

Problems faced by staff and patients in Anuradhapura Teaching Hospital due to the existing system and how to overcome those problems

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Abstract: The current situation in Sri Lanka is facing various difficulties for the patients as well as the hospital staff. In the past, due to the Covid-19 virus situation in the country, the patients, as well as the hospital staff, faced various difficulties. This study is based on the current traditional paper-based system's problems and solutions for the problems of Anuradhapura Teaching Hospital, the main hospital in Anuradhapura District, Sri Lanka. Due to this current system, the hospital staff, as well as the patients, are suffering greatly during the Covid-19 season and in the face of this fuel shortage. The information for this study was found through a Google form. And the hospital staff as well as the patients have participated in this study. This study cites 7 main problems in the current system. Compared to other countries, Sri Lanka still does not seem to go beyond traditional practices. But the purpose of the researcher is to find a technical solution to solve the problems. This study mainly studies the current funding issues in the Anuradhapura Hospital and possible solutions from an IT perspective. It is an automated web-based software. The software can solve the existing problems in the system. Also, the researcher has provided

12 features that the web-based software should have. Following these, how to solve the existing problems will be found in this study.

Keywords: Hospital problems in Sri Lanka, patient's problems, healthcare worker's problems, Government hospital.

1. Introduction

Technology has changed the world. Technology has affected education, medication, social life, etc. there are many people in this world that don't like using technology and won't use it only for an important thing. Hospitals have been greatly impacted by technology. But sometimes people use traditional methods and don't want to get away from it. So, The researcher found one problem in Anuradhapura teaching hospital. Anuradhapura teaching hospital doesn't have a proper ward management system. Therefore, patients and healthcare workers are facing many problems. So, Researcher introduce an automated ward management system for Anuradhapura teaching hospital for the cause helping ward speed up their processes. The automated ward management system is a computer-based system that helps manage the information related to patient and their

healthcare. A Ward management system is introduced to solve the complications coming from managing all the papers works of hospitalization with confidentiality. An automated ward management system provides the ability to manage all the paper works in one place, reducing the work of staff in arranging and analyzing the paper works of the patient.

Currently, Sri Lanka faces an economic crisis and Covid-19. There are more problems in the country (fuel problems and electricity problems) Main problem is that due to the existing Covid 19 epidemic and the current situation of the country, patients face many difficulties in choosing a hospital for patients. Also, when choosing a hospital for Covid patients and other patients, it is not possible for patients to determine exactly how many beds they have at home. In our proposed system, we hope to solve these issues as well. Compared to other countries, Sri Lanka still does not seem to go beyond traditional practices. But the purpose of the researcher is to find a technical solution to solve the problems. The grant objectives of this study are to reduce patient time wastage. Reducing staff wastage, reducing paper wastage, and finding solutions to various problems faced by patients and staff. These are the research questions.

1. What are the problems faced by hospital employees and patients in using the traditional system?
2. What are the required features of an automated ward management system?

2. Literature Review

Perhaps Medicine has been greatly impacted by technology. Health information technology (IT), such as computerized physician order entry and electronic health records, has the potential to improve the quality of health care (McCullough et al., 2010). But sometimes this industry uses traditional methods and doesn't want to move away from them. For that reason, the hospital staff and patients seem to face many difficulties.

A. Problems faced by hospital staff and patients in using traditional management systems

Due to a lack of proper data entry and retrieval procedures, the hospital ward system documentation process contains several problems. Overcrowding stressed staff, and delays at specific points of data entry can all lead to decreased dependability and accuracy. Due to weak documentation

processes and overcrowding, drug management and distribution in present hospital ward systems has their own set of problems. These factors can lead to medical malpractice. (Dasanayake et al., 2018).

