [1] that support the university's information and communications needs [2].

Therefore, the Office of the University president has the responsibility to oversee and ensure the effective planning, implementation, and maintenance of the IT infrastructure throughout the university. The

ICT Office, being a part of this organizational structure, likely plays a key role in executing these tasks and supporting the university's technological requirements [2].

Ever since the establishment of the Information and Communications Technology (ICT) office, significant investments have been made to enhance the IT infrastructure and bolster the ICT capabilities of the University. The IT infrastructure encompasses various components such as network equipment, internet services, computing hardware, and software[3]. The primary objective behind these investments is to improve efficiency and responsiveness in order to expedite client processes.

The allocation of funds to the IT infrastructure indicates the importance placed on leveraging technology to support and enhance the university's operations[4]. By investing in network equipment, the

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university ensures a reliable and robust network connection that enables seamless communication and data transfer among various departments, faculty members, and students. The provision of high-quality internet services further facilitates access to online resources, research materials, and collaboration tools, enabling a more connected and digitally enabled academic environment.

Additionally, the investment in computing hardware and software aims to equip the university with advanced technological tools and resources. Up-to-date hardware, such as servers, workstations, and storage devices, ensures the availability of computing power and storage capacity required for various academic and administrative tasks. Similarly, software solutions, including productivity applications, research tools, and specialized software for specific disciplines, contribute to the effectiveness and efficiency of different processes within the university.

The overarching goal of strengthening the ICT capability of the university is to meet the evolving demands and expectations of clients, which encompass students, faculty, staff, and external stakeholders. By optimizing the IT infrastructure and leveraging technology, the university aims to streamline administrative procedures, enhance research capabilities, support teaching and learning activities, and provide better services to its stakeholders.

The investment in IT infrastructure reflects a strategic approach towards harnessing technology to improve the overall efficiency, responsiveness, and effectiveness of the university's operations. By strengthening the ICT capability, the university endeavors to meet the growing demands of its clients and expedite various processes involved in academic and administrative functions[5].

Aside from the Investment, it undergoes into auditing to check its conformity with the standard set the International Organization for Standardization (ISO) and the Information and Communications Technology is one of the auditees for the said standard. The benefit of subjecting the Office for periodic audit contributes to the improvement of process of delivering quality service in consonance with the standard and statutory requirements.

Service support entails assisting customers in effectively utilizing the technology services[6] provided by the ICTO. It involves activities such as technical support, troubleshooting, resolving issues, and providing guidance or training to users. The ICTO recognizes the importance of not only offering technology support but also ensuring that customers feel supported and valued throughout their interactions with the office.

While technology is a core component of ICTO services, the focus extends beyond the technical aspects. The ICTO also emphasizes the quality of the service itself, striving to deliver services that meet or exceed customer expectations[7]. This includes aspects such as reliability, responsiveness, efficiency, and effectiveness in delivering technology solutions [8]. The ICTO understands that the overall service experience significantly impacts customer satisfaction and aims to continuously improve service quality.

The services provided by the ICTO encompass both service delivery and service support. The ICTO not only focuses on managing technology and internal processes but also prioritizes the quality of the service [9] and emphasizes building strong customer relationships [10]. By doing so, the ICTO aims to provide effective and efficient technology solutions while ensuring customer satisfaction and success.

The auditing activity check all activities conducted from the first step of the processes until the end, the preparation of reports and maintenance scheduling. The ICTO presently offers the following services: SIAS Online Technical Support to resolve Technical Concerns with the use of the Student Information and Accounting System, ID Cards Services to generate and print the Identification Card of the Students and the University Personnel, Online Meeting Services for virtual events that needs technical assistance, LED Wall Services for display needs, ICTO Conference Room Reservation for event venues, Internet Services and Repair & Maintenance. All services must be documented by using a word processing software to manually record the technical activities conducted and resolutions made every case that are raised by the client. Documentation forms are part of the Information and Communications Technology Office Technical Activity as it serves as baseline for future technical support activities and record the important information such as licenses, infrastructure, server details, etc.

