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Emergency dispatch information system

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Abstract

This study aimed to develop an Emergency Dispatch Information System in the city government of Dapitan City. This study utilized the developmental method of research. There were forty (40) user-respondents composed of twenty five (10) students from different courses, ten (10) IT professionals, three (3) fire officers, two (2) police officers, two (2) Police Staff, three (3) hospital personnel and ten (10) faculty from different colleges. The questionnaire which was utilized in the study was patterned after the International Organization for Standardization and International and Electro technical Commission (ISO/IEC) 9126-1 also known as the Product Software Quality Standard Model for software evaluation. The statistical tool used was mean to test the developed system's functionality, reliability, usability and efficiency. The findings of study revealed that the Emergency Dispatch Information System in Dapitan City showed a great functionality, reliability, usability and efficiency. It obtained an individual mean of 4.67, 4.66, 4.62 and 4.52 respectively. The innovation of the application of the system was highly generated and as regard to the maintainability, the system required less effort and requirements for its deployment. The system software minimized and eliminated the major problems encountered by the present system. It is recommended that the Dapitan city adopts the developed "Emergency Dispatch Information System". The adoption of this system means easier, faster and accurate Emergency response to any incident in the city government.

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Introduction

The world has become very modern, many high-tech gadgets have gotten bigger, and technology and its possibilities are growing, technological innovations, including personal computers.

Supercomputers for machines and fiber-optic telecommunications equipment maintenance are examples of innovations in almost every field nowadays. One's success or failure in life is largely determined by their capacity to control this development. Without a doubt, the use of human intelligence has led to changes in learning over time. As it grows more commonplace in daily life, an informed people must control and influence it.

Shift roll call is one of the many functions made possible by the Emergency Dispatch Information System (EDIS), which helps with the effective use of public safety resources as information technology transcends time and location. They usually have employees who make sure the data in the system is accurate. The technology enables dispatchers to see the location of incidents, emergency vehicles, and police officers when an automatic location solution is utilized.

Dispatcher knowledge into the location of incidents and resources improves efficiency in assigning the right resource to the right incident, reducing response time. The call taker may also use protocols and guidelines to check, assess, classify, and prioritize the call before sending it to the dispatcher via the Computerized Forwarding System (CFS). A field unit can also create a CFS. The unit can contact the dispatcher or call taker, or it can initiate the call electronically using the optional mobile data terminal (MDT) interface. A CFS may be forwarded to or received from a telephone reporting unit. This might include the ability to establish a CFS for upcoming scheduled activities. EDIS systems automate public safety operations and communications. It may include, among other things, computer-controlled emergency dispatching, vehicle status, incident reporting, and management data. All parts of an EDIS system must be tuned to provide speedy reaction time and system reliability. Because time is of the importance, the EDIS system reliably records data and time stamps for each activity. EDIS systems gather the initial information about an incident and then distribute it to one or more systems.

An EDIS process seems quite straightforward: a unit is assigned to respond to a call after it is received. Workflows for EDIS, however, are much more challenging. The location and availability of each response unit are indicated by its status. An EDIS system must include a set of unit statuses that can be customized for any EDIS customer. In Service (Available), En Route, On the Scene, Out of Service, En Route to Hospital, and In Pursuit are the most common ones. By visually representing unit status on a map, a Graphical Information System (GIS) server technology coupled with an EDIS workflow engine helps dispatchers manage unit assignments and availability when new emergency calls are received.

Materials and methods

The research employed the developmental research approach, which is characterized as the methodical investigation of creating, developing, and assessing products that must satisfy the requirements of efficacy and internal consistency. The researchers verified each outcome after completing each step, starting with the requirement analysis. The system goes through the same process after problems. The city government of Dapitan City has been using an emergency dispatch information system for many years, but its effectiveness in serving the community has not been entirely satisfactory. This is because, despite the city's increasing popularity as a tourist destination, the current system cannot respond to calls from the general public utilizing the emergency hotline, emergency alert number, and dispatch center in a timely manner, which increases safety and security response.