B. Features of an automated ward management system (solutions)

Consider the position of hospital receptionist. Logging into the database, registering the patient, checking the patient's report, accessing prior records, and editing the patient's records are some of the needs of the receptionist. The nurses will take care of the patient once the registration is completed. The nurse also needs system access to execute a variety of tasks, including gaining access to the database, examining the patient's records, searching for records, allocating the patient to a ward and a bed, and submitting daily health readings. Following that, the doctor must use the system to access the database, examine the patient's report, upload the patient's diagnostic summaries, search the patient's history records, and submit the prescription during the patient's examination. The MySQL database is designed to keep all patient records structured, quickly updated, searchable, and secure to satisfy the following objectives. It has produced a variety of tables for gathering admissions data, drug charts, treatment data, various health factors, and laboratory test results. The patient ID issued by the system is used to link the tables (Dasanayake et al., 2018).

C. New ward management technologies

RFID - The usage of mobile technology, such as radio frequency identification, can aid in the implementation of these ideas (RFID). Smart tags (RFID) and data processing may now be combined into a single integrated system thanks to today's modern technology. RFID is a groundbreaking technology that offers a sophisticated answer to a wide range of business problems, including those in the healthcare industry (Chowdhury and Khosla, no date). The latest ward management tool is use RFID. It can further describe as an RFID-enabled platform for monitoring patients, and ward staff and locating medical equipment forward management. The platform enables real-time monitoring and object tracking, ward statistical reporting, and intelligence and analytics provisions. A unique feature of their proposed platform is that all individuals, including ward staff, are tagged, and constantly monitored for their locations. This enables individual-to-person physical contact in the event of an outbreak and provides an immediate and effective response to reduce the risk of infectious disease in the hospital (Cheng and Kuo, 2016). The researcher does not consider so many technical things in the system he is expected to develop. The reason for this is that the Anuradhapura Hospital does not have the infrastructure to develop so much technology. And because such technologies are still unfamiliar to countries like Sri Lanka. The researcher also pending a degree in information

systems, where he focuses more on analytical skills than technical skills.

BARCODES - Barcode technology is used primarily to identify the patient. Barcodes are used in the hospital for other things. The drug storage system is barcoded. Pharmacy staff uses a scanner to measure the stock level in the ward and then order medications for the ward. Barcodes are stored electronically in the pharmacy, and everything has an ID number. Ordering is done online after someone has counted the stock by hand. (Dawson, Fisher, and Heslop, no date). Although the researcher intends to use the barcode technology in the proposed system only for patient identification, the researcher did not pay attention to that technology, as barcode machines are relatively expensive, and the system is relatively complex. Barcode technology speeds up the process somewhat. But the researcher hopes to identify each patient by a registration number system. Also, the researcher sets up this system only for his final year project.

D. Admission Process of patients

Every patient admitted to the hospital must go through a proper admission procedure. "They can come in by a variety of routes: by ambulance directly to the ward, they can go through the emergency department, it can be an elective or scheduled admission, but there must be an admission procedure." This is where the patient's clinical history begins. The clinical history is regarded as "continuous." Everything you do becomes a part of the record. However, "keeping a paper record is not the most efficient way to discover information; it frequently gets misplaced, and everyone records in a different format." (Dawson, Fisher and Heslop, no date)

As mentioned in the survey mentioned above, since many technical equipment's are not available in Anuradhapura hospital and this software is developed for the final year project of the surveyor, not much technical equipment is used in this system. And solutions have been presented to suit the Anuradhapura Hospital and as per the advice of the staff and patients.

3. Methodology

The qualitative research approach researcher used in this study within a framework of a survey research design. The convenience sampling method technique is used as for sampling technique. The target population of this study was the employees who are working in the Anuradhapura teaching hospital (doctors, nurses, receptionists) and Patients who have gone to Anuradhapura Hospital for treatment. Primary data from this study was gathered through google form via a questionnaire. The researcher captured 52 responses in the Anuradhapura area. People said they all went to the Anuradhapura hospital for different purposes. And one person said he didn't go to the Anuradhapura teaching hospital. Total population of 19

