RESEARCH ARTICLE   OPEN ACCESS

Application Point Of Sales EATMORE Using Scrum Based On Website And Mobile (Case Study : Rumah Makan Pulen Bandung)

Irma Karmila*, Chempaka Lutfia D**, Melda Citra A K S***,
Hendra Prastiawan, S.SI, MT. ****

*(Computer Science Faculty, Universitas Mercu Buana, and Jakarta)
** (Computer Science Faculty, Universitas Mercu Buana, and Jakarta)
*** (Computer Science Faculty, Universitas Mercu Buana, and Jakarta)
**** (Computer Science Faculty, Universitas Mercu Buana, and Jakarta)

--------------------------------------************************--------------------------------

Abstract:

Rumah Makan Pulen is a restaurant that provides all types of Sundanese food. The business process in this restaurant is still with traditional methods, such as writing customer orders and making transaction notes still with paper and pencil, making financial reports that are still done by checking transaction notes one by one, monitoring raw material stocks based solely on remaining raw materials in the kitchen . Because of these problems, the restaurant requires an application system such as Point of Sales that not only helps payment transactions but also can help management in terms of service, writing and monitoring. The methodology used to design this system is a method that uses the SCRUM framework, such as: collecting system requirements from restaurants and giving priority to the needs of the system in order to find out which are the top priorities. The purpose of the research at Rumah Makan Pulen is to see how important a system is to help restaurant management.

Keywords: Restaurant, Point of Sales, SCRUM

Keywords — **Restaurant, Point of Sales, SCRUM**

--------------------------------------************************------------------------------

I. INTRODUCTION

Point of Sales (POS) system is an information system designed and built to record sales transactions and process data at Rumah Makan Pulen to help run operations and speed up the service process starting from the order process, payment, service and management can be improved [1] . Initially, Point Of Sales (POS) was the point of sale (check-out) where the transaction was completed, identical to the place (check-out counter) with the cash register (Cash Register). As the name implies is the point where the customer makes a payment for goods or services, and the seller will issue a receipt for the purchase transaction.

Like case at Rumah Makan Pulen Bandung, in its operations it still uses traditional methods, namely by recording every transaction made into books and notes. Based on observations, interviews with owners and employees, and distributing questionnaires to customers at Rumah Makan Pulen, problems were found such as waiters who were still recording orders in notes, errors in presenting customer orders, each payment transaction had to be re-copied into a special book, until processing reports that take longer because they have to be reconciled with the data contained in the special book operational at Rumah Makan Pulen. Evidence of transactions is also used in monitoring raw material stocks in restaurants.

So based on the problems that arise, it is necessary to design and build a POS Application for the operational management of Rumah Makan Pulen. With the POS application, customers can order the menu without worrying about an error in ordering, the waiter can work more optimally even though the conditions were crowded, the cashier does not need to be recorded again every payment made, the owner is also able to monitor every transaction that occurs, and monitor the stock material standard and get the required reports quickly and more accurately. Management of raw material stocks requires considerable time and requires people who have performance in management [2].

Services must be improved to achieve customer satisfaction. Customers are the top priority in every business because of the large number of customers, there will be more revenue. Customers who are satisfied with Pulen Restaurant service will show an attitude that will maintain relationships such as giving contacts, giving feedback, willing to receive information provided by Rumah Makan Pulen [3].

II. METHOD

Flow of the implementation of this research is as follows:
- Observation and analysis of system requirements
- System design (UML)
- Making the system (SCRUM model)

This research was conducted by distributing questionnaires to 60 customers, interviewing restaurant staff as many as 3 people, and observing at Rumah Makan Pulen for two days. System design using UML to simplify complex problems so that they are easier to understand. For the system development, use the SCRUM model.

A. Analysis Method

- The method used is the development method using SCRUM. Scrum is a framework for developing software more understandable. Unlike software development methodologies that only focus on processes. As a framework,

Scrum gives emphasis to the people who work in it as the best software that will be generated by individuals who are best [4].
- Scrum is not a process or technique for making products, but a framework for implementing various processes and techniques. Scrum helps improve processes because the effectiveness of product development practices and project management is clearly evident [5]. The Scrum model has the following stages [6]:
    1. Making a product backlog:
       In this section, what are the group activities for solving existing problems with priorities and estimation of the work time of making the system.
    2. Make a sprint backlog
       From the product backlog, it is explained what tasks and users are in the part of the system.
    3. Do scrum meetings
       Performed routinely to evaluate what has been done, obstacles and completion targets for the next meeting material.
- In making mobile, React Native is used as a Javascript framework that is used to create native applications that are capable of running on Android and iOS platforms. This framework is based on React JS. With React Native the journey of each process is faster, page views are more natural and original, each process takes a while which can be used on older devices because react native has lower memory and CPU resources [7].