However, the ICTO's current service delivery documentation process is time-consuming and prone to errors. Each entry needs to be manually prepared, leading to issues like duplicated series numbers on forms. Additionally, repair and maintenance procedures suffer because of the manual listing and documentation of items, which takes up more time than the actual maintenance work. The provided statement highlights a critical observation regarding the current practices of the ICTO (Information and Communications Technology Office). It points out that the documentation process for each service delivery is time-consuming and prone to errors. The preparation of entries, including the series numbers for each form issued, is done manually, leading to duplication issues. Additionally, the repair and maintenance procedures are not being efficiently executed due to the reliance on manual listing of items and documentation, which consumes a significant amount of time compared to the actual maintenance work.

By stating that the documentation requires a lot of time and is prone to errors, it suggests that the current system lacks efficiency and accuracy. The manual preparation of entries increases the likelihood of mistakes, such as duplications in the series numbers for forms issued. This implies that there is a need for

an automated or digitized system that can streamline the documentation process and reduce human errors [11].

Regarding repair and maintenance, it suggests that the existing manual listing and documentation practices hinder the proper implementation of these activities. It implies that the time-consuming nature of manual documentation outweighs the time spent on the actual maintenance work. This implies that the ICTO could benefit from implementing a more efficient and automated system for tracking and documenting repair and maintenance tasks.

Overall, the need for process improvements [12] within the ICTO to address the time-consuming and error-prone nature of their current documentation practices, as well as the inefficient implementation of repair and maintenance activities. Adopting digital solutions and automated systems can potentially enhance efficiency, reduce errors, and streamline operations in service delivery, documentation, and maintenance processes[13].

This study aims to develop a web-application to serve as platform for the Information and Communications Technology Office to render services systematically and automate the process of technical activity documentation.

Specifically, this study aims to attain the following: First, Design and develop and implement the following features and functionalities of the Information and Communications Technology Office Service and Activity System with Short Messaging Service (ICTO-SAS): (a) to provide a Kiosk that can accept various ICTO Services Requests such as SIAS Online Technical Support, ID Cards Services, Online Meeting Services, LED Wall Services, ICTO Conference Room Reservation, Internet Services and Repair and Maintenance Services. (b) to Incorporate Service log to automatically record the technical activities conducted by the ICTO personnel (c) to Embed SMS Application Programming Interface to establish transparency of the technical activities conducted between the client and the ICTO Personnel (d) to integrate a chatbot capability to address the most frequent and prevalent issues clients encountered. Second, Generate reports relevant to the statutory requirement and Third, Evaluate the Service and Activity System with SMS in terms of: functionality; efficiency; usability; reliability; security; maintainability; and portability.

2. Methods

2.1. Respondents of the Study

The respondents of the study are the IT Experts and End-Users of the Guimaras State University making transactions in the Information and Communications Office in the Salvador Campus. Specifically, this study consisted 15 respondents comprising the combination of both IT Experts and System End-users.

2.2. Respondents of the Study

After the minimum set of ISO/IEC 25010:2015 standards [14] regarding eight (8) characteristics and 31 sub-characteristics were met by the developed ICTO Service and Activity System with SMS, a researcher made questionnaire composed of three (3) parts was used in determining the effectiveness of the developed system. Part I of the research instrument including the profile of the evaluator in terms of classification and IT orientation. Part II of the research instrument including the evaluation of the integrated modules in the developed system. Part III of the research instrument including the effectiveness of the developed system based on the standardized questionnaire for evaluating developed system as prescribed by the ISO/IEC 25010:2015.

The researcher-made instrument based on the ISO/IEC 25010:2015 composed of eight (8) main quality characteristics namely functionality suitability, reliability, security, maintainability, and portability were used as basis in determining the effectiveness of the system both by the IT expert and the users of the developed ICTO Service and Activity System with SMS.

2.3. Data Gathering Procedures

This developed Information and Communications Technology Office Service and Activity System with SMS known as ICTO SAS was installed and implemented at Guimaras State University Main Campus in McLain, Buenavista, Guimaras. The developed ICTO SAS was installed in the server computer of the Information and Communications Technology office and can be accessed via Local Area Network and Browser. The ICTO SAS served as a nuclear support information facility of the University and it was evaluated as to its objective features and characteristics set by 15 respondent evaluators.

The conduct of this development evaluation study was guided by the following set of activities of development evaluation research methods wherein after the concept had been framed, such notions were implemented by means of interactive system of the Service and Activity System with SMS. There was consultation classified as planning stage in determining the different procedures of providing and documenting the technical support for the employees and students of the Guimaras State University. To manage this level of complexity, Software Development Life Cycle model was used.