nurses, 3 doctors, one receptionist, and 28 patients who went to treatment and work for Anuradhapura general hospital. The data was collected using employees and patients from various distances in the Anuradhapura area. The third phase is design. And the final phase is testing). The researcher identified the problems regarding the entire system of Anuradhapura teaching hospital. And take the responses of the employees and patients who went to the Anuradhapura general hospital. All the problems who give through the survey are accepted by the employees and the patients. From the patient perspective researcher ask, "Do you face these problems at Anuradhapura Hospital when you go for treatment?". The researcher provides 7 questions regarding the current system. All the facts are accepted by the patients who went to the Anuradhapura general hospital for the treatments. Other than that, from the employee perspective researcher ask, "What are the weaknesses in the existing ward and patient management system?" Researcher provides 7 questions regarding the current system. All the facts are accepted by the employees (nurses, doctors, receptionists) who went to the Anuradhapura general hospital to the work. The researcher provides the solutions regarding the overcome the issues that I mention in the survey. All the solutions are accepted by the employees and the patients who went to the Anuradhapura teaching hospital. The researcher asks, what types of features are required for the proposed system. And researcher provides the features according to his opinions. All features are accepted by the employees and the patients who participated in the survey. The researcher used the rapid application development method for the project. (The first phase is planning. The second phase is requirement gathering.

4	As a receptionist	1	2%
5	Other	0	0

A. What are the problems faced by hospital employees and patients in using the traditional system?

From the employee's perspective - The researcher asked the respondents about 7 problems with their current system. More than 50% of respondents to this survey acknowledged these issues from the employee's perspective. The full result is contained in table 2. Table 2

NO	The limitations of the employee's perspective		
	Respondents	Frequency	Percentage
1	Waste of paper .	23	100%
2	Waste of patients' time.	23	100%
3	Waste of staff time.	23	100%
4	Problems in distribution of medicines in the ward.	15	65.2%
5	Problems in providing a ward bed to the patient after going to the hospital.	19	82.6%
6	Not knowing by the guardian immediately upon discharge.	16	69.6%
7	When a patient dies, his guardian cannot know it immediately.	17	73.9%

4. Results and Findings

Firstly, the researcher mentions the population of the study, Researcher captured 52 responses in the Anuradhapura area. 51 people said they all went to the Anuradhapura hospital for different purposes. And one person said he didn't go to the Anuradhapura teaching hospital. Total population of 19 nurses (37.3%), 3 doctors (5.9%), one receptionist (2%), and 28 patients (54.9%) who went to treatment and work for Anuradhapura general hospital. The highest representation of the population was the patient who went to the treatments in the Anuradhapura teaching hospital. Its percentage is 54.9%. Those percentages and frequency are contained in table 1.

Table 1

NO	Role of the person		
	Respondents	Frequency	Percentage
1	For residential treatment (as a patient)	28	54.9%
2	As a doctor	3	5.9%
3	As a nurse	19	37.3%

Firstly, the researcher considers about the problems faced by the employees who work in the Anuradhapura general hospital by using the entire system. Here the researcher asked the employees to select one or more of the problems they had. Every problem the researcher submitted to the survey was accepted by more than 50% of the employees as a problem they faced while using the entire system. The researcher takes the first issue as "paper wastage". Of the 23 employees who were initially considered in the survey, 23 said they had a problem regarding paper wastage. It is 100% as a percentage. The current system of the hospital is completely paper-based. Therefore, it appears that the waste of paper is at a high value, although it is the opinion of every employee who participated in the survey. The researcher takes the second issue as "patients time wastage". Of the 23 employees who were initially considered in the survey, 23 said they had a problem regarding the patient's time wastage. It is 100% as a percentage. As we all know time is the most important thing for all of us. We all try to reduce time wastage all the time. In the existing paper-based system, patient's time wastage is very high level. All employees said the patient time wastage happens through the existing system. The researcher takes the third issue as

"employees time wastage". Of the 23 employees who were initially considered in the survey, 23 said they had a problem regarding employee time wastage. It is 100% as a percentage. As we all know time is the most important thing for all of us. We all try to reduce time wastage all the time. In the existing paper-based system, employee's time wastage is very high level. All employees said the patient time wastage happens through the existing system. This may be due to repeated entry of some patient data.

