

CHAPTER I

INTRODUCTION

1.1. Background

Modern life demands rapid development of information and communication technology, which has now touched various industry sectors, including the entertainment and Electronic Sports (E-Sports) sector. One form of entertainment that still enjoys high public interest is video game console rental, or PlayStation (PS) rental. As micro and small enterprises (MSEs) that continue to grow, PlayStation rental businesses are required to provide excellent service and manage their operations effectively and efficiently to maintain customer loyalty and maximize profit.

In practice, the operational and service systems of most PlayStation rental businesses still use conventional methods. Customers who want to play must come directly to the location to check the availability of TV and console units. This often creates problems when the rental venue is busy, as customers who have already arrived are forced to wait a long time or leave disappointed because there are no available time slots or empty units. The absence of an information medium that displays real-time unit availability status causes time inefficiencies for customers and may reduce their satisfaction with the venue's service.

On the other hand, from the perspective of internal management or the operator, PlayStation rental businesses generally do not only rent out gaming devices, but also sell food and light beverages (F&B) products such as instant noodles, snacks, and various drinks. Currently, the recording of sales transactions for these items, along with warehouse stock data (incoming and outgoing goods), is still largely recorded manually using a ledger book. This manual process is prone to human error, discrepancies between physical counts and records, and difficulty for business owners in monitoring daily remaining stock and evaluating which products sell the best.

An information system is a system in an organization that brings together the needs of daily transaction processing, which supports managerial organizational functions in the strategic activities of an organization to be able to provide certain external parties with the necessary reports [1]. An information system is a system in an organization that brings together the needs of daily transaction processing, assists and supports operational activities, is managerial of an organization, and helps facilitate the provision of necessary reports [2].

Based on the problems that have been described, a computerized and integrated operational system update is needed. The proposed approach is to build a web-based information system that includes two main functions: a booking system and a point *of sales system*. Through this system, customers can visually see the availability of units and schedules through *the website* (similar to the cinema seat selection system), thus making the reservation process easier. Meanwhile, on the manager side (*admin/cashier*), this system is equipped with *an inventory data collection feature* to monitor the remaining stock of goods, recording incoming goods from *suppliers*, and data collection of outgoing goods that are integrated directly every time a purchase transaction occurs by customers.

In addition to focusing on the quality of customer service, the aspect of internal control related to inventory is also a crucial pillar in the sustainability of business operations. The management of food and beverage stock data that is not integrated with cashier transactions often results in *stockout* (empty goods) or untracked depreciation of goods (*shrinkage*). An ideal *Point of Sales* (POS) system not only functions as a payment recording machine, but also automatically updates inventory data in the warehouse every time a transaction occurs.

Therefore, the author is interested in raising this issue into a thesis research entitled: “Integrated Web-Based PlayStation Rental Management Information System with Reservation Management, Point of Sales (POS), and Analytics Dashboard.” This system is expected to be a solution to improve service quality for customers while making it easier for business owners to manage inventory and transaction recapitulation accurately and in real time.

The existence of online ordering facilities has a significant impact on improving the quality of the user experience. A transparent reservation system—

where customers can view visualizations of schedule and device availability in real-time—reduces physical queues and optimizes time utilization for customers. According to Laudon and Laudon [3], the implementation of information systems in core business processes not only speeds up service response times but also creates a competitive advantage for companies in maintaining customer loyalty.

Furthermore, the use of a computerized and integrated inventory information system has proven able to increase the accuracy of incoming and outgoing goods data, and minimize errors caused by human factors (human error). A good system will produce accurate daily recapitulations, thereby helping management or business owners in making strategic decisions, such as determining the reorder point schedule to suppliers and analyzing products with the fastest turnover.

The choice of a web-based architecture for this integrated system is also considered very appropriate because it offers high accessibility; business owners can monitor stock movement and revenue reports from anywhere and at any time in real time without having to be present at the business location.

1.2. Problem Statements

Based on the background described above, the author formulates the following problem statements:

1. How to design and build a web-based PlayStation rental information system that allows customers to see the availability of schedules and units visually and *in real-time*?
2. How to integrate the booking feature with the cashier system (*Point of Sales*) for the management of rental and sales transactions for *Food and Beverage* (F&B) products?
3. How to design an inventory data recapitulation system, so that the amount of stock (incoming and outgoing) can be updated automatically every time a sales transaction occurs at the cashier?

1.3. Research Objectives

In line with the problem formulation above, the objectives of this research are:

1. To produce a web-based PlayStation rental information system equipped with a unit-availability layout visualization feature to make it easier for customers to make bookings.
2. To build a Point of Sales (POS) system integrated with the rental module, so that the admin or cashier can manage all transactions (PS rental and F&B sales) in a single point of entry.
3. To implement an inventory management function capable of automatically deducting stock (auto-deduct) and recording the history of incoming/outgoing goods to minimize recording errors and data manipulation.

1.4. Research Benefits

This research is expected to provide practical and theoretical benefits, which are described as follows:

1.4.1. For Customers:

- Providing convenience and time efficiency in booking play schedules without having to come directly to the location.
- Provide certainty regarding the availability of PlayStation units through the real-time schedule visualization feature, thus increasing satisfaction and comfort.

1.4.2. For Rental Business Managers and Owners:

- Operational Efficiency: Makes it easier for cashiers/admins to manage customer rental schedules so that there are no schedule clashes (*double booking*).
- Transaction & Inventory Accuracy: Helps record daily cashier transactions and minimizes the risk of warehouse stock differences (food/beverages) due to *human error* from manual recording.
- Business Monitoring: Makes it easier for business owners to monitor monthly gross income reports and inventory turnover from anywhere through a web-based system dashboard.

1.4.3. For Researchers (Authors):

- Apply and practice the knowledge of Software Engineering, Databases, and Information Systems that have been learned during the lecture period into real case studies.
- Gain experience in designing an integrated system that combines reservation logic (time booking) and inventory accounting (POS) logic.

1.4.4. For Academics and Subsequent Researchers

It can be used as additional literature or reference for students of the Information Systems or Informatics Engineering Study Program who want to research and develop similar information systems in the future.