

## IMPLEMENTATION OF THE FAST METHOD IN A WEB-BASED INVENTORY INFORMATION SYSTEM

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**Abstract:** The development of information technology has significantly impacted the efficiency and effectiveness of information system management, including inventory management. This research aims to implement the Features from Accelerated Segment Test (FAST) method in a web-based Inventory Information System to increase the speed of object detection and recognition in the stock monitoring process. The system development method in this research uses the Framework for the Application of System Thinking (FAST) which consists of 7 development phases. The FAST method helps ensure that the objectives are clear, specific, and achievable, ultimately leading to a more efficient and effective system. Implementing of this method in the web-based Inventory Information System is expected to provide faster and more accurate results in identifying stock changes, thereby minimizing the risk of shortages or excess inventory. Users can easily access real-time stock information via a responsive web interface. The system performance evaluation's findings demonstrate that the FAST approach can speed up object detection, which benefits inventory management. Implementing the FAST method in a web-based inventory information system can bring many strategic and operational benefits and is expected to significantly increase the efficiency and accuracy of inventory management in an increasingly competitive market.

**Keywords:** FAST method; inventory; UML; website

**Abstrak:** Perkembangan teknologi informasi telah memberikan dampak besar terhadap efisiensi dan efektivitas pengelolaan sistem informasi, termasuk dalam hal manajemen persediaan barang. Penelitian ini bertujuan untuk mengimplementasikan metode FAST pada Sistem Informasi inventaris berbasis web guna meningkatkan kecepatan deteksi dan pengenalan objek pada proses monitoring stok barang. Metode pengembangan sistem menggunakan Framework for the Application of System Thinking (FAST) yang terdiri dari 7 fase pengembangan. Metode FAST membantu memastikan bahwa tujuan jelas, spesifik, dan dapat dicapai, yang pada akhirnya menghasilkan sistem yang efisien dan efektif. Implementasi metode ini pada aplikasi inventaris berbasis web diharapkan bisa membagikan hasil lebih cepat dan akurat mengidentifikasi perubahan stok barang, sehingga meminimalkan risiko kekurangan atau kelebihan persediaan. Pengguna dapat dengan mudah mengakses informasi stok barang secara real-time melalui antarmuka web yang responsif. Hasil evaluasi performa sistem menunjukkan bahwa metode FAST mampu meningkatkan kecepatan deteksi objek, sehingga memberikan kontribusi positif terhadap manajemen persediaan barang. Dengan adanya implementasi metode FAST pada Sistem Informasi inventaris berbasis web, dapat membawa banyak manfaat strategis dan operasional dan diharapkan bisa memberikan kontribusi signifikan dalam menaikkan efisiensi dan kecermatan pengelolaan persediaan barang di pasar yang semakin kompetitif.

**Kata Kunci:** metode FAST; persediaan barang; UML; website

## INTRODUCTION

With the development of information technology, web-based inventory information systems are becoming increasingly popular to support stock management and inventory monitoring more effectively. In this context, key point detection becomes a crucial element for identifying and monitoring assets through image analysis. This research explores implementing the Features from Accelerated Segment Test (FAST) technique on a web-based inventory information system to increase the system's speed, efficiency and responsiveness.

Inventory information systems are an essential part of modern supply chain management. As the complexity and volume of transactions increases, identifying critical points in the picture becomes increasingly necessary to accurately detect and monitor inventory levels. The FAST method is known for its speed and efficiency and offers a potential solution to improve performance in web applications. FAST is an adaptive framework for various projects, schemes, and combinations of different system development methodologies [1].

The website information system created can be accessed easily via the internet network whenever needed [2]. The website-based inventory application implemented at Pet shop Fayruz using the Framework for the Application of System Thinking (FAST) method has many benefits, including supporting better application development. It is supported by other technologies. The FAST methodology is carried out sequentially

through the following stages: initial inquiry or investigation, problem analysis, need analysis, decision analysis, design, construction, system implementation, and system operation and maintenance [3].