The researcher takes the fourth issue as "Problems in the distribution of medicines in the ward.". Of the 23 employees who were initially considered in the survey, 15 said they had a problem with the problems in the distribution of medicines in the ward. It is 65.2% as a percentage. Medicines are the most critical thing in the ward. We must use the medicine in an effective manner in the ward. The researcher takes the fifth issue as "Problems in providing a ward bed to the patient after going to the hospital". Of the 23 employees who were initially considered in the survey, 19 said they had a problem regarding the problems in providing a ward bed to the patient after going to the hospital. It is 82.6% as a percentage. In the current system, some patients must stand in the wards for most of the day. But there are free beds for patients in other wards. The reason for this is that the doctor cannot know the number of patients in the ward before the patient goes to the ward. The researcher takes the sixth issue as "Not knowing the guardian immediately upon discharge". Of the 23 employees who were initially considered in the survey, 16 said they had a problem regarding the problems in not knowing the guardian immediately upon discharge. It is 69.6% as a percentage. It is a very important thing. The researcher takes the seventh issue as "When a patient dies, his guardian cannot know it immediately". Of the 23 employees who were initially considered in the survey, 17 said they had a problem regarding the problems when a patient dies, his guardian cannot know it immediately. It is 63.9% as a percentage.

From the patient's perspective - The researcher asked the respondents about 7 problems with their current system.

NO	The limitations of the patients perspective		
	Respondents	Frequency	Percentage
1	Waste of paper.	26	92.9%
2	Waste of patients' time.	28	100%
3	Waste of staff time.	27	96.4%
4	Problems in the distribution of medicines in the ward.	23	82.1%

More than 50% of respondents to this survey acknowledged

these issues from the employee's perspective. The full result is below (table 3).

Table 3

5	Problems in providing a ward bed to the patient after going to the hospital.	27	96.4%
6	Not knowing the guardian immediately upon discharge.	27	96.4%
7	When a patient dies, his guardian cannot know it immediately.	22	76.6%

As mentioned above, here too all the patients agreed to all the problems. Therefore, it can be clearly said that these problems are present in the existing system. Here, the researcher was also directed to the questions asked by the employees.

B. What are the required features of an automated ward management system?

From the employee's perspective - Researcher, if Anuradhapura Hospital needs an automated ward and patient management system to mitigate the above problems, what features should it include? asked. Below are the responses received there. These responses are from the employee's perspective.

	Respondents	Frequency	Percentage
1	Add patient details	22	95.7%
2	Patients can check their medical history at any time.	19	82.6%
3	Ability to quickly send a message/email to the patient's guardian.	20	87%
4	Ability to check how many beds are empty for patients from home (in Anuradhapura hospital).	17	73.9%
5	Do all the admission procedures using the computer.	19	82.6%
6	Manage all the ward details.	19	82.6%
7	Add, delete, and modify wards.	17	73.9%
8	Manage Account Details.	21	91.3%
9	manage the ward's inventory (medicines inventory).	20	87%
10	Ability to calculate how many beds are available in the ward.	18	78.3%
11	Auto-select the ward for the patients according to the doctor's opinion.	19	82.6%
12	generate the words monthly reports in the specific period.	19	82.6%

responses from the teachers. Firstly, the researcher hope to consider the "can add patient details" feature. It is accepted by the Anuradhapura teaching hospital's employees (95.7%) who participated in the survey. Add all the details means, that if the patient creates the account, he has the ability to enter all the details into the system that is required.

Firstly, the researcher hopes to consider the "patients can check their medical history at any time." feature. It is accepted by the ss teaching hospital's employees (82.6%) who participated in the survey. This is a very useful feature of the system. To enable this feature, the system must be able to include soft copies of the patient's past medical records. And in this questionnaire, the surveyor asked another question from the nurses. That is, "When a patient is hospitalized for a medical condition, can you always make inferences about the patient's past medical history?" Then the response of most of the employees was that it was very hard to get such an understanding. It accepts 78.3% of employees who participate in this survey. This shows that having all the old medical records of the patient is very useful for the doctor and nurse. Thirdly, the researcher hopes to consider the "Ability to quickly send a message/email to the patient's guardian." feature. It is accepted by the Anuradhapura teaching hospital's employees (87%) who participated in the survey. It is very important for the patient and his guardian. Fourthly, the researcher hopes to consider the " Ability to check how