Further, the designed software on the Guimaras State University was evaluated using the Software Quality Standards of the ISO/IEC 25010:2015 comprising the eight (8) main quality characteristics namely functional suitability, efficiency, compatibility, usability, reliability, security, maintainability and

portability of software program created and used. The developed ICTO SAS was be tested and evaluated by 15 evaluators form both the internal and external evaluators which includes the end users of the developed system both IT and Non-IT expert employees of the institution, and external IT experts whom are actively involved in Information Technology such as college professors, TESDA assessors and local IT Professionals in Iloilo City and Guimaras Island.

To achieve the objectives of this study, the researcher adopted the following instruments in the collection of data and for purposes of each in the interpretation of the quality of the designed and developed ICTO SAS in meeting the customized needs of the end-users and clients and in compliance to the safety and quality characteristics prescribed by the ISO/IEC 25010:2015 Evaluation Criteria for all developed communication and technology systems. Likert Scale [15] was used to it is a five-point scale with 5 as the highest and 1 as the lowest that was used in rating the effectiveness of the ICTO SAS in terms of functional suitability, performance efficiency, maintainability, usability, reliability, security, and portability.

Table 1. The following is the mean scoring and its interpretation for objective 1 and 2:

Mean Score	Verbal Interpretation
4.21-5.00	Strongly Agree
3.41-4.20	Agree
2.61-3.40	Neither Agree nor disagree
1.81-2.60	Disagree
1.00-1.80	Strongly Agree

Whereas, the following is the mean scoring scale and its interpretation for effectiveness

Table 2. The following is the mean scoring and its interpretation for objective 3:

Mean Score	Verbal Interpretation
4.21-5.00	Very High
3.41-4.20	High
2.61-3.40	Moderate
1.81-2.60	Low
1.00-1.80	Very Low

2.4. Data Analysis Procedures

To determine the result of the evaluation of the software and, evaluation ratings were encoded using a spreadsheet program. Mean was used in computing and measuring the acceptability of the software. Mean was used in determining the distribution of the evaluators' responses.

2.5. Software Design and Development Component

The researcher used an Iterative Software Development Model. The Iterative starts with the small chunk of the system requirements and iteratively enhances until the full system was implemented. During each iteration, design modifications were made, and new functional capabilities were added. In the basic idea behind this method was to develop a system through repeated cycles (iterative) and in smaller portions at a time (incremental)[16]. The iterative model is presented in Figure 1. The requirements analysis phase was determined and analyzed base on the documents such as Registration and Request Forms by the clients was provided by the Information and Communication Technology Office. The researcher inquired with the employees and students of the Guimaras State University of what transaction they usually processed or request relative to the services offered by the ICTO.

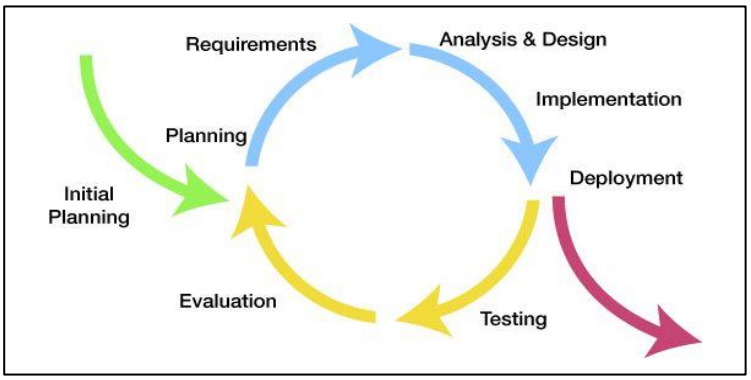

Figure 1. Iterative Software Development Model

The first phase in the software development life cycle, which is the Requirements Planning phase. This phase is critical in ensuring the success of the software development project, as it involves gathering and analyzing user requirements to determine the needs of the customer. The main task performed in this phase is the collection of data, which serves as requirements for the software system. This involves analyzing the user requirements and identifying the key features and functionalities that the system needs to have to meet those requirements[17]. Keen observation and follow-up questions are employed to ensure that all user requirements are fully understood and captured. In addition to gathering user requirements, the Requirements Planning phase also involves planning for the project schedule and identifying any risks that may be involved[17]. Technical tasks and resources needed for the project are also identified in this phase. This ensures that the project is properly scoped and that all necessary resources are available for the development team to complete the project successfully. Overall, the Requirements Planning phase is critical in ensuring that the software development project is properly planned and scoped from the outset. This helps to minimize the risks of project failure and ensures that the final software system meets the needs of the customer and end-users[17].

