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Development of Information System for Price Control of Basic and Important Goods in Bekasi Regency

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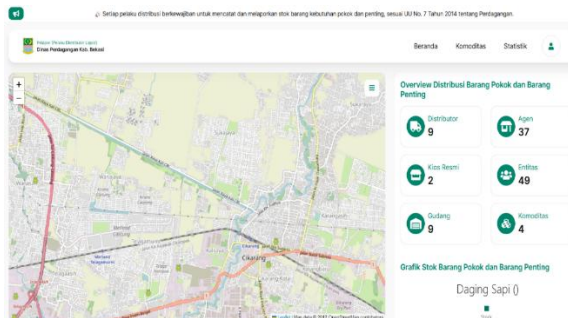[3] Faculty of Computer Science, Universitas Buana Perjuangan Karawang, 41361, Indonesia
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This article contributes to:

Highlights:

- Web-Based Price Control System: Developed for Bekasi Regency to improve data integration, system responsiveness, and price monitoring efficiency.
- Impact & Future Scope: Enhances transparency and decision-making, with potential for price prediction.

Abstract

This study develops a web-based price control information system for Bekasi Regency to improve data integration, system responsiveness, and transparency in price monitoring. The existing system faces challenges such as limited data integration, slow multiuser response, and inefficient information presentation. Using PHP and PostgreSQL, the system enables real-time price monitoring, statistical data visualization, and structured commodity management. The development process includes data collection through literature studies and interviews, system design, implementation, and user acceptance testing. The results show that the system enhances data management efficiency, decision-making support, and accessibility for both local governments and the public. This system serves as a model for improving price control and economic stability in other regions.

Keywords: Information System, Price Control, Basic Goods

1. Introduction

The availability of basic and essential goods (Bapokting) is a crucial factor in maintaining the economic stability of the community. Bekasi Regency, as one of the regions with a high level of trade activity, faces challenges in effectively managing data on the prices of basic goods. The application used by the Bekasi District Trade Office has been exhibiting various limitations, such as lack of data integration, slow response to multiuser usage, and insufficient data storage capacity[1]. These issues hinder the local government's ability to monitor real-time price movements and take swift preventive action to avoid price spikes.

Previous studies have shown that the implementation of technology-based information systems can improve the transparency and efficiency of basic goods price control. For example, Irwansyah showed that a well-designed information system can help local governments to monitor price movements more effectively, so that price stability can be maintained [2]. Therefore, the development of a web-based information system is a strategic solution to overcome the limitations of the existing system. This system is not only designed to improve application performance, but also to provide more detailed and real-time data, which is relevant for decision making[3].

Advances in information technology have enabled the development of web-based systems that are more adaptive and responsive. By utilizing modern programming languages such as PHP and PostgreSQL for data management, information systems can be optimized to support multiuser and multitasking usage[4]. In addition, web-based systems allow for interactive data visualization, such as statistical graphs of staple goods prices, which helps policy makers in understanding market dynamics more comprehensively.

Bekasi Regency, as one of the trading centers in West Java Province, has an important role in maintaining the stability of staple goods prices, not only for local consumption but also for regional needs. Therefore, this research becomes relevant to support the local government's steps in improving the efficiency of managing data on staple goods prices. The proposed information system is expected to become a transparent, efficient, and easily accessible data management model, so as to improve the quality of public services in the trade sector [5].

In addition to supporting the internal needs of local governments, the development of this information system is also expected to provide direct benefits to the community. Access to real-time price information on basic goods will help consumers make better decisions and encourage businesses to be more transparent. In the long run, this has the potential to increase public trust in local governments as responsive public service providers.

More than just a monitoring tool, the system is designed to be a sustainable strategic solution. With the support of continuously updated technology development, the system can adapt to market dynamics and user needs. This research will not only contribute to the improvement of administrative efficiency, but also to the strengthening of local government capacity in facing the challenges of the digital era[5].

