Registrar Information System with SMS Support: A Repository System

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Abstract

The COVID-19 pandemic has wreaked havoc around the globe. The lockdown has an impact on the education sector, which is a crucial predictor of the country's economic future. All schools, colleges, and institutions are closed due to government directives. Some students have some transactions to be done in the Office of the Registrar but because of pandemic it is one of the problems. With these, researcher used a descriptive and developmental research design to develop a Registrar Information System with SMS Support: A Repository System to identify the needs and concern of attending student with their transactions. The researcher uses mean as the statistical tool. A standard questionnaire to student to test the developed features and functions of the Registrar Information System with SMS Support: A Repository System. Rapid Application Development Model was used as a model in software development cycle. The finding implied was very good in terms of functionality, usability and performance. The school must continue to update the developed system which may help to maximize its potential and improve its functionalities, usability, and efficiency.

Keywords: Registrar, Information System, SMS Support, Repository System, RAD Model

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I. INTRODUCTION

The COVID-19 pandemic has wreaked havoc around the globe. The lockdown has an impact on the education sector, which is a crucial predictor of the country's economic future. All schools, colleges, and institutions are closed due to government directives. The pandemic COVID-19 has thrown the whole educational system into disarray [1].The registrar is responsible for the development, documentation, appropriate interpretation, and enforcement of academic policy; the registrar handles all inquiries as to the accuracy of records and creates, maintains, and oversees student record retention, storage, and purging policies in coordination with other critical offices [2]. It is a common database of information that serves as a repository for all academic records. [3]. The registrar is responsible for overseeing and implementing student information systems. As the student records leader, the registrar collaborates to provide benchmarked and trend-setting best practices in student and academic services to students and the community [2].

Since the school is closed, the Office of the Registrar is also closed; so its clients cannot do transaction. In order for the said office to address this issue even in the midst of the pandemic, the registrar's office finds a method to communicate with its clients. One of their solutions is through Information System. Traditionally, information systems have been seen primarily in terms of their impact on particular businesses [4]. Through this, it allows it to investigate the contributions of information systems in organizations in order to increase their effectiveness and efficiency [5]. However, the employment of information technologies as competitive weapons from the outside has been considered [4], this system needs internet connection. Since some institutions are in remote areas internet connection must be considered. So with this consideration, the researcher opted to design and develops a Registrar Information System with SMS Support: A Repository System. Determine the level of usability of the developed system in terms of learnability and operability. Determine the level of functionality of the said system as perceive by the Office of the Registrar in terms of its security, accurateness and suitability. Evaluate the level of performance of the system as perceive by the expert evaluators in terms of time behaviour and resource utilization. Even though there is a poor internet connection, the clients can still be able to communicate to the Office of the Registrar. With the help of the said system it can promote a better way to communicate to its clients.

1.1 Conceptual Framework

This paper conceptualizes to develop a Registrar Information System with SMS Support: A Repository System.

In this study: input phase; process phase; and output phase are compromised. Input phase refers to the Client's Information, Student's Profile Information. Process Phase includes the Registrar Information System

with SMS Support: A Repository System that will send messages to the clients as well as accommodates their requests. The Output phase is the system's evaluation regarding to its usability, functionality and performance.

Input   **Process**   **Output**

| Clients Information Students Profile Information | → | Registrar Information System with SMS Support | → | Level of Usability Level of Functionality Level of Performance |
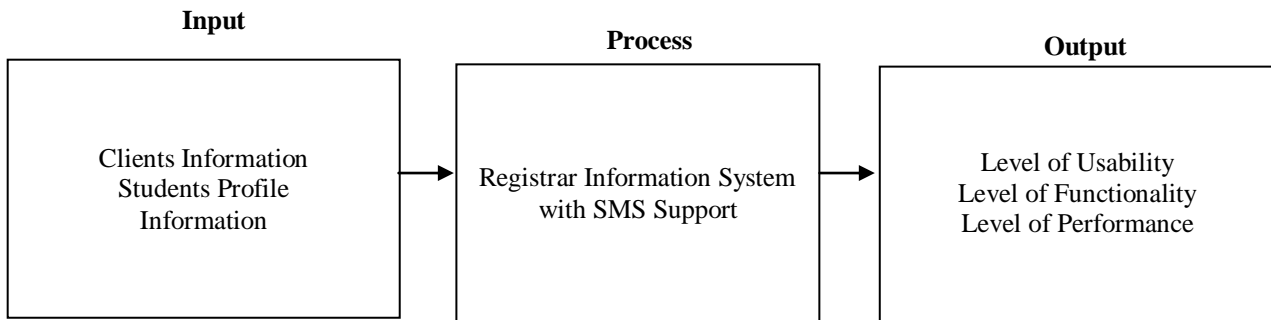
Figure 1. The Conceptual Framework of the Study.

II. METHODOLOGY

This chapter provides an overview of the research, including the design, respondent selection, research instrument, data collection technique, and statistical treatment.

2.1 Research Design

A research design is a blueprint or plan prepared expressly to answer the research question and to keep variance under control [6].