Research environment

Dapitan city has long been striving to have a well-organized and simplified system of all information

in the City. It's constructed and put in place adequate networks and facilities-based infrastructures necessary to support the sustainable economic development thrusts of the City. The structures, facilities and infra-related amenities in the commercial convergence zones and the industrial corridor and warehousing facilities have been put in place.

System project design

These design processes include architectural design and detailed design. "Emergency Dispatch Information System" specifications underwent two consecutive design processes. The First process is architectural. In this process, the system was study as whole and was broken down into components, called modules. The first module illustrated the client computer which allowed the creation of obligations and information and obligations of the students using the developed software "Emergency Dispatch Information System". Here, the sub-module for the software was presented in the detailed design and the main difference between software analysis and design is that the output of a software analysis consists of smaller problems to solve.

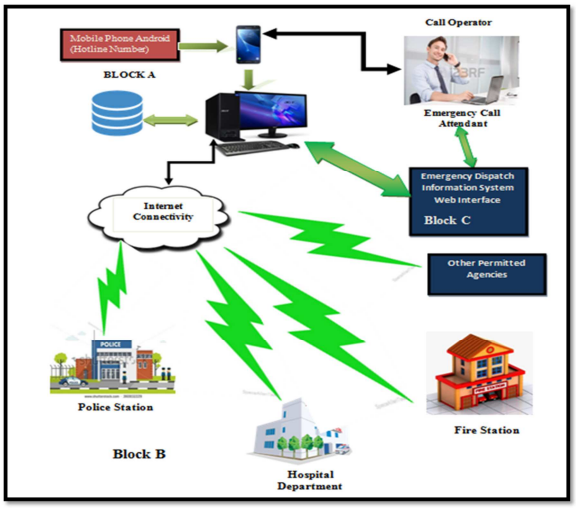

Fig. 1. System project design

Fig. 1 presents the architectural design of the system. Detailed design is the resulting design document which describes how the system works. All concerned offices are connected via internet as entire emergency dispatch system works. All concerned offices are connected via the internet as shown in block B. the first block or block A represents the EDIS server where the call operator or attendant is also located. Other offices inside block B are concerned offices which must have also an assigned operator. These operators are actually the dispatchers. Dispatchers can be IT personnel in that office. Block C is the respective offices internet web interfaces which are constantly updated every time a new emergency report is accepted and entered by the EDIS operator. This happens simultaneously when the emergency operator answers the emergency call. The operator then will make same inquiries from the caller and enters' these inquiries into the EDIS web interface. Inquiries like location, nature of the accident and others. Once the inquiries are done, the operator will then click on the save button. After the save button is clicked the information entered together with the emergency caller number will be saved into the EDIS systems database, allowing it to be viewable in the web interfaces of the concerned emergency departments like fire station, PNP, hospital and other concerned offices programmed or allowed to receive the emergency report. The web interfaces on these said offices is also a part of the EDIS system.

Project development process

The project development process covers a range of activities extending from identification of a project need to a finished set of contract plans and to construction. It can be defined by both with a project life cycle and system development life cycle, during which different activities occur.

The project life cycle refers to a logical sequence of activities to accomplish the project's goals or objectives. It consists of events which are necessary to complete a project.

While, the System Development Life Cycle is used to develop and maintain Information Systems. It focuses on the software engineering phases, processes, tools and techniques for building and/or implementing the IT solution.

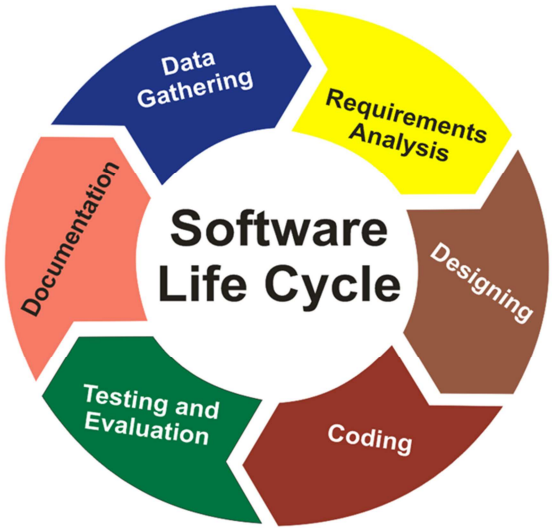

Fig. 2. Project development life cycle (SDLC)

