International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 2, 2020
ISSN: 1475-7192

INFORMATION SYSTEMS OF DENTAL RESERVATION MANAGEMENT ON DENTAL CLINIC

[1]Ucu Nugraha, [2] Galuh Boga Kuswara

Abstract---*Information systems are very helpful for management performance, management information systems do not always use or need computer equipment in their operations, but in the era of rapid technological development now and demanded information can be presented quickly and accurately, the operational management really needs to be assisted with management information systems that use information technology devices. The iteration method is used as a method in developing this system, and the PIECES framework is used to categorize the problems that are found according to the needs of the community. The results of this study are in the form of a management information system that is able to manage clinical information quickly and precisely, as well as the information generated can be more accurate, and managers can more easily control the information system contained in the clinic.*

Keywords---*management information systems, dental clinics, pieces, iterations*

I. Introduction

Information in a company is very important to support the continuity of its development, as well as blood flowing in the human body, so that there is a statement that information is needed for a company. As a result, if the company lacks information in a certain amount of time, the company will experience an inability to control the resources that will adversely affect the company. Management information system is described as a pyramid building where the basic layer consists of information, transaction explanation, status explanation and so on. Management information systems that have evolved have caused significant changes in the pattern of decision making by management both at the operational level (technical implementers) and leaders at all levels. This development has also caused changes in the role of managers in decision making, they are required to always be able to obtain information that is not only the most accurate and current, but also fast and precise, which information can be used in the decision making process.In many cases it is seen as a system of information systems consisting of people, equipment and procedures for collecting, organizing, analyzing, assessing and disseminating information in a timely manner to the recipient of the decision or as a computer system that can collect, process and report data from various sources to provide information needed in the process of making management decisions. Moreover, services that have so far been using the conventional system, all patients who will examine their teeth or seek treatment, still register directly in the registration section. Problems arose not only with long queues which resulted in many patients having to go back to get examination services in the future, but in terms of

[1]Faculty of Engineering, [2]Faculty of Business and Management
Widyatama University
E-mail: [1] ucu.nugraha@widyatama.ac.id, [2] galuh.kuswara@widyatama.ac.id

management the lack of orderly registration files and medical records of patients, which resulted in the slow presentation of information and impact on the slow decision-making [5].

II. Methodology

PIECES framework:

Stages of analysts carried out on the existing system (the system running) about the problem and the causes of the problem and the effects of the problem. To find out the existing problems, an analysis was carried out using the PIEC-ES framework. PIECES itself stands for Performance, Information, Economics, Control, Efficiency, Service. This PIECES has six parts, from each of the six sections a check list is made, each check list in the part that according to its name will raise a problem. Following is an explanation of each of the PIECES sections:

1. Performance (P) = Throughput, response time (system performance).
2. Information (I) = Outputs, inputs, data storage (information presented).
3. Economic (E) = Costs, benefits (benefits achieved).
4. Control (C) = Security (system security).
5. Efficiency (E) = People, users, machines (efficiency of people and processes).
6. Service (S) = Service provided.

Iteration Method

1. Planning Phase

   The phase used as an initial stage in determining the methodology to be used, as well as making a research schedule. The techniques used are interviews, observation and literature.
2. The Problem Analysis

   This phase studies the existing system and analyse the problems contained in the system so as to produce a problem solving that can be used as a guide for developing applications.
3. Design phase

   The phase of designing a new system so that existing problems in the old system can be overcome and anticipated the possibility of the same error in the future.
4. Implementation Phase

   The making phase of the development of Android mobile based systems is based on the analysis and design that has been done.
5. Maintenance Phase

   In this phase improvements are made if a bug occurs in the application when the user uses this application.

III. Result and Discussion

The PIECES framework is used to categorize the problems found in accordance with the needs of management and users in this case the patient. The results of the PIECES analysis of the current system, as follows:

1. Performance.

Response time:

Registration of patient registration must go to the registration section. Patients are required to come directly to the registration to register the examination schedule.

Throughput:

The response time is not good so it results in less than optimal performance of the registration department, and is not effective for patients.

2. Information.

Outputs:

To find out the number of patients who have registered and treatment, management must record conventionally by opening the available file. The impact of the information presented is less accurate and requires quite a long time.

Inputs:

The available data is sometimes invalid, and files are scattered everywhere.c. Stored DataData storage media is not well organized and correct.

3. Economics

The many uses of paper and photocopying so that it requires a lot of money and space.

4. Control

The process of storing, changing, and deleting data is easily controlled, and the data is protected because the data is stored centrally on the server.