many beds are available for patients from home (in Anuradhapura hospital)." feature. It is accepted by the Anuradhapura teaching hospital's employees (73.9%) who participated in the survey. It is very important for the patient and his guardian. Ability to check how many beds are empty from home (Anuradhapura Hospital) for patients. This feature is very important for the patient. This quality is very important during the last corona season. And due to the current shortage of fuel, it can be said that it is important here. Fifthly, the researcher hopes to consider the " Do all the admission procedures using the computer." feature. It is accepted by the Anuradhapura teaching hospital's employees (82.6%) who participated in the survey. It is very important for the patient and his guardian. It reduces time and paper wastage. And it improves the efficiency of the system. Sixthly, the researcher hopes to consider the " Manage all the ward details." feature. It is accepted by the Anuradhapura teaching hospital's employees (82.6%) who participated in the survey. It also reduces time and paper wastage. And it improves the efficiency of the system. Seventhly, the researcher hopes to consider the " Add, delete, and modify wards." feature. It is accepted by the Anuradhapura teaching hospital's employees (73.9%) who participated in the survey. It also reduces time and paper wastage. And it improves the efficiency of the system. Next, the researcher hopes to consider the " Manage Account Details." feature. It is accepted by the Anuradhapura teaching hospital's employees (91.3%) who participated in the survey. Next, the researcher hopes to consider the " manage the ward's inventory (medicines inventory)." feature. It is accepted by the Anuradhapura teaching hospital's employees (87%) who participated in the survey. All ward has a small medicine inventory. Sometimes they faced very difficult situations of not having a proper management system for the inventory. They can't calculate the entirmedicalne needs of the ward. The next researcher hopes to consider the " Ability to calculate how many beds are available in the ward." feature. It is accepted by the Anuradhapura teaching hospital's employees (78.3%) who participated in the survey. Due to this feature, patients can resolve the discomfort. And this is very important for the doctor in assigning a bed to the patient. Next, researcher to consider the "Auto-select the ward for the patients according to the doctor's opinion." feature. It is accepted by the Anuradhapura teaching hospital's employees (82.6%) who participated in the survey. Due to this feature, patients can resolve the discomfort. And this is very important for the doctor in assigning a bed to the patient.

Lastly, the researchhopeshope to consider the " generate the words monthly reports in the specific period." feature. It is accepted by the Anuradhapura teaching hospital's employees (91.3%) who participated in the survey. It is also helpful for the management team in the Anuradhapura teaching hospital to take a proper decision. As well as inventory reports can be directly used by the account team in the hospital. And it improves the accountability of the

inventory. These are the main features of the proposed automated ward management system for the Anuradhapura teaching hospital.

From the patient's perspective - Researcher, if Anuradhapura Hospital needs an automated ward and patient management system to mitigate the above problems, what features should it include? asked. Below are the responses received there. These responses are from the patient's perspective (table 5).

Table 5

NO	The required features from the employee's perspective		
	Respondents	Frequency	Percentage
1	Add patient details	26	92.9%
2	Patients can check their medical history at any time.	28	100%
3	Ability to quickly send a message/email to the patient's guardian.	28	100%
4	Ability to check how many beds are empty for patients from home (in Anuradhapura hospital).	27	96.4%
5	Do all the admission procedures using the computer.	27	96.4%
6	Manage all the ward details.	27	96.4%
7	Manage Account Details.	27	96.4%
8	Ability to calculate how many beds are available in the ward.	27	96.4%

As mentioned above, only the features that should be included in this system were examined from the patients themselves (employee's perspective). As mentioned above, most of them liked each of those features. Those percentages are shown above. All that was presented by the researcher was accepted by the patients and the employees who went to the Anuradhapura teaching hospital.

The solution from the IT perspective - The solution proposed by the researcher is to create a web application capable of solving the above-mentioned problems and having the above-mentioned features for the Anuradhapura teaching hospital. Researcher hopes to use the following technologies to create the web application. The proposed ward and patient management system were built using ASP.NET 4.5, MVC architecture, and C#.NET programming languages, with Microsoft Visual Studio 2017 used as a development environment. The database server is Microsoft SQL Server 2018.