Fig. 2 presents the Project Development Life Cycle. Each process is connected to each other by an arrow and each numbered from 1 to 6. It starts with Data Gathering; Requirements Analysis; Designing; Coding; Testing and Evaluation; and Documentation. First, the researcher gathered information and sources from the internet. The requirements analysis set and configure the software and hardware requirements gathered and analyzed, the researchers designed the system. During in the design process, they started the program coding. Finally testing and evaluation of the system were done. Each step and procedure was verified by the researchers for the correctness of the output and its function performed by the software. When errors were found, it went back to the previous process for another software verification procedure. It is a framework for the specification of a network's physical components and their functional organization and physical security is the protection of personnel, hardware, software, networks and data from physical actions and events that could cause serious loss or damage to an enterprise, agency or institution. During this phase of the system the final layout of the system design and the design details are determined. In addition to the necessary plans, system software proponent must also prepared final system design and provided information about possible technologies that may meet the requirements to be followed by the development team throughout the completion of the process.

Results

The facts, analysis, and interpretation are presented in this chapter. These are ordered by problem sequence from the first chapter.

Problem 1: What are the dispatch system's existing procedures?

In their daily activities, the Dapitan City Government currently uses a semi-automated procedure. An internal system assists in collecting crucial information from callers and sending incident reports to the manual system. For integrated features such as intelligent mapping, field communications, data reporting and analysis, incident report application integration, and call handling and dispatching, a conventional system is utilized to collect incident information. The quality and accessibility of vital information are improved by computer-aided dispatch systems, which offer a shared operating picture for prompt action. Additionally, it maintains a running log of every occurrence.

Problem 2: How does the suggested Emergency Dispatch Information System operate?

An automated system that uses emergency responses to dispatch accident information is known as an Emergency Dispatch Information System. It enables public safety activities and communications to be enhanced, supported, or partially managed. Among its features are management information, fire incident reporting, and computer-controlled emergency accident dispatching. This system uses a mobile phone to take calls and integrates it with a computer. It uses a graphical user interface to send out alerts from the response team every five seconds. Once we enter the location and incident type on the call entry screen, the Emergency Dispatch Information System automatically presents a list of suggested units with their graphical information positions in the specific region of the event. It covers emergency response and dispatch software and GIS mapping solutions.

Problem 3: How can a hybrid emergency dispatch information system be created by combining certain features?

In the newly built system, three (3) distinct systems were combined with new extra functions.

The many operations from these programs were thought to carry out the system's essential tasks.

The proponent added extra elements to the newly built application to increase its efficiency and create a new design known as the "Emergency Dispatch Information System."

The characteristics of the "Emergency Dispatch Information System" are displayed in Table 1.

These are the software features that have been modified from three (3) comparable emergency dispatch information systems. As shown in the table, the newly created Emergency Dispatch Information system has more features than the three (3) currently available commercially available software programs that are patented with copyright: Computer Aided Dispatch, Intergraph Computer-Aided Dispatch, and Nova Computer-Aided Dispatch.

The Table 1 shows that the features of the three (3) systems were compared. A computer-assisted dispatch system called Nova. In order for dispatchers to give first responders vital information while they are reacting to an emergency, the system of public safety agencies in question needs a rapid, dependable, and user-friendly solution. Smaller agencies can dispatch calls, handle data from multiple calls, and give responding field staff the most recent call information with Nova Computer Aided Dispatch CAD, a comprehensive online dispatch system. Complete screen integration is a feature of Nova's dispatcher software, which gives dispatch and response staff vital on-scene background data.