The second phase is Analysis and Design Implementation in which the main task is the identification of data from the different available record was the design of the system that utilized the data, the researcher plans the logical operations and functions of the system and at the same time the actual physical design implementation of the system both database and interface followed by designing of logical and data model then follows by the actual physical design of the system like system security, and modules supporting the different processes[18]. The user interface designing belongs in this task and for database design, the researcher created different tables that conforming to normalization standard to avoid anomalies and redundancy issues[19].

Furthermore, the Testing is the third phase, which falls under it are the coding of the system and the actual testing phase in which programs are developed and deployed and iteratively updated and repeats the iterative model process. In this phase, the researcher started the task of developing the database design [20] that includes the physical and logical, relationship of tables. At this point of task list, the researcher started to code the actual program aiming to give solution for the identified problem of the study equipped with strict programming constraints to validate every data passed into the system. The programming language used in the development of the system was PHP and Structured Query Language (SQL) as the back end. The SQL was used to store, query, and manipulate data. It was used to manage data in a relational database which is also widely used nowadays by large organizations. After the development, the System was deployed in which the researcher installs the developed system as a beta version and use it. It is equipped with logger to record every task done to easily identify the problems encountered and apply debugging to repair the problems [21]. As a pre-requisite during the system development, there must have a visual studio and MySql installed in a certain computer.

The fourth phase is the Evaluation Phase where the system developed was presented to the respondents and evaluated using the ISO 25010:2015 Software Quality Model [9]was conducted to randomly selected users of the ICTO Service and Activity System with SMS.

The last phase is the Deployment Phase where the smooth running and successful system developed is deployed to the client and support any questions and help is needed by them to use the system. The researcher standby with the client to troubleshoot any unexpected problems that may occur while the system was deployed initially. The system could be implemented in a network environment where two (2) desktop computers was installed for the use of the developed system and another set of computers used a four-port switch. The system could be implemented in a network environment [22]where there is a Server installed for the use of the Information and Communications Technology Office and desktop computer for the ICTO personnel

The recommended hardware requirements outline the minimum specifications necessary for a computer system to effectively run the ICTO SAS.

a. Minimum Intel Core i3 or equivalent/higher: This refers to the processor or CPU (Central Processing Unit) requirement. An Intel i3 processor is the minimum recommended option, but an equivalent or higher processor from other manufacturers such as AMD would also meet the requirement. The i3 processor is a mid-range option suitable for general computing tasks, but more demanding applications may require a higher-end processor.
b. Minimum 1 Gigabyte RAM: RAM (Random Access Memory) is the temporary memory that a computer uses to store data that is actively being processed. Having a minimum of 1 GB of RAM means that the computer should have at least this amount of memory available. This is considered a low amount of RAM and may be sufficient for basic tasks, but for more demanding applications or multitasking, a larger amount of RAM would be beneficial.
c. Minimum 500 Gigabyte Hard disk drive: The hard disk drive (HDD) is the primary storage device of a computer system, where data is permanently stored. A minimum capacity of 500 GB indicates the recommended storage space required. This allows for installing the operating system, applications, and storing user files. However, keep in mind that larger storage capacities are becoming more common

due to the increasing size of files, especially multimedia content.

d. With External Network interface card: An external network interface card (NIC) is a device that enables a computer to connect to a network, such as the internet. This requirement suggests that the computer should have an additional NIC, typically in the form of an expansion card or a USB adapter, to support network connectivity. It implies that the built-in network interface on the motherboard might not be sufficient or may be absent altogether.