5. Efficiency

Patients who will seek treatment always must come first to determine the time of examination. The management also processes data conventionally which takes a long time.6. ServiceService to patients is not optimal, because if on that day there are many registers, then the patient must go home and come back the next day.

The following are recommendations or solutions provided, this recommendation is expected to resolve the problem. There are also these recommendations as in the table below.

1. Performance.

Response time:

Patient registration records are recorded and stored in a database.

Throughput:

Patients can register anytime and anywhere, without having to go to the registration.

2. Information.

Outputs:

Data processing through the system and the presentation of information more quickly and accurately.

Inputs:

All patient data and patient history are stored in a database. Stored Data:

Data storage is managed in an organized manner, so there is no duplication or redundancy of data.

3. Economics

   Save paper and storage media.

4. Control

   With the proposed system, data integrity will be guaranteed, and data changes that occur will be easily controlled and controlled, because the data is stored on the server.

5. Efficiency

   The proposed system will have an impact on saving patient time to register, and saving management time in data management.

6. Service

   Services for patients are more maximal and effective, because patients can register and book online.

The following application is based on Android mobile to help the performance of management information systems in dental clinics.

Login Module:

This booking management reservation system aims to manage the data of patients who place an order using the android application. Therefore an authorization is needed to prevent fictitious bookings. Next is the login page for Android applications.

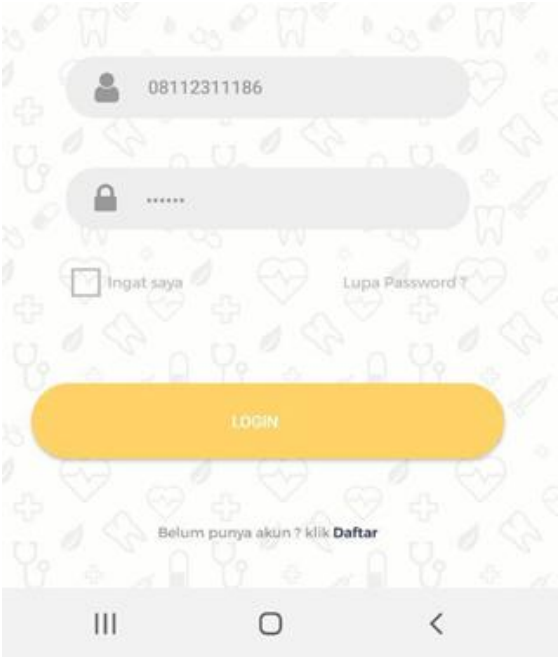

Figure 1: patient login interface

The login page contains a form for patients who have registered accounts to be able to log in to the application. Patients who will make a doctor's reservation require the first login by filling in the mobile number and password that was previously filled in during the registration process. On the login page, users can access the Forgot Password and New account Registration features.

Registration Module:

This booking management reservation system requires prospective users who will use the online reservation facility via the Android application to register their data for reservation interests. This module contains data input that requires potential users to fill in data information in accordance with the form provided on the registration screen. This registration display requires prospective users to fill in data such as full name, date of birth, blood type, email, cellphone number, address, and password which will be used to log in to the reservation system. Next, display an advance tar for registration.

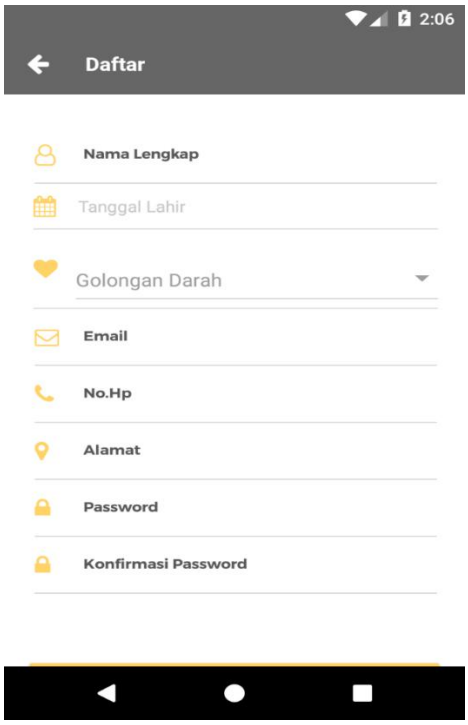

Figure 2: registration interface

The registration page contains general information that must be filled in by potential users. Furthermore, the data will be stored for the benefit of the existing database in the reservation management system. The data will be processed henceforth will be the account holder's personal data information. In the registration column, cellphone number, e-mail address and

password are required data fields. Phone number and e-mail will be used as a means of notifying information about the reservation and as the data required when the registrant will access the application.