In this study, developmental and descriptive research designs were employed. Developmental research is a method of answering fundamental concerns such as why and how to educate what to whom. It entails a cyclical process of small-scale in-depth construction and evaluation of exemplary teaching-learning sequences on a content-specific level. Its goal is to offer an empirically validated rationale of how such a sequence works, which is said to be a significant contribution to teachers', curriculum makers', and educational researchers' competence [7].

Descriptive research describe systematically and accurately the facts and characteristics of a given population or area of interest [6] Descriptive research "aims to shed light on present challenges or problems using a data collection approach that allows them to explain the situation more fully than was possible before using this method [8]. Descriptive research will be used to survey the feedbacks with regards to the system development through survey questionnaires that will be administer.

2.2 Software Development Life Cycle

The software development life cycle (SDLC) is a strategy for developing software in a methodical manner, increasing the likelihood of finishing a software project on schedule and preserving the quality of the software product to industry standards. System designers and developers can use the System Development Life Cycle framework to follow a set of tasks when developing software. It's frequently thought of as a component of the system development life cycle. Any software development process is separated into logical stages that allow a software development company to efficiently arrange its work in order to generate a software product with the desired capabilities within a given time frame and budget. The phases are followed by all software projects [9].The researcher chose Rapid Application Development as the software development SDLC in this investigation. Rapid Application Development (RAD) is a development lifecycle that produces significantly faster and higher-quality outputs than the standard lifecycle. It's built to take full advantage of the latest generation of sophisticated development software [10].
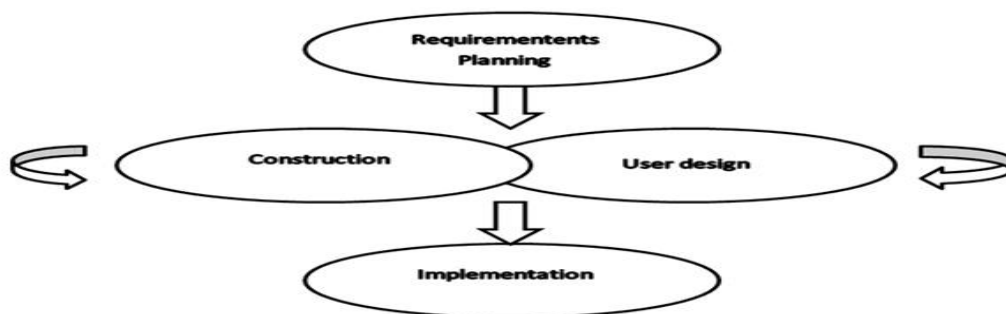
Figure 2. The Rapid Application Development Model

2.3 Entity-Relationship Diagram

The entity-relationship model is offered as a data model. This model includes some of the most relevant semantic data from the real world. As a database design tool, a unique diagrammatic technique is introduced. A database design and description example using the model and diagrammatic technique is presented. Some data integrity, information retrieval, and data manipulation issues are examined. The entity-relationship model can be used to unify many perspectives of data, including the network model, relational model, and entity set model. These models' semantic ambiguities are investigated. The entity-relationship model is used to show how people can derive their data views [11].

The developed system has seven entities, namely: SMS Logs, SMS, Activity, User, Logs, Students Information and Documents. User Entity is also related or has one or more involvements in the system. For the student entity it has one to one relationship with documents entity, document entity has one to many relationship with SMS entity since only one SMS are allowed to each documents, the user entity has one to many relationship with the student information entity. User entity is involved in activity entity by using the system it has one to many relationship. Action done by the user is the log entity is one to many relationship, SMS Logs were recorded message from the SMS has one to many relationship.
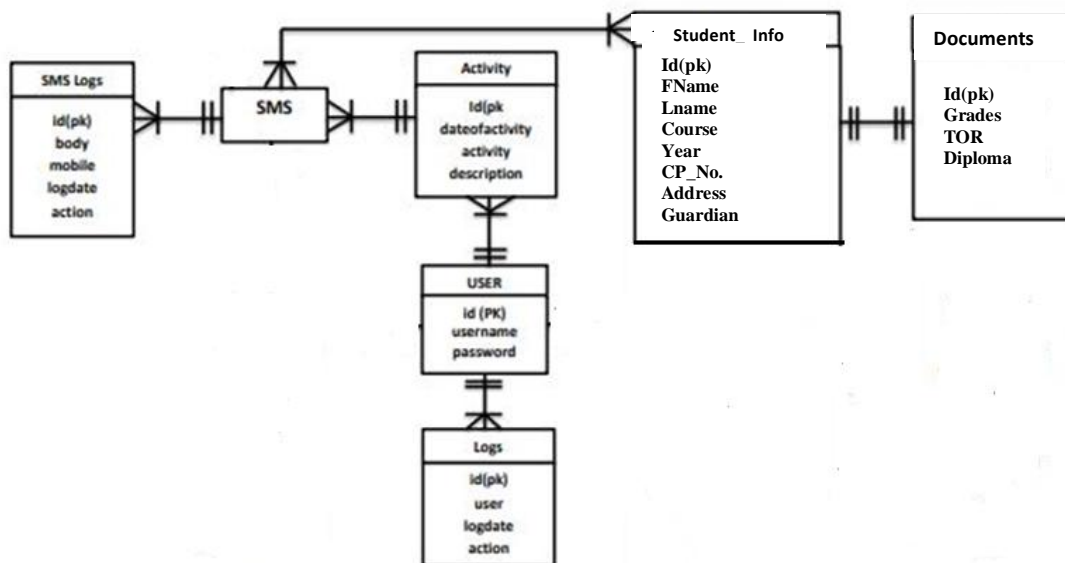

Figure 3. The Entity Relationship Diagram of the developed system.