An inventory information system is a system that inputs inventory information into a database to prevent errors during inputting, printing and reporting. The business world requires the support of information system technology that can simplify and speed up the provision of storage status information [4].

Pet shop Fayruz, a pet supply stores located in the Griya Permata Asri Complex, Serang City, still needs inventory records. In this case, inventory management and data recording of incoming and outgoing products still use paper and notes as references for reporting goods received and sent. Apart from that, when buying goods from suppliers, you must visit the supplier's location or contact them via WhatsApp. This creates several obstacles, including managing inventory, paper and recording notes will be lost or damaged and there is a risk of differences in the quantity of goods in the shop and what the customer wants.

Studies on the FAST model have been carried out by researchers before. This research includes the Development of financial applications [5], the Development of academic information systems [6], the Development of scientific publishing portals [3], the Development of CRM systems [7], Manufacturing development optimization systems [8], and the Development of a

website-based system for inventory recording applications [9]. Further research conducted by [10] resulted in the results of a book sales information system, and other studies still use the FAST method. What sets this study apart is that it is responsive, mobile compatible, and web-based. It also features automated reordering and real-time inventory updates to reduce manual labor and increase operational efficiency.

Although many methods are available, increasing speed and efficiency remains challenging when implementing web-based inventory information system. This study aims to develop a web-based inventory application to solve the problems at Pet Shop Fayruz. The impact of this research is expected to contribute positively to improving web-based inventory information systems. Applying the FAST method is expected to optimize resource utilization and contribute to more accurate and responsive inventory monitoring, besides operational efficiency increases and system reliability and security are enhanced.

Applying the FAST method to a web based inventory information system provides several significant positive impacts, ranging from increasing operational efficiency to customer satisfaction. Through this research, effective and efficient solutions can be found that improve the performance of inventory information systems and bring significant benefits to companies that manage inventory in a web-based environment, reduce costs, increase accuracy achieve greater flexibility in changing business needs, and provide substantial added value to end users.

## **METHOD**

### **System Development Method**

The system development technique used in this study is the FAST method. The FAST method is a system improvement methodology that combines several widely presented methods in a flexible structure that can be improved using other techniques. FAST is system development method that allows building quality systems quickly. This method is more flexible because it can be further developed using different methods that are currently being developed. Stages of the FAST methodology: scope description, problem analysis, requirements analysis, logical design, decision analysis, physical design and integration, construction and experimentation and installation and transmission [11].

This research applies seven phases of the FAST methodology, namely:

1. **Scope Definition**  
Defining the scope. At this stage, it describes the scope of the problem and the objectives of information system development, as well as ensuring the system boundaries where the problem occurs.
2. **Problem Analysis**  
At this stage, we review and analyze the current system to find out and get new questions as input for system development.
3. **Requirement Analysis**  
Analyze what requirements are needed in the system, both functional and non-functional requirements.
4. **Logical Desain**  
The requirements are designed at this stage, and the system is modeled using

several UML diagrams.

5. Decision Analysis.

In this phase, decide on the software and hardware that will be implemented in the created system.

6. Physical Desain

This stage is designing the system interface and database.

7. Construction and Testing

After the system is built, the next stage is the system construction stage, where the system to be created is tested.

Overall, the fast method can be represented as in Image 1.

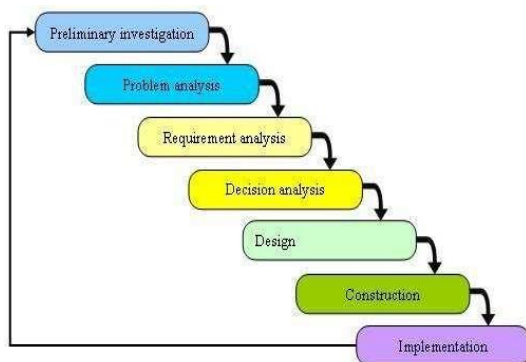


Image 1. FAST Method

**System Modeling**

System modelling utilizes the Unified Modeling Language to describe and archive stated object-oriented system software.