Table 1. Comparison of three systems features

System features	Emergency dispatch information system	Nova computer aided dispatch	Intergraph computer aided dispatch	Computer aided Dispatch management system
Member's information	✓			
SMS notification for inquiry	✓			
Birthday notification with SMS	✓			
Logging by call, dispatcher and unit	✓			
Statistical reporting for all dispatch times	✓	✓	✓	✓
Automatic capture caller number from computer system	✓			
Dispatch maps locations with customizable layers of map information with panning.	✓	✓	✓	✓
Statistical reports	✓		✓	
User friendly Microsoft browser interface	✓	✓	✓	✓
Provides downloadable and printable emergency records or logs.	✓	✓	✓	✓
SMS notification	✓	✓	✓	✓

The Intergraph Computer-Aided Dispatch Intergraph Computer-Aided Dispatch (I/CAD) is a suite of industry-leading incident management software. I/CAD features complete, integrated capabilities for call handling and dispatching, intelligent mapping, field communications, data reporting and analysis, and application integration. I/CAD enhances the quality and availability of critical information, providing a common operating picture for intelligent response. With I/CAD, organizations can implement

applications, interfaces, business rules, and workflows that meet their specific needs, from single agencies to multi-agency communications centers to virtual consolidations and hub-and-spoke deployments for agencies sharing common systems.

The computer aided dispatch management system with computer aided dispatch your dispatchers have the ability to perform multiple tasks with one, high-performance system. Created to meet the demanding needs of law enforcement, RIMS was designed to be as multi-functional as the people using it. CAD is unique in that it allows each user to use it in the way that works best for them or for the situation at hand. For instance, dispatchers can navigate using the mouse, forms accessed through function keys or traditional command lines. With RIMS, dispatchers also have 14 ways to dispatch a unit and countless ways in which to access information. For instance, the 3D feature of RIMS allows dispatchers to display information simply by double-clicking on a screen data item such as incident number, case number or person's name, location, date, time and GIS map.

The "Emergency Dispatch Information System" is a collection of different features from three (3) other similar systems combined into one, namely: Nova Computer Aided Dispatch which was developed by Spillman Technologies; Intergraph Computer Aided Dispatch by Hexagon Safety & Infrastructure; and Computer Aided Dispatch management system which is a full-featured Web-based management system using Web technology developed by spillam technologies. New features are designed and added by the proponent producing a hybrid system. Instead of logging into and managing multiple software systems for different divisions, Spillman provides one integrated system for all records. This allows dispatch and response information to be immediately shared between dispatchers and responding parties as it occurs. Additionally, because of the complete integration of the mobile dispatch software and the Flex RMS system, any information added by dispatchers can be immediately used by personnel to create records and reports. The hybrid system presents how the system was designed and formulated.

Depicted in the figure that three (3) core features were extracted from Nova Computer Aided Dispatch from Spillman Technologies, five (5) core features were also drawn from Intergraph Computer Aided dispatch system, and another five (5) core features were taken Computer Aided Dispatch Management System.

It can be seen in the figure further that the Emergency Dispatch Information System is equipped with eight (10) newly added core features that end-users expect to experience, namely: GIS Mapping, Logs call transmission, Alarms system for GUI, Automatic Incident location, Call notification for missed calls, Dispatch Monitoring, Automatic caller capture information, and statistical reports. The mobile phone being one of the common devices present to almost all type of people in different walks of life will serve as the main receiver of emergency reports or reports coming from the general public. Emergency dispatch information system provides an automated and fast reporting of enormous type of emergencies.

Overall, the newly developed Emergency Dispatch Information System for the Government of Dapitan City offers more features over the system features of Nova Computer Aided dispatch system, Intergraph Computer Aided Dispatch, and Computer Aided Dispatch Management System.

Problem 4: What is the level of software quality of the hybrid library system?

Considering the aforementioned limitations of the existing systems, the developed system is effective tool system software that helps and to supports other activities for in the effective use of public safety resources. It automates dispatcher insight into the location of incidents and resources. It provides greater efficiency in assigning the right resource to the right incident to reduce response times. It automates to a system that enhances services

provided by Public Safety Answering Point (emergency) call takers, such as municipal emergency services dispatchers. It does by allowing the call taker to quickly narrow down the caller's type of medical or any emergency situation, so as to better dispatch emergency services, and provide quality instruction to the caller before help arrives. The computer where the EDIS is installed will intercept the caller number and place it on the EDIS Graphical interface also known as the EDIS web interface. This happens simultaneously when the emergency operator answers the emergency call. The system allowing it to be viewable in the web interfaces of the concerned emergency departments like fire station, PNP, hospital and other concerned offices programmed or allowed to receive the emergency report and it will alarm if the emergency entered by the EDIS in the concerned departments. This system serves as means of easily and rapidly accessing emergency calls, GIS, statistics report and incident location effectively and efficiently.