B. Related research
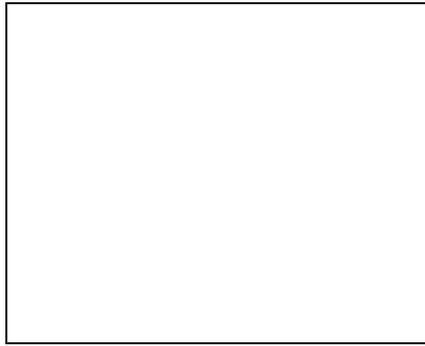
Fig 1. Research Venn Diagram

In this research [1] the problem discussed was to make it easier for customers to order menus without having to queue up and wait for the waiter to be busy with other customers. The method used is Rapid Application Development (RAD). The results of this study were developed using web technology by utilizing Cordova framework as cross-platform and iconic framework. Both frameworks can build applications quickly and well. This application is also integrated with each other in the ordering system from web admin with orders from customers [8].

In the research [2] the problem discussed was an information system that needed relatively long time and monitoring that still used forms, paper, books and spreadsheets. The method used is by using the SCRUM framework. The results of this study the application of the SCRUM methodology can produce inventory control equipment and chemical cleaning monitoring applications that facilitate the area (branch office) in carrying out the process of goods demand, assisting the logistics division in managing and controlling inventory and supporting leadership activities in monitoring inventory. [6] .

In our research, the problems discussed in this study wanted to help management who had difficulty serving customers who were too long to wait to order, management that could not manage inventory, fraudulent payment systems occurred. So from these problems we made an application that made it easier on the part of the customer and also the restaurant management. From the two studies that we compare above, we conclude to use the SCRUM method which will help in terms of time speed because it anticipates changes that occur during the application development process. The

expected results will be in the form of facilitating the management and customers.

III. THE RESULT AND DISCUSSION

A. Usecase Diagram Design

In the design diagram for the construction of this system, determined three actors who will have an important role, namely cashier, customer and admin.

B. Activity Diagram Design

Activity diagram is a diagram that describes the system based on Use case diagram [9]. The following activity diagram in this study:

- Activity diagram to manage ordering menus on the spot
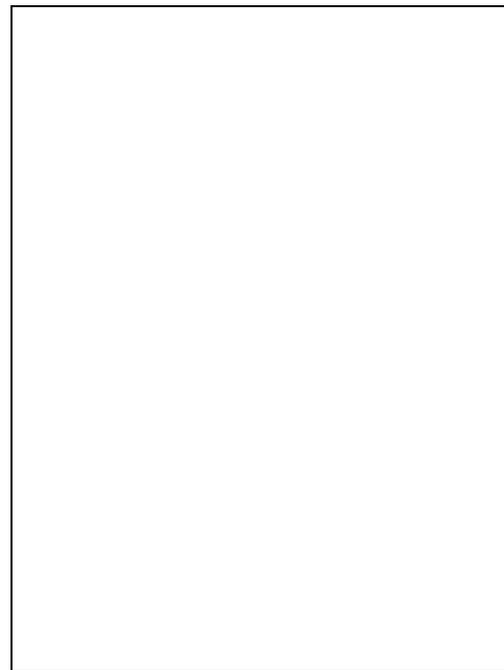
Fig 2. Activity Diagram Order On The Spot

- Activity diagram manage raw materials

Fig 3. Activity Diagram Management of raw materials

No	Backlog Item	Prioritas	Estimasi (Jam)
3	Mengelola tax dan gratuity	Tinggi	24
4	Mengelola data menu dan harga	Sangat Tinggi	105
5	Mengelola bahan baku	Sangat Tinggi	120
6	Mengelola data pesanan pelanggan	Sangat tinggi	64
7	Mengelola data transaksi	Sangat tinggi	76
8	Monitoring data cabang restoran	Tinggi	20
9	Mengelola data admin	Tinggi	20
10	Monitoring bahan baku	Tinggi	60
11	Monitoring data pesanan pelanggan	Tinggi	90
12	Monitoring data transaksi	Tinggi	95
			720 jam