Asp.net- Asp .Net is a free server-side technology developed by Microsoft. ASP.net decrease the amount of code required to process large and secure applications. It

provides a rich toolbox in the Visual Studio development environment. It has the ability to easily deploy on Windows servers.

HTML- Hyper Text Markup Language is a client-side programming language used by the client to view the contents of a web browser page.

JAVA Script- JavaScript is an object-oriented dynamic language that is used to interact with the client and respond to the client's actions.

CSS- The Cascade styling sheet is used on the client side to format HTML pages and defines how the content of the web page is presented in the browser.

JQuery- JQuery is a JavaScript library that is small and lightweight. The goal of jQuery is to make it easy to utilize JavaScript in web applications.

Bootstrap- Bootstrap is a front-end framework for developing websites quickly and easily. Bootstrap is a framework for creating responsive designs.

This is the proposed solution's floor chart for the process of patient admit discharging that is created by the researcher (fig. 1.).

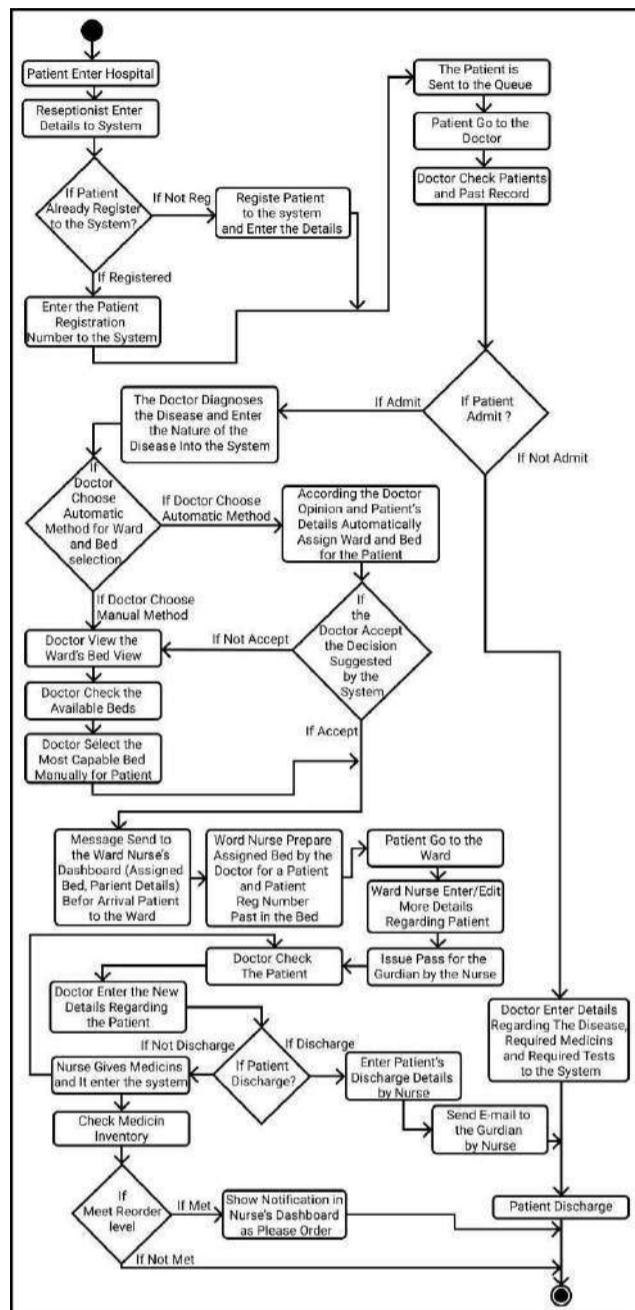


Figure 1. Researcher's main proposed solution process floor chart (The process of the patient admission to discharge in the web application).