The software was evaluated by forty (40) respondents composed of ten (10) students from different courses, two (2) police personnel, two (2) police staff, three (3) fire officer, three (3) hospital staff, ten (10) IT professionals who are enrolled master of science in information technology, and five (10) teachers from different colleges using the questionnaire patterned after the ISO/IEC 9126-1 Quality Standard Model along the developed system's functionality, reliability and usability.

Functionality

It is the ability of the system to perform its required functions under the stated conditions. The category is rated to the ability of the system to perform its required functions under the stated conditions whenever required having a long mean-time between failures. It is composed of five (5) descriptors which were measured using five point scale ranging from "5 – Highly Functional", "4 – Functional", "3 – Moderately Functional", "2 – Less Functional", and "1 – Not Functional".

Table 2. Software quality factor: Functionality

Functionality	5	4	3	Average weighted value	Descriptive rating
1. Provides integrated records for detailed reports	35	5	0	4.88	Highly functional
2. Provides automatic and detailed information	31	9		4.78	Highly functional
3. Provides call log or call records	16	23	1	4.38	Highly functional
4. Provides queries for concerned support personnel	23	17		4.58	Highly functional
5. provides downloadable and printable emergency records or logs	31	8	1	4.75	Highly functional
Mean				4.67	Highly functional

Table 2 shows the ratings of the software quality factor in terms of its functionality. It obtained an average mean of 4.67 which means that it is highly functional since it was well-designed for the compliance of end-user needs. Item 1, Provides integrated for detailed reports yielded a mean of 4.88 or highly functional which means that the system has understandable information on how to use it. Item 2, Provides automatic and detailed information and call log or call records to the user both obtained a mean of 4.78 and 4.38 or highly functional which indicates that it has uncomplicated manipulation method. Item 3, Provides queries for concerned support personnel and Item 4, provides downloadable and printable emergency records or logs a mean of 4.38 and 4.58 respectively. These are described as or highly functional which means that the system design has uncomplicated way in using the different task and features of the system and is very much understandable with its details. Thus, the system is highly operable in terms of data manipulation.

Reliability

A set of attributes that bear on the relationship between the level of performance of the software and the amount of resource used, under stated conditions. A level of performance that describes a process that uses the lowest amount of inputs to

create the greatest amount of outputs. It is composed of five (5) descriptors which were measure suing by a five point scale ranging from "5 – Highly Reliable", "4 – Reliable", "3 – Moderately Reliable", "2 – Less Reliable", and "1 – Not Reliable".

Table 3. Software quality factor: Reliability

Reliability	5	4	3	Average weighted value	Descriptive rating
1. The systems Graphical User updates itself an alarm every time a new emergency report is received.	37	3	0	4.93	Highly reliable
2. The output produced by the system are understandable by the operator on dispatch unit.	22	18	0	4.55	Highly reliable
3. The system provides operator records including all system responses on the particular account.	21	19	0	4.53	Highly reliable
4. The system simultaneously display dispatch maps locations with customizable layers of map information with panning.	29	10	1	4.70	Highly reliable
5. The command button in the systems GUI works quickly and accurately.	24	16	0	4.60	Highly reliable
Mean				4.66	Highly reliable

Table 3 reflects the ratings of the software quality factor in terms of its reliable. It obtained an average mean of 4.66 which means that it is highly reliable since it can readily be accessed and it produces fast results during testing process made by the respondents. Item number 1 which is the systems graphical user updates itself an alarm every time a new emergency report is received a mean of 4.93 or highly reliable which describes that the system can run under minimum software and hardware requirements.

Item number 2 which is the output produced by the system are understandable by the operator on dispatch unit a mean of 4.55 or highly.