Tab 1. Product Backlog

C. The Stage Of The Scrum Model

Of the problems that exist, a POS (Point of Sales) application is designed that not only helps in financial transactions, but helps in management in restaurants. Determine Product Backlog

The product backlog made in this study is based on requirements (requirements of the system) both functional and non functional which are obtained from the analysis of business processes based on the results of interviews, observation and distribution of questionnaires. Requirements are made as a backlog of items and given priority levels with very high and high scales that will be used to determine which requirements are more important than other requirements and also to determine priorities in the process in the later sprint phase. Furthermore, the item backlog is added to the product backlog and given an estimated time (in hours) by the development team.

| No	Backlog Item	Prioritas	Estimasi (Jam)
1	Mengelola data cabang restoran	Tinggi	22
2	Mengelola data admin	Tinggi	24

The table shows the estimated time period for solving the problem, which is 720 hours or 30 days.

1. Designing a sprint backlog

In this phase a breakdown backlog is carried out in the table above to become the project completion time period. There are 12 sprints to do, including:

A. Sprint 1

Tab 2. Sprint 1

In sprint 1 has 2 tasks with a total estimated time of 36 hours. The Product Backlog is focused on managing raw materials.

B. Sprint 2

Tab 3. Sprint 2

Sprint 2 has 5 tasks with a total estimated time of 84 hours. In product backlog this is focused on managing order data.

C. Sprint 3

Tab 4. Sprint 3

In sprint 3 consists of 3 tasks and has a total estimated time of 56 hours. This integration is intended for making transaction and financial reports in a system.

D. Sprint 4
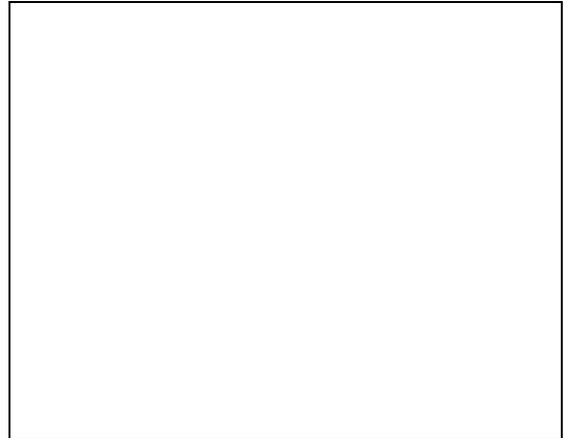
Tab 5. Sprint 4

In Sprint 4 consists of 4 tasks and has a total estimated time of 60 hours.