The recommended software requirements include:

a. Windows 10 Operating System: This indicates that the software is designed and tested to work best on a computer running the Windows 10 operating system. It implies that the software that this software is considered suitable for the development and editing tasks related to the specific project or software being discussed.

b. XAMPP Software Package (MySQL and Apache): XAMPP is a software package that bundles several components commonly used in web development, including the Apache web server, MySQL database server, PHP programming language, and others. By specifying XAMPP with MySQL and Apache, it suggests that the project or software being referred to requires a local web development environment that includes a web server (Apache) and a database management system (MySQL). XAMPP simplifies the installation and configuration of these components, making it easier to set up a local development environment.

c. May not be fully compatible with older Windows versions or alternative operating systems like macOS or Linux.

d. Visual Studio Code: Visual Studio Code is a popular source code editor developed by Microsoft. It provides a rich set of features for writing, editing, and debugging code. The inclusion of Visual Studio Code in the recommended software requirements suggests

3. Results and Discussion

The ICTO SIS was developed with Services module and the following services are offered based on the figure below showing a Kiosk that can accept various ICTO Services such as ID Services both for Students and Personnel, SIAS Technical Support, Venue Reservation, Online Meeting Services, LED Wall Services, Internet Services and Repair & Maintenance Services. The kiosk developed contains services as presented like a card interface combining the Service Logo and appropriate button that calls a specific script to initiate service requisition and queue to the task list of the ICTO Personnel. Enabling the Access of the ICTO Technical Personnel, a Login Button is added to the platform that will validate the user credential to ensure legitimate users can only make necessary technical actions.

Figure 2. Services Dashboard of ICTO-SAS containing various service offerings of the ICTO

The Platform's functionality is restricted to ICTO Access and how it utilizes an acknowledgment number displayed in Figure 3 to confirm and track client requests received through the kiosk.

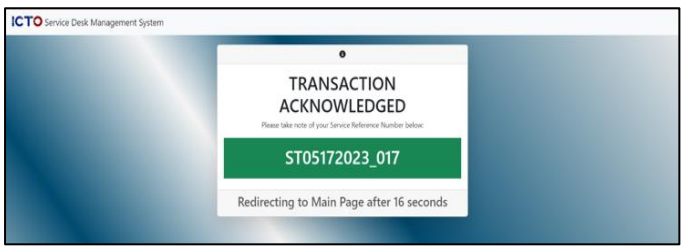

Figure 3. Transaction Acknowledgement

On the side of the ICTO personnel, an administrative dashboard supports various technical actions allows such as the Dashboard that contains the General Statistics of every service deliverables received and queued in the system. The Task list shows order of the services received sorted following the First Come First Serve Basis. As an additional feature, all services displayed in the kiosk as illustrated in Figure 4 contains the quick links located in the left pane of the platform to allow ICTO Personnel to raise technical concerns without logging-out form the system and holistically provide a system access to services and technical actions that can be provided to the client. The Administrative Dashboard also provides that text area to allow the technical personnel to thorough discuss the technical activity as part of the documentation in compliance to the current procedure's manual of the GSU Information and Communications Technology that undergoes process audit both internally and externally. Figure 4 presents the Incorporated Service log showing the historic service actions provided conducted by the ICTO personnel. The service action is sorted from the oldest to the latest service action history.

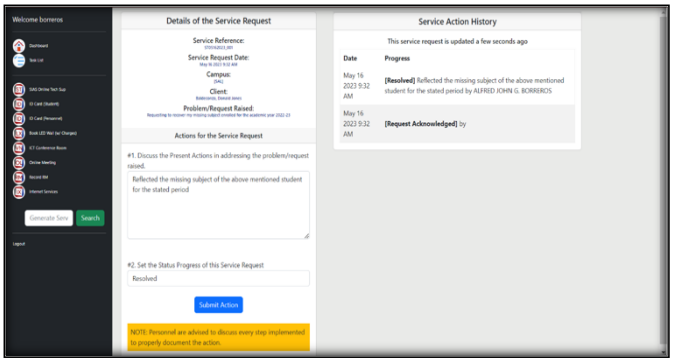

Figure 4. Services Action Dashboard

Figure 5 shows an Embedded SMS Application Programming Interface (API) that is used to send real-time updates regarding technical activities and actions taken by the ICTO (Information and Communications Technology Office) personnel. The purpose of this API is to provide a means for legitimate SMS senders to interact with the ICTO platform. As part of the branding and to avoid confusion for clients using the services of the ICTO, a Subscription to SMS API is offered, which includes a customized SID (Short Identifier) with the code "GSU." This SID serves as a branding element and ensures that the clients can easily identify and distinguish the services provided by the ICTO. The example provided below illustrates a specific service availed by a client named Baldeconza, Donald Jones. The service reference number associated with this particular interaction is ST05162023_011. In this case, the system sent two SMS messages. The first message is a documented update regarding the issue or request, while the second message serves as a confirmation that the issue has been resolved. Overall, the described system and API allow for efficient communication between the ICTO personnel and clients by providing real-time updates and confirmations through SMS messages.