2. Methods

The research method is part of the research paper that explains the steps taken in the research, the reasons for selecting the sample, the validation process, and the measurements taken. This research uses a web-based information system development approach which is organized through several main stages: data collection and system implementation,

Data collection was done through literature studies and interviews. Literature studies are used to obtain references on the development of web-based information systems, especially those related to the management of basic goods price data. Reference sources include books, scientific journals, and official documents related to information system needs in local government. Interviews were conducted with Bekasi Regency Trade Office officials to obtain direct information about the obstacles faced in the existing system, as well as the needs that must be met by the new system [6].

The system design stage includes two main parts: database design and user interface[7]. The database was designed using PostgreSQL, which was chosen for its ability to manage large data with high performance. The database structure is structured to support real-time and multiuser processing of item price data. The user interface is designed with a responsive approach using PHP technology, so that it can be accessed easily through desktop and mobile devices [8].

Implementation is carried out based on the results of the system design. This process begins with coding the main modules using the PHP programming language. Each module is tested individually to ensure its functionality runs well before integration between modules. The resulting system allows users to monitor item prices, access statistical data, and manage price information through a web-based platform [9].

Testing was conducted using a user acceptance testing approach. The system was tested by employees of the Bekasi Regency Trade Office to ensure ease of use and accuracy of the data

generated. The results of the trial were used to make improvements and refinements to the system before it was fully implemented.

This research resulted in a web-based information system that is able to improve the efficiency of managing data on the prices of basic goods, support decision making, and improve transparency in price control in Bekasi Regency [10].

3. Results and Discussion

The development of an information system for controlling the prices of basic and important goods (Bapokting) in Bekasi Regency has been carried out through a series of structured stages. The system was built using web-based technology, with PostgreSQL as the database and PHP as the main programming language. The system implementation focuses on the efficiency of data management, increased accessibility, and ease of use [11].

The implementation results show that this system is able to answer the main needs that were previously an obstacle, namely data integration, system responsiveness for multiuser use, and accurate information presentation. The system is designed with several main features, namely:

3.1. Implementation

The implementation results show that this system is able to answer the main needs that were previously an obstacle, namely data integration, system responsiveness for multiuser use, and accurate information presentation. This system is designed with several main features, namely

1. Dashboard

    The main page of the system provides an overview of the prices of basic goods. The information displayed includes price trends, commodity distribution, and daily price statistics. The dashboard design is intuitive to facilitate access to information for users with diverse technical backgrounds [12].
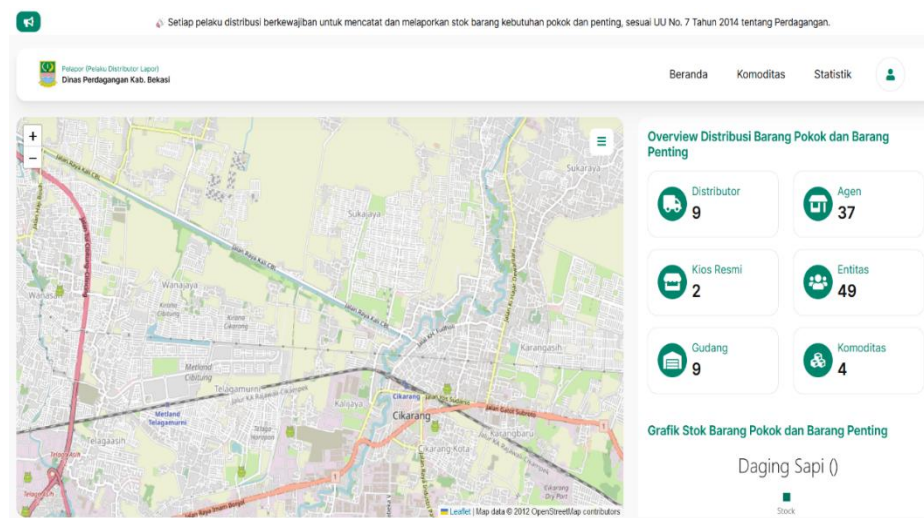

**Figure 1.
Dashboard View**

These dashboards display various visual elements, such as bar charts for weekly price trends, commodity distribution maps, and summary statistics in numerical form[13]. With these visualizations, users can understand market conditions at a glance without the need to read complex numerical data.