Forgot Password Module:

Not a few account holders in most application systems do not remember passwords that have been previously registered. Therefore, this module is a standard feature to allow account users to request a new password because it does not remember the password that was previously registered. Next is the display for the forgotten password interface.

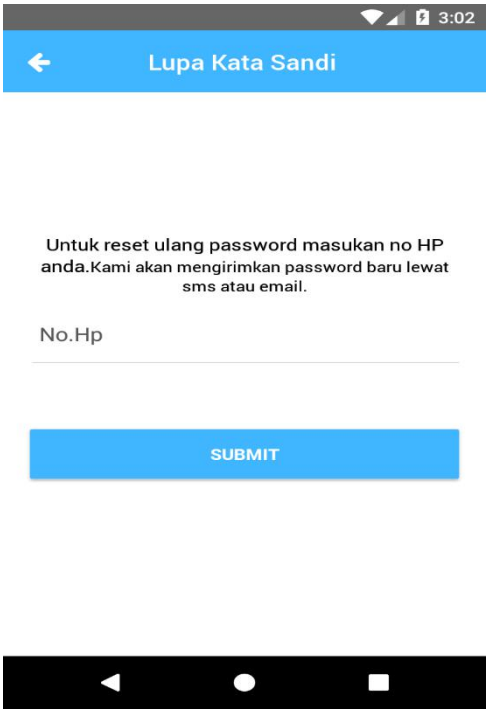

Figure 3: Forgot password interface

The forgot password page is a feature in the application. This feature allows the user to retrieve a new password when the user does not remember the old password. Displaying the forgotten password interface requires the user to enter the mobile number as a required data entry when the user wants to recover the old password with the new one. After the mobile number is input by the user, the system will process and match the data with the existing data in the system database. Then the system will search for data according to the cellphone number inputted by the user. If the data is validated, the new password will be sent via SMS to the registered mobile number and e-mail that was previously registered.

Homepage Module:

After the user logs in and enters their mobile number and password in accordance with the data in the system database, the application will then display the homepage interface which is the initial display of the Dental clinic's booking booking system application. On this page there is a variety of information ranging from promo information, information about Dental clinics ranging from clinical services, about clinics, list of doctors, make appointments, galleries, locations, how to register, testimonials and customer help columns. The following is the interface of the home page.

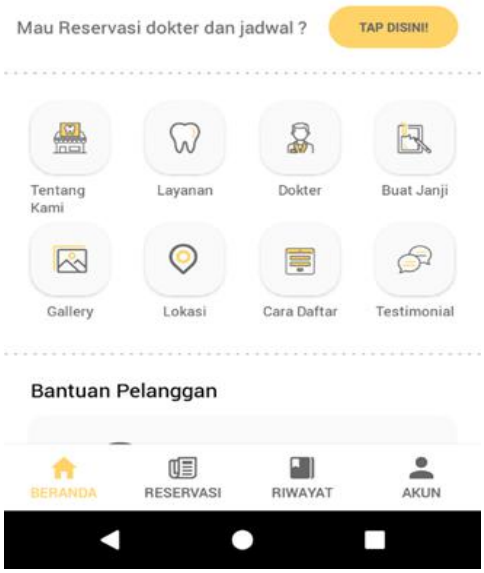

Figure 4: homepage interface

The home page contains all the services available on the Dental clinic booking management reservation application. The main service that is at the core of making this application system is to allow users to make an appointment with a doctor at the Dental clinic. All information about the clinic is presented in this page. Each menu presents information that suits the user's needs starting from service info, doctor info and how to register. This list listing method explains how the reservation procedure is, starting from how to book and how to confirm booking.

Reservation Module:

This module contains all the data about the reservation that has been done by the user which will then be followed up by the user to confirm whether the user will come to the clinic or cancel the reservation. The following is the interface of the reservation module.

Figure 5: reservation interface

On this page, users can see all the reservations that have been made. The next one must be confirmed by the user whether the reservation will be continued or canceled. Give me a display interface to confirm arrival.

History Module:

Every reservation transaction made by the user from the beginning of the use of the application to the present, reservation history data will always be stored in the Dental clinic booking reservation management database system. Historical data is very important to know the statistics of user reservation data starting from the number of times a user makes a reservation, and the number of times a user cancels a reservation. Next is the display interface from the reservation page.