2.4 Testing and Evaluation

Due to the finalization of the developed system, the researcher requested the testers to evaluate the system in terms of it level of usability, level of functionality and level of performance efficiency. A survey questionnaire was given to the interface design as well as to test the system's usability, functionality and performance efficiency. A 5-point Likert scale comprising of 1 as Poor and 5 as Very Good was used on the developed system prototype. To statistically compute whether the developed system passed the evaluation criteria, the Mean statistics was applied. The Mean is computed as:

$$\overline{X} = \frac{\Sigma X}{n}$$

Where $\overline{X}$ is the mean

   ΣX Is the summation of individual raw scores
   n   is the number of populations

The obtained mean score was interpreted using the following verbal description:

Mean Score	Description
4.21 – 5.00	Very Good
3.41 – 4.20	Good
2.61 – 3.40	Average
1.81 – 2.60	Fair
1.00 – 1.80	Poor

III. PRESENTATION OF DATA ANND INTERPRATATION OF RESULTS
This chapter presented, analysed, and interpreted results that addressed the goals set forth in this document.

3.1 Level of usability of the Registrar Information System with SMS Support: A Repository System in terms of learnability and operability.
The result showed that the usability of Registrar Information System with SMS Support: A Repository System composed with the following mean: in terms of learnability (M=4.67) was interpreted as "Very Good", operability (M=4.63) which was verbally interpreted as "Very Good".

Table 1: The level of Usability of the Developed System in term of Learnability, and Operability

Implementation Indicators	Mean	Verbal Interpretation
Learnability	4.67	Very Good
Operability	4.63	Very Good

Legend: 1.00-1.80 (Poor); 1.81-2.60 (Fair); 2.61-3.40 (Average); 3.41-4.20 (Good); 4.21-5.00 (Very Good).

3.2 Level of functionality of the developed system as perceive by the Office of the Registrar in terms of its security, accurateness and suitability
The result shown below indicates that the functionality of **the Registrar Information System with SMS Support: A Repository System** composed with the following mean: in terms of security (M=4.70) was verbally interpreted as "Very Good", accurateness (M=4.79) was interpreted as "Very good" and it's suitability (M=4.75) was interpreted as "Very Good".

Table 2: Level of functionality of the developed system as perceive by the Office of the Registrar in terms of its security, accurateness and suitability

Implementation Indicators		Mean	Verbal Interpretation
a.	Security	4.70	Very Good
b.	Accurateness	4.79	Very Good
c.	Suitability	4.75	Very Good

Legend: 1.00-1.80 (Poor); 1.81-2.60 (Fair); 2.61-3.40 (Average); 3.41-4.20 (Good); 4.21-5.00 (Very Good);

3.3 The Level of Performance Efficiency of the Developed System in terms of time Behavior and Resource Utilization
Resource Utilization is the measure of how much of your available resources you are currently using. It can help you to plan how to utilize your resources more effectively to ensure that your organization is being as productive as possible (Pales, 2018). The result showed that in terms of time behavior (M=4.73) the system was interpreted as "Very Good" and for resource utilization (M=4.70) was interpreted as "Very Good".

Table 4 : The Level of Performance Efficiency of the Developed System in terms of time Behavior and Resource Utilization

Implementation Indicators		Mean	Verbal Interpretation
a.	Time Behavior	4.73	Very Good
b.	Resource Utilization	4.70	Very Good

Legend: 1.00-1.80 (Poor); 1.81-2.60 (Fair); 2.61-3.40 (Average); 3.41-4.20 (Good); 4.21-5.00 (Very Good);

IV. CONCLUSION

The following conclusions were reached after considering the study's findings:

The respondents rated the usability of the Registrar Information System with SMS Support: A Repository System as "Very Good" in terms of learnability and operability. This means that the constructed system, Registrar Information System with SMS Support: A Repository System, had a high level of usability, with users finding the system's operations to be user-friendly and the information displayed on the system to be generic enough for easy comprehension. It was simple for first-time users to navigate the system because it was designed to be user-friendly.

It had a high level of functionality in terms of security, accuracy, and suitability, with the system only being accessed by authorized users and keeping log records for system activity. In addition, the system keeps precise records of information management.

In terms of time behavior and resource use, the Registrar Information System with SMS Support: A Repository System was assessed to have a good level of performance efficiency, with the system being able to execute tasks in acceptable time intervals and obtain all necessary information. As a result, even when a huge number of message requests are received, the system stays stable.

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