Reliability implies that the system can accommodate multi-users simultaneously since it is a client-server model. Item number 3 which is the system provides operator records including all system responses on the particular account obtained a mean of 4.53 or highly reliable which indicates that the system captures data by means of Mobile calls and retrieves data directly from the database with a high speed. Item number 4 which is The system simultaneously display dispatch maps locations with customizable layers of map information with panning obtained a mean of 4.70 or highly Reliable which signifies that the system design gives users a speedy navigation to its functions and generates reports quickly. Item number 5 which is the command button in the systems GUI works quickly and accurately a mean of 4.60 or highly reliable which conveys that the system has no compatibility issues regarding with the web interface.

Usability

A set of attributes that bear on the existence of a set of functions and their specified properties. The functions are those that satisfy state or implied set of users. It is composed of five (5) descriptors which were measured using a five point scale ranging from "5 – Highly Usable", "4 – Usable", "3 – Moderately Usable", "2 – Less Usable", and "1 – Not Usable".

Presented in Table 4 are the ratings of the software quality factor in terms of its Usability. It obtained an average mean of 4.62 which means that it is highly usable since all the all of the usable of the system satisfy the needs of the respondents. The systems GUI and all its buttons and menus are responsive and functional obtained a mean of 4.80 or highly usable which describes that it fulfilled the need of the users. The GIS data is typically displayed as a digitized map coordinates using codes are simple and understandable yielded a mean of 4.80 or highly usable which means that it has met for its particular purpose. The entire system is user friendly a mean of

4.53 or highly usable indicating that the developed system is really right to its planned use. System operators can use and understand the system without much effort obtained a mean of 4.43 described as highly usable which means that the system is capable of holding or storing all files and record protected by the admin as a backup of each dispatch unit and the main server.

For the last item which is the system interface or graphical user interface is easy to navigate and that error warnings on wrong entry of data are highly understandable and can be easily responded by any type of users, obtained a mean of 4.53 described as highly usable which implies that the software is able to save time in processing the dispatch unit.

On the other hand, System operators can use and understand the system without much effort registered a mean of 4.43 or highly usable which indicates that when the user generates queries, it opens directly to the intended task. Finally, the last criterion which is ability to perform correct functions and information obtained a mean of 4.60 or highly usable the system interface or graphical user interface is easy to navigate and that error warnings on wrong entry of data are highly understandable and can be easily responded by any type of users.

Table 4. Software quality factor: Usability

Usability	5	4	3	2	Average weighted value	Descriptive rating
1. The systems GUI and all its buttons and menus are responsive and functional	32	8			4.80	Highly usable
2. The GIS data is typically displayed as a digitized map coordinates using codes are simple and understandable.	30	9		1	4.80	Highly usable
3. The entire system is user friendly.	22	17	1		4.53	Highly usable
4. System operators can use and understand the system without much effort.	23	11	6	0	4.43	Highly usable
5. The system interface or graphical user interface is easy to navigate and that error warnings on wrong entry of data are highly understandable and can be easily responded by any type of users.	24	13	3		4.53	Highly usable
Mean					4.62	Highly usable

Efficiency

A set of attributes that bear on the relationship between the level of performance of the software and the amount of resource used, under stated conditions. A level of performance that describes a process that uses the lowest amount of inputs to create the greatest amount of outputs. It is composed of five (5) descriptors which are measure by a five point scale ranging from "5 – Highly Efficient", "4 – Efficient", "3 – Moderately Efficient", "2 – Less Efficient", and "1 – Not Efficient".

Table 5 reflects the ratings of the software quality factor in terms of its efficiency. It obtained an average mean of 4.52 which means that it is highly efficient since it can readily be accessed and it produces fast results during testing process made by the respondents. Item number 1 which is support on minimum requirements registered a mean of 4.58 or highly efficient which describes that the system can run under minimum software and hardware requirements. Item number 2 which is support on number of users at a time obtained a mean of 4.35 or highly efficient which implies that the system can accommodate multi-users simultaneously since it is a client-server model. Item number 3 which is speed of data capture and retrieval obtained a mean of 4.63 or highly efficient which indicates that the system captures data directly from the database with a high speed. Item number 4 which is speed of navigation and production of outputs obtained a mean of 4.48 or highly efficient which signifies that the system design gives users a speedy navigation to its functions and generates reports quickly. Item number 5 which is compatibility with interfaced devices registered a mean of 4.68 or highly efficient which conveys that the system has no compatibility issues regarding with the Mobile application.