2. Commodity Management

    The system provides a special module for managing basic goods commodity data. This module includes commodity data input, update, and deletion features[14]. In addition, each commodity is equipped with detailed data, such as daily prices, distribution locations, and historical data.
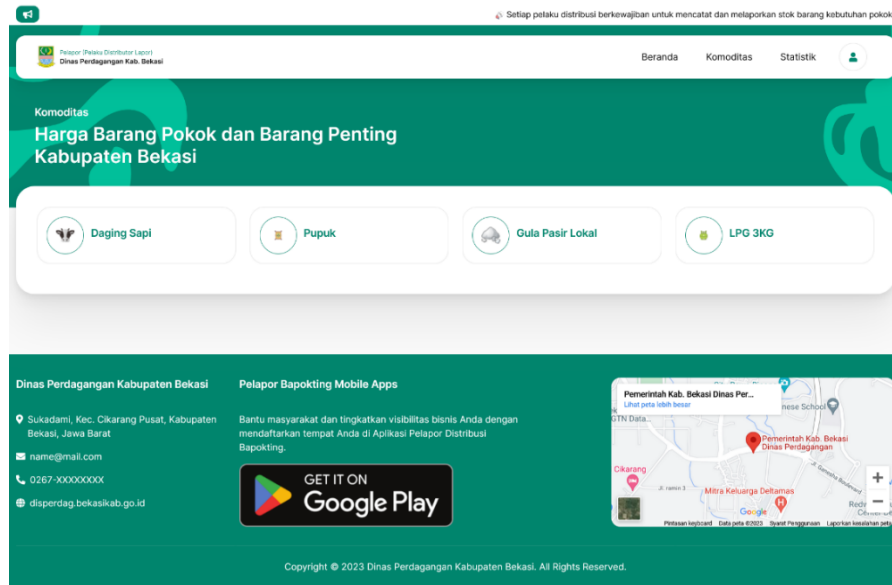
Figure 2.
Commodity Management
View

The commodities page is designed with interactive tables that can be filtered and sorted according to user needs. Each data entry comes with the option to add custom notes, such as comments related to price fluctuations or market conditions. This feature supports more organized and informative data management.

3. Statistical data visualization

One of the advantages of the system is the interactive data visualization feature. Price charts of basic goods are presented dynamically, allowing users to analyze price trends based on specific periods. This feature is designed to support data-driven decision-making[15].
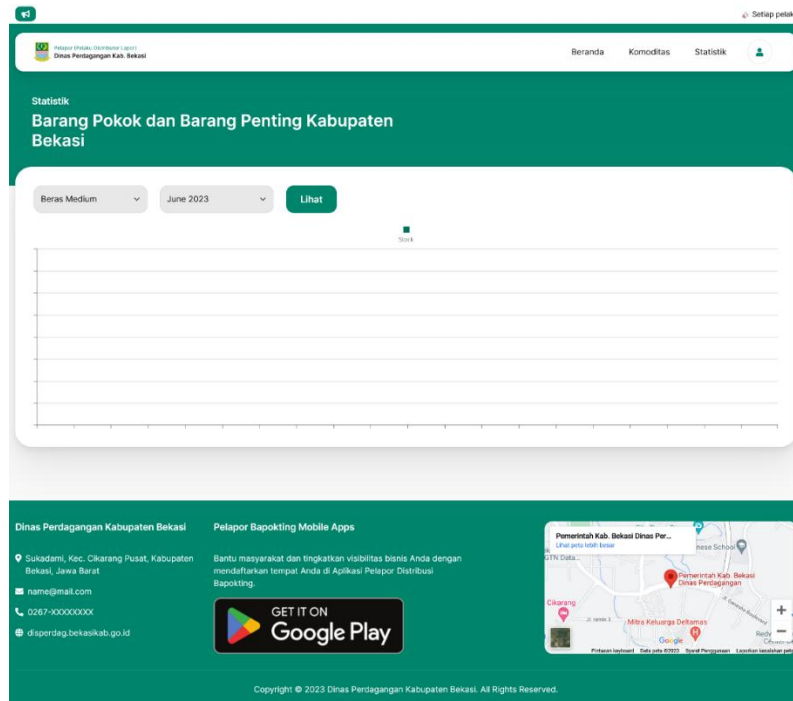