UML is an industry standard language for visualizing the design and documentation of software systems. Any software application that may be disclosed. This modeling language can be used to create a various software applications, run on operating systems and network hardware, and can be written in any programming language [12]. UML is a modelling language in the form of images or graphics to illustrate, define,

create and document object-oriented system [13] Class Diagram, Use Case Diagrams, Sequence Diagrams, Activity Diagram.

**RESULTS AND DISCUSSION**

**Scope**

Steps to identify problems related to the scope of the inventory management system developed in the Pet Shop information system include: (1) Managing inventory data., (2) Collecting supplier data., (3) Recording receipt and delivery of goods., (4) Managing goods orders., (5) Reporting.

**Problem Analysis**

Problem analysis is needed before the system design process to find problems. The problem that Pet Shop still needs is implementing a simple manual inventory system. Of course, this has many weaknesses, including: (1) Inventory of goods is carried out by recording it in a ledger, but it takes a long time to find inventory data for still available goods., (2) The data stored can be inaccurate and disorganized, resulting in duplicate inventory data., (3) Using a manual record management system, data entry errors can occur and paper inventory data can easily be damaged or lost due to clutter., (4) Making reports takes time because inventory record must be opened in the general ledger., (5) To purchase products, you must still be present and contact the supplier via WhatsApp.

**Needs Analysis**

The system requirements for this research are as follows:

### Functional Requirements

The functional requirements included in the system are an information system that can manage inventory data and product receipts or delivery data. Besides, searching for data is easy because it can be stored neatly. The system can generate inventory reports.

### Non-Functional Requirements

The non-functional requirements are that the system is simple and that some training is provided for users.

### Program Implementation

The next stage is to implement the design in physical form as a system interface design. Below is the website display.

### Item Data Menu Display

The item data form in the system.

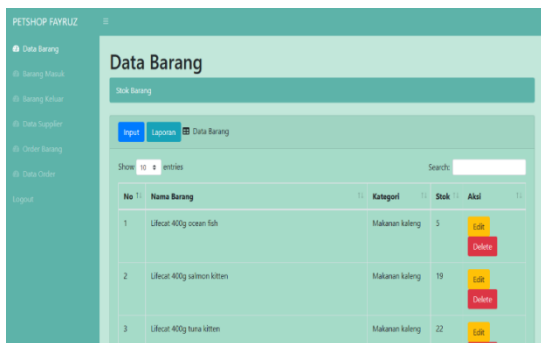


Image 2. Item Data Menu Display

### Incoming Items Page Menu

This page contains the goods receipt formula.



Image 3. Display of Incoming Goods

### Outgoing Items Page Menu

This page contains a product delivery form.



Image 4. Display of Outgoing Goods

### Supplier Data Page Menu

It contains a display of supplier data on the system.

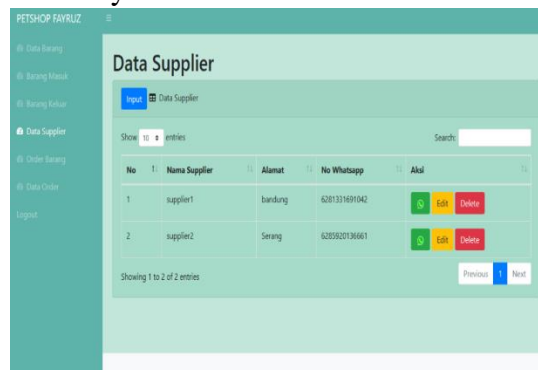


Image 5. Supplier Data Display

### Item Order Page Menu

This page contains a product order

form that consumers must fill out.