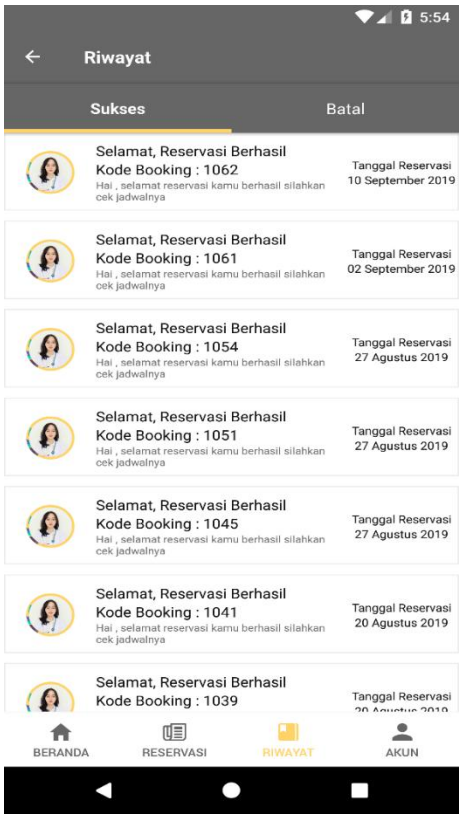

Figure 6: history interface

In this history interface, there are 2 tabs that contain a history of successful and null data. Every data in the history interface is in accordance with the reservation made by the user.

Account Module:

Information about the account holder will be displayed in this account module. The information displayed in this account module is information related to the personal information of the account owner itself. The intended information is information that was previously filled in at the time of registration. Starting from full name, address, cellphone number, e-mail. Next is the interface of the account module.

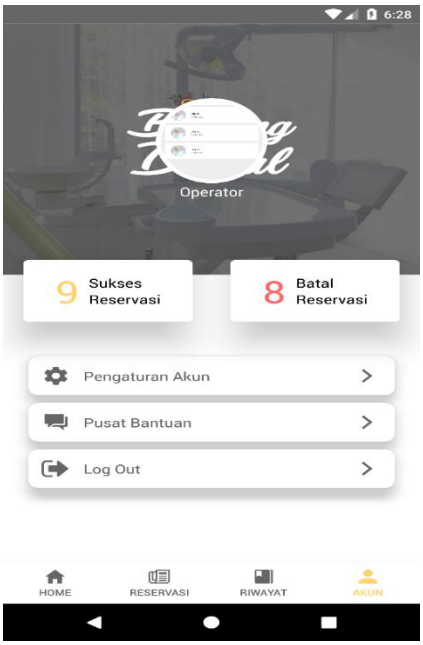

Figure 7: account interface

In this account module there is a sub module, only the account settings module which contains account information and user passwords.

Booking Module:

The booking module is the most important module of the Dental clinic's reservation application. Only users who have registered can make a reservation using this application. The reservation stage starts from the user logging in to the next application, selecting the "Reservation" button, which is prominently designed on the home page, aims to attract the user's attention to make a reservation. After selecting the reservation button, the user will be directed to select the desired reservation date. Next display interface select date and time.

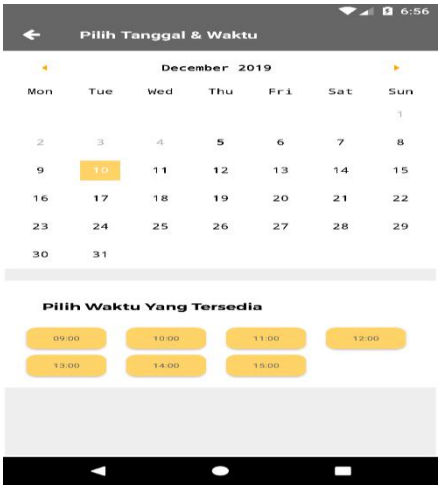

Figure 8: booking interface

Users are required to choose the day according to the doctor's practice schedule. After the user selects a schedule, the application will display the available time options for the day and date. Users are required to choose one of the available time. After selecting the available time, the application will then direct the user to the doctor list interface.

IV. Conclusion

From the results of the analysis using the PIECES framework it can be concluded:

1. The current state of the system is known, whether it supports management needs or not.
2. Can provide appropriate recommendations for improving the system that is running.

REFERENCES

[1] Berisha A., Management Information System and Decision-Making. Academic Journal of Interdisciplinary Studies., Rome-Italy. 2015.
[2] Bernandes D., Sistem Informasi Manajemen pada PT. Bintang Selatan Agung. STMIK GI MDP Palembang.
[3] James O.Hicks,Jr - Management Information System (Third edition , Virginia Polytechnic Institute and State University), 2003.
[4] Suparyanto. Pengelolaan data Kemiskinan di Indonesia dari Tahun Ketahun. Jakarta: Fatmawati, 2011.
[5] Whitten JL, Bentley LD. Systems Analysis and Design Methods 7 th Edition, New York: McGraw Hill Companies 2007.