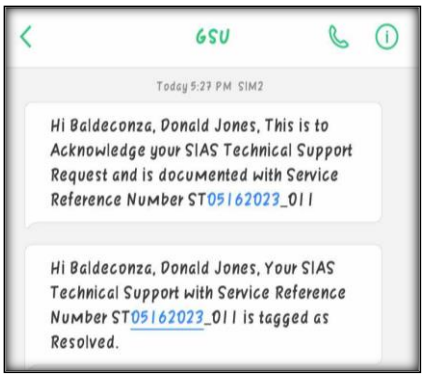

Figure 5. Services Action Dashboard

Figure 6 shows the integrated chatbot that contains the frequently asked questions." This implies that there is a chatbot system that has been developed to assist users in finding answers to common questions. The chatbot includes a feature where these frequently asked questions are organized in a script. This script consists of various categories such as "Computer Problem," "Printer Problem," "Internet Problem," "Monitor Problem," "Mouse and Keyboard," and "Talk to ICTO." These categories represent common issues that users may encounter in the domain of Information and Communications Technology Office (ICTO). This visual representation showcases the entire structure and organization of the chatbot's knowledge base. It helps users understand how the

different categories and sub-options are interconnected, providing a comprehensive overview of the available information.

Figure 6. Service Kiosk showing the chatbot feature of the ICTO SIS.

Figure 7 The given Figure describes a sample report that has been submitted to the Office of the University President. This report specifically focuses on the services provided by the Information and Communications Technology (ICT) Office. In conclusion, the sample Report submitted to the Office of the University President presents a comprehensive summary of the services provided by the ICT Office. It covers a wide range of activities, including application processing, certifications, deferred cases, modifications, photo capture, ID issuance, signature capture, printing, service request acknowledgment, issue resolution, ongoing services, and completed services. The Report serves as a valuable tool for assessing the performance and productivity of the ICT Office and can aid in making informed decisions to enhance its efficiency and effectiveness. Table 3 shows the result of the GSU Personnel Feedback on the design and development of Service desk Management Module

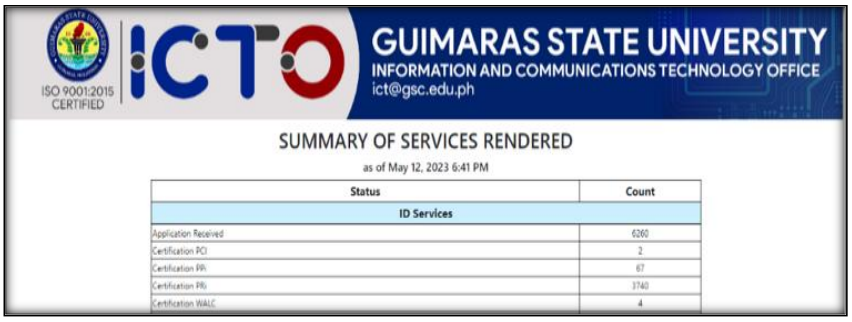

Figure 7. Sample of Report for Statutory Requirement

Table 3. Respondents' Feedback on the design and development of the ICTO Service and Activity System with SMS

Objective	Mean	Verbal Interpretation
To provide a Kiosk that can accept various ICTO Services Requests such as SIAS Online Technical Support, ID Cards Services, Online Meeting Services, LED Wall Services, ICTO Conference Room Reservation, Internet Services and Repair and Maintenance Services.	4.65	Strongly Agree
To Incorporate Service log to automatically record the technical activities conducted by the ICTO personnel.	4.75	Strongly Agree
To Embed SMS Application Programming Interface to establish transparency of the technical activities conducted between the client and the ICTO Personnel.	4.73	Strongly Agree
To integrate a chatbot capability to address the most frequent and prevalent issues clients encounter.	4.73	Strongly Agree
To Incorporate Service log to automatically record the technical activities conducted by the ICTO personnel.	4.75	Strongly Agree

The result in Table 3 shows that the first objective has a mean score of 4.65 which is interpreted as "Strongly Agree" which indicates that the ICTO Service and Activity System with SMS has a Kiosk that can

accept various ICTO Service Requests such as SIAS Online Technical Support, ID Cards Services, Online Meeting Services, LED Wall Services, ICTO Conference Room Reservation, Internet Services and Repair and Maintenance Services. Second objective has a mean score of 4.75 which has a verbal interpretation of "Strongly Agree". The result implies that the ICTO Service and Activity System with SMS is developed to Incorporate Service log to automatically record the technical activities conducted by the ICTO personnel.