Table 5. Software quality factor: Efficiency

Efficiency	5	4	3	Average weighted value	Descriptive rating
1. Support on minimum requirements	23	17	0	4.58	Highly efficient
2. Support on number of users at a time	17	20	3	4.35	Highly efficient
3. Speed of data capture and retrieval	26	13	1	4.63	Highly efficient
4. Speed of navigation and production of outputs	18	20	2	4.48	Highly efficient
5. Compatibility with interfaced devices	27	12	1	4.68	Highly efficient
Mean				4.52	Highly efficient

Summary of ratings of software quality factors

The summary of the ratings obtained by the system along the quality factors suited for the user's as of functionality, reliability, usability and efficiency, The system was evaluated by ten (10) students from different courses, ten (10) IT professional, two (2) police officer, two (2) Police staff, three (3) fire officer, three (3) hospital admin and ten (10) teachers from different colleges who served as the respondents of this study. The questionnaire utilized in the evaluation was patterned after International Organization for Standardization and International and Electrotechnical Commission (ISO/IEC) 9126-1 Quality Standard Model. The criteria of the software quality factors were included in the evaluation of the instrument together with its corresponding ratings and equivalent descriptions were exemplified. Included in the system testing and evaluation were the following: (1) to define what a system is supposed to accomplish, (2) how the system perform its required functions, (3) determine the amount of resources used during the development and implementation of the system and (4) the speed of the system to respond on the user using the computer system.

The results obtained from the software evaluation of the developed software are found in Table 6. It exhibits that item number 1 which is functionality has obtained a mean average of 4.67 which falls under highly functional rating. This means that the usage and manipulation of the system is explicable. Its design is easy to understand to perform its functions and generates precise data without error on the entry of information. Item number 2 which is reliability has acquired a mean average of 4.66 which falls under highly reliable rating. Output reliability makes the system commendable since it operates under minimum software and hardware requirements without having compatibility issues with interfaced devices. For item number 3 which is usability, it gained a mean average of 4.62 which is conveyed as highly usable. This means that the system restores, retrieves and responds inquiries with a very minimal amount of time. Although errors can be tolerable the designed system can able to withstand component failure. Finally, Item number 4 which is efficiency has acquired a mean average of 4.52 which falls under highly efficient rating. Output efficiency makes the system commendable since it operates under minimum software and hardware requirements without having compatibility issues with interfaced devices like the Mobile Phone.

Table 6. Results of the software evaluation

Software quality factors	Mean average	Descriptive rating
Functionality	4.67	Highly functional
Reliability	4.66	Highly reliable
Usability	4.62	Highly usable
Efficiency	4.52	Highly efficiency
Overall Mean	4.62	Highly acceptable

After the test was done, the results were then tabulated. It revealed that the developed system obtained positive responses from the selected users which served as the respondents of the study. The tabulation results arrived at the system's overall mean of 4.65. This means that the system is highly acceptable to the users. The researcher therefore concludes that the developed software is very effective since it meets the requirements and intended functionalities and all the software projects satisfactorily fulfilled the based requirements for correct calculations.

Conclusion

It can be deduced that the software can help in terms of Emergency Dispatch information System by serving as a tool for evidence-based approach to dispatching to any response team. Both the individual work of a dispatcher can greatly be improved using this simple tool. Then the information system automatically retrieves publicly available Seattle Fire incident, vehicle incident and crime to dispatch records in near real-time, stores them in a research database, and sends email notifications based on the content. The system also allows for analysis of trends in calls correlated with keywords in the news and it is used for gathering incident information for integrated capabilities for call handling and dispatching, intelligent mapping, field communications, data reporting and analysis, and application integration of incident report. Moreover, the system is excellent for implementation to increase the City government value and satisfaction to the emergency response team.

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