E. Sprint 5
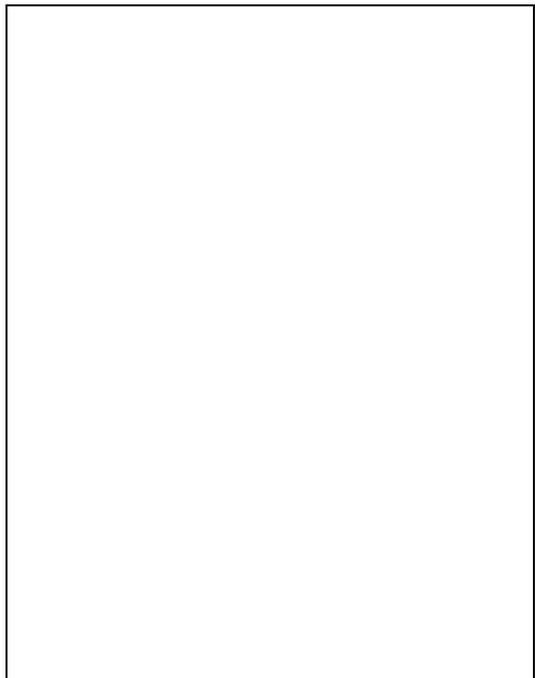
Tab 6. Sprint 5

In sprint 5 consists of 7 tasks and has a total estimated time of 75 hours

F. Sprint 6
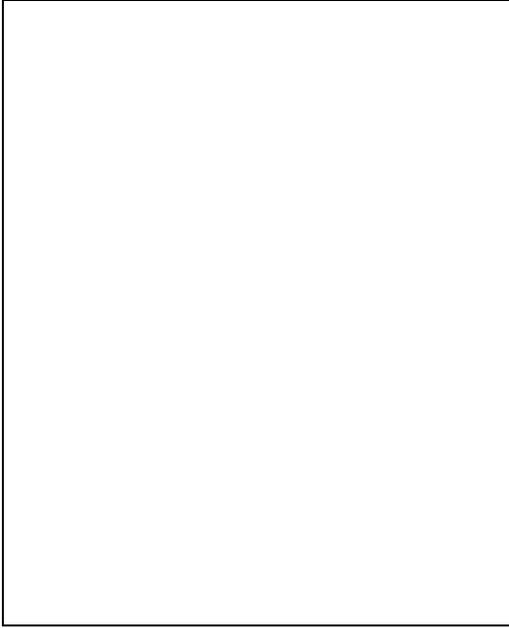
Tab 7. Sprint 6

In Sprint 6 consists of 7 tasks and has a total estimated time of 80 hours.

2. Scrum meeting

Scrum meetings or regular meetings that are conducted every day to evaluate what is done, the obstacles that exist, and the completion target for the next meeting material.

3. Demo

Furthermore, the client application on the demo for an evaluation.

IV. CONCLUSIONS AND SUGGESTION

A. Conclusions

The conclusions from this research :

1. This application is designed web-based and mobile.
2. Submission of information is done with the system.
3. The total payment can be seen in real time before the purchase is complete.
4. Orders are made directly in the application

5. Insert the stock of raw materials and automatically add stock of purchases
6. Customers are given the opportunity to provide feedback for the progress of the restaurant.
7. The system serves to order menu and delivery order menu.

B. Suggestion

From the conclusions that have been collected, there are some suggestions that could be the following:

1. Add an additional ring button feature to call the waiter
2. Provide a display of promotional information.
3. It is better to deliver delivery using maps so that delivery is accurate and fast.

ACKNOWLEDGMENT

REFERENCES

[1] S. C. Cahyodi, R. W. Arifin, and K. Kunci, "Sistem Informasi Point Of Sales Berbasis Web Pada Colony Amaranta Bekasi," *Mei Rev. Mei*, vol. 1, no. 12, pp. 189–204, 2017.

[2] A. Nugroho and N. Septafianti, "Aplikasi Monitoring Pengadaan Barang / Jasa Pada Direktorat Penilaian Keamanan Pangan Badan POM RI," vol. 6, pp. 39–55, 2016.

[3] J. I. Manajemen and V. Viii, "Setiawan et al., 50 – 72 MIX: Jurnal Ilmiah Manajemen, Volume VIII, No. 1, Feb 2018," vol. VIII, no. 1, pp. 50–72, 2018.

[4] J. Partologi, *Manajemen modern dengan SCRUM*. Yogyakarta: ANDI, 2015.

[5] J. Sutherland, SCRUM : Meningkatkan Produktivitas Dua Kali Lipat dalam Waktu Setengahnya Saja. Yogyakarta: BENTANG, 2017.

[6] M. A. Firdaus, D. R. Indah, and I.- -, "Penerapan Scrum Agile Development Dalam Pengembangan Sistem Informasi Monitoring Mahasiswa Bidikmisi Berbasis Web (Studi Kasus Di Universitas Sriwijaya)," *Kntia*, vol. 4, no. 1, pp. 31–36, 2018.

[7] D. Wijonarko and R. F. Aji, "Perbandingan Phonegap Dan React Native Sebagai," vol. 1, no. 2, pp. 1–7, 2018.

[8] A. A. E. S. Jos Forman, Tompoh, Steven R. Sentinuwo, "Rancang Bangun Aplikasi Pemesanan Menu Makanan Restoran Berbasis Android," vol. 9, no. 1, pp. 1–9, 2016.

[9] D. Rubiyanto, D. Diaty, and Allwar, "Crude clove bud oil (CBO) quality improvement by bentonite adsorption process in flow system," *AIP Conf. Proc.*, vol. 1823, no. 1, pp. 24–44, 2017.