The third objective has a mean score of 4.73 still interpreted as "Strongly Agree". Respondents of the study agreed that all the services offered by the ICTO is incorporated with SMS Application Programming Interface to establish transparency of the technical activities conducted between the client and the ICTO Personnel. The fourth objective has a mean score of 4.73 and is interpreted as "Strongly Agree" which means that the ICTO SAS has integrated a chatbot capability to address the most frequent and prevalent issues clients encounter. Respondents of the study agreed that the ICTO SIS can be accessed through a Kiosk incorporated with various ICTO services. The result implies that the System is capable of serving the clients provided by the ICTO services.

The Service and Activity System with SMS was developed to provide the clients a Kiosk that can take ICTO Service Requests, Incorporated service log and Embedded with SMS API for notification and by utilizing this integrated chatbot system, users can interact with the chatbot and navigate through the various categories and sub-options to find answers to their ICTO-related queries efficiently. The script-based approach allows for a streamlined and user-friendly experience when seeking assistance for common technology issues.

Tables 4 shows the respondents' feedback after evaluating the system on determining the effective of the ICTO Service and Activity System with SMS.

Table 4. Respondents' Feedback on the effectiveness of the Service and Activity System with SMS

Characteristic	Mean	Verbal Interpretation
a. Functional Suitability	4.64	Very High
b. Performance Efficiency	4.60	Very High
c. Compatibility	4.79	Very High
d. Usability	4.73	Very High
e. Reliability	4.77	Very High
f. Security	4.75	Very High
g. Maintainability	4.70	Very High
h. Portability	4.69	Very High
Overall Mean	4.71	Very High

The result shown in Table 4 indicates that the ICTO Service and Activity System with SMS has been evaluated using the ISO IEC 25010:2015 Evaluation Criteria and yielded an overall mean of 4.71 which can be interpreted as "Very High". Respondents of the study agreed that the ICTO Service and Activity System with SMS is effective during the conduct of the study as the system is functional, efficient, compatible, usable, reliable, secure, maintainable and portable.

4. Conclusion

The Result shows that the developed ICTO Service and Activity System with SMS has integrated kiosk accepting various technical requests such as SIAS Online Technical Support, ID Cards Services, Online Meeting Services, LED Wall Services, ICTO Conference Room Reservation, Internet Services and Repair and Maintenance Services respectively. It has also incorporated service log to automatically record the technical activities conducted by the ICTO Personnel and capable to establish transparency of the technical activities conducted between the client and ICTO Personnel through its embedded Short Messaging Service (SMS) Application Programming Interface (API). Further, the developed ICTO SAS has integrated chatbot capability containing the frequently asked questions (FAQs) and prevalent issues that the ICTO clients encountered.

The Developed ICTO SAS generates reports relevant to the statutory requirement based on the result presented. ICTO Service and Activity System with SMS is evaluated in terms of functionality, efficiency, usability, reliability, security, maintainability and portability through the ISO 25010:2015 Evaluation Criteria and the designed and developed system satisfied the respondents as also shown in the result. As an implication, the ICTO Service and Activity System with SMS is functional, efficient, usable, reliable, secure, maintainable and portable.

Based on the findings, conclusions are drawn, the following are hereby recommended: ICTO Service

and Activity System with SMS should be fully implemented to its actual operational environment; The Guimaras State University may adopt this developed ICTO Service and Activity System with SMS to assist and uplift its manual and weary processes of technical activity documentation into modern and automated process with the use of the developed system which is more effective and efficient as evaluated; For the future Researcher may decide to modernize and improve the system which would help to utilize its potential and develop for improved and decide to consider Simple Mail Transfe Protocol as an aaditional communication channel for the platform.(SMTP)features and expansion of scope.

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