The process in other words. Firstly, the patient enters the hospital and the receptionist enters the patient's details. If the patient already registered to the system and enter the patient's registration number into the system. If the patient is already not registered to the system receptionist adds the patient into the system and creates the patient's account. After this step patient adds the queue by the receptionist. After the patient's attempt, the patient goes to the doctor for the treatments. After that Doctor checks the patient and if the patient has past medical records in the system, the doctor also checks the records as well. After doctors must take diction if the patient admits or, not into the hospital. If the doctor's opinion will be not admitted, the doctor enters the details regarding the patient's disease, required medicines,

and required tests into the system that gives to the patient. After allocating the medicines and patient will be discharged. If the doctor thinks the patient must admit it, the doctor diagnoses the disease and enter the nature of the disease into the system. There are two methods that can follow choose for the ward and bed selection for the patient by the doctor. These are the automatic bed selection method and manual bed selection method. The doctor can choose any of that methods. If the doctor chooses the automatic method, according to the doctor's opinion and patient's details automatically assign a ward and bed for the patient. In this phase consider the more things to assign the bed. Those are how many free beds in the words in the ward, the patient's medical condition, and the priority level of the patient (ex- in the critical level person he also add under the high priority level) there are 3 priority levels in the system (high, medium, low). Also, the doctor can ignore the result that recommends through the system. He has the capability to ignore the automatic result and again goes to the manual method. If the doctor chooses the manual method for the bed selection, the doctor can view entire bed views of the hospital and he has the ability to visible how many beds are in the free status. And the doctor can manually assign the bed for the patient after considering the nature of the patient. After the assigned bed for the patient can go to the assigned ward and bed. After assigning the bed to the message sent to the ward nurse's dashboard (assigned bed, patient details) before arrival patient to the ward. And nurse can prepare the bed for the patient and pest the registration number in the bed before arriving the patient in the ward. After the patient arrived at the ward, the nurse take some more details regarding the patient into the system. After this phase ward nurse gives passes to the patient's guardians to come to the ward.

If the doctor comes to the ward round for check the patient, the doctor checks the patient and, the doctor enters the new medical details regarding the patient and required tests and medicines. After the assign the medicines to the patient it automatically reduces the wards inventory (All wards have a small medicine inventory). If one of the medicines is meet reorder level auto-generate the notification to the nurse's dashboard. And she has the ability to send the order to the pharmacist through the system. This all works must do researcher's proposed system. If the doctor decides the patient can discharge doctor can discharge. After the discharge nurse can add the discharge details to the system. End of all procedures automatically sends the email to the patient's guardian by the nurse. This is the researcher's main proposed solution.

In addition, the patient can register the system at the home, and they have the ability to visible how many beds are free in the Anuradhapura teaching hospital. And the system can create the monthly reports in the ward and inventory. While creating this system, we must take care of the security of the system. Therefore, the passwords of all accounts must be encrypted in this system.

5. Conclusion

As the researcher mentions above, Technology has changed the world. Technology has affected education, medication, social life, etc. there are many people in this world that don't like using technology and won't use it only for an important thing. Hospitals have been greatly impacted by technology. But sometimes people use traditional methods and don't want to get away from it. So, the researcher found one problem as it is in Anuradhapura teaching hospital. Anuradhapura teaching hospital doesn't have a proper ward management system. Therefore, patients and healthcare workers are faced many problems. There are so many problems faced to use the existing system. Those are, paper wastage, patient time wastage, staff's time wastage, problems in the distribution of medicines in the ward, problems in providing a ward bed to the patient after going to the hospital, not knowing the guardian immediately upon discharge, when a patient dies, his guardian can't know it immediately. Those are the problems faced by the employees and the patient in the Anuradhapura general hospital by using the existing paperbased system. These were confirmed by the survey participants.

The solution to these problems is to develop a web-based application that can solve the problems mentioned above. Following are the features that this web-based application should have. Those are, can add patient details, Patients can check their medical history at any time, Ability to quickly send a message/email to the patient's guardian, Ability to check how many beds are empty for patients from home (in Anuradhapura hospital), Do all the admission procedures using the computer, Manage all the ward details, Add, delete, and modify wards, Manage Account Details through the system, manage the ward's inventory (medicines inventory), Ability to calculate how many beds are available in the ward, Auto-select the ward for the patients according to the doctor's opinion and, generate the words monthly reports in the specific period. These were confirmed by the survey participants. It is clear that a webbased application with these features will minimize the above problems.

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