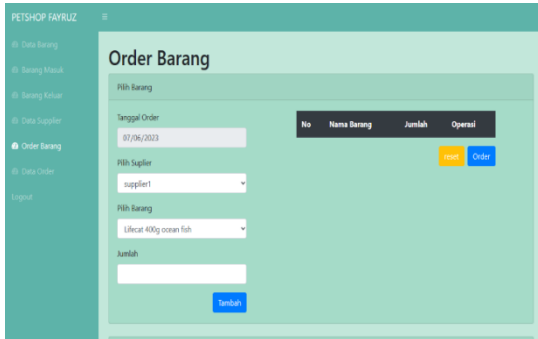


Image 6. Order Page Menu Display

### Order Data Page Menu

Order Data Page Menu Display

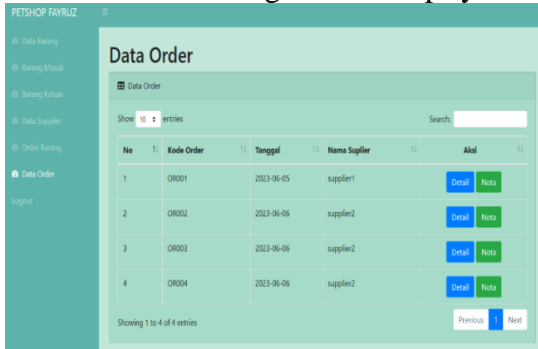


Image 7. Order Data Page Menu Display

### Supplier Website Incoming Order Menu

This page contains incoming order data in the system for suppliers.

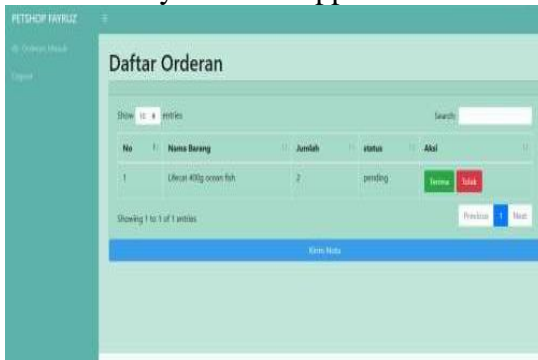


Image 8. Display of Incoming Orders on the Supplier Website

### Report Menu

This page contains all report forms in the system.

Laporan Barang Keluar Inventory

Tanggal	Nama Barang	Penerima	Jumlah
2023-05-10	Lezatol 1kg Adult tuna flavor	pelanggan	1
2023-05-10	500g dry food	pelanggan	1
2023-05-10	Car Choice 1kg kitten salmon with milk	pelanggan	2
2023-05-10	Excel 500g Tuna flavor trainin	pelanggan	2
2023-05-10	nill buku keci	pelanggan	1
2023-05-10	Paw stove cappuccino 55L	pelanggan	1
2023-05-10	Lezatol 1kg 4-6ult tuna flavor	pelanggan	1
2023-05-10	Car Choice 600g salmon adult	pelanggan	1
2023-05-10	Paw stove amon 10L	pelanggan	1
2023-05-10	Maxi 500g	pelanggan	1

Showing 1 to 10 of 66 entries Previous 1 2 3 4 5 6 7 Next

Image 9. Report Menu Display

### Monthly Report Menu

This page contains the monthly report form for the system.

Tanggal	Nama Barang	Penerima	Jumlah
2023-05-10	Lezatol 1kg Adult tuna flavor	pelanggan	1
2023-05-10	500g dry food	pelanggan	1
2023-05-10	Car Choice 1kg kitten salmon with milk	pelanggan	2
2023-05-10	Excel 500g Tuna flavor trainin	pelanggan	2
2023-05-10	nill buku keci	pelanggan	1
2023-05-10	Paw stove cappuccino 55L	pelanggan	1
2023-05-10	Lezatol 1kg 4-6ult tuna flavor	pelanggan	1
2023-05-10	Car Choice 600g salmon adult	pelanggan	1
2023-05-10	Paw stove amon 10L	pelanggan	1
2023-05-10	Maxi 500g	pelanggan	1

Image 10. Monthly report Display

### CONCLUSION

Based on the research that has been carried out, the program developed makes it easier to manage inventory and collect data at the Pet Shop. Implementing FAST in a web-based system allows better integration with the user interface. Users can easily access and

monitor inventory via a web browser, making inventory management more cost-effective and increasing system efficiency, responsiveness and accuracy. This ensures a better inventory management experience, especially in dynamic and fast-paced business areas.

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