Figure 3.
Statistical Data
Visualization View

The interactive charts displayed include various types, such as line charts for daily price trends, pie charts for commodity distribution, and histograms for price distribution across multiple markets[16]. Users can also customize the time span of the analysis, which helps to identify price patterns in specific periods, such as price spikes in certain seasons.

4. Multiuser Access with High Security Level

The system supports multiuser use with a clear division of access rights. System users are classified into several categories, such as admins, operators, and general users. Each category has different access according to their needs and responsibilities[17].

Figure 4.
Login View
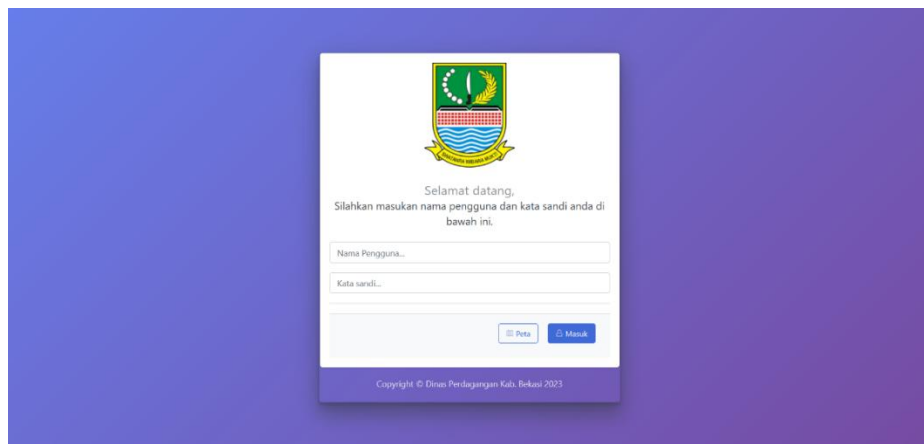
To ensure data security, the system uses two-factor authentication (2FA) for admin users. In addition, every activity performed by the user is recorded in an activity log, which enables tracking and auditing in case of errors or access violations. This feature provides a sense of security to users and maintains data integrity[18].

3.2. System Advantages

The implementation results showed a number of advantages compared to the previous system, namely:

1. Improved Data Integration

   The system integrates data from various sources, thus reducing redundancy and errors in information management. This integration allows data on the prices of goods in all modern and traditional markets in Bekasi Regency to be managed centrally[19]

2. Efficiency

   By utilizing PostgreSQL as a database, the system is able to handle large amounts of data with optimal performance. Multiuser use is also tested and proven to be stable, even though it is used simultaneously by many users[20].

3. User-friendliness

   The responsive and user-friendly interface design allows the system to be accessed through various devices, including desktop and mobile. This increases the flexibility for users to access information anytime and anywhere[21].

3.3. Impact and Benefits

The development of this system has a significant positive impact on the local government and the community. For local governments, the system helps improve transparency and efficiency in managing the prices of basic goods [22]. The data generated by the system is used to develop more effective price control strategies.

For the community, the system provides access to price information on basic goods in a transparent manner. This helps people plan their purchases and avoid unreasonable price hikes. In addition, this system also encourages businesses to be more transparent in determining the selling price of goods [23].

In the future, this system can be further developed to support additional functions, such as historical data-based price prediction and integration with Internet of Things (IoT) technology for real-time monitoring of stock in warehouses[24].

4. Conclusion

This research successfully developed a web-based information system for price control of basic and important goods for Bekasi Regency. This system was designed to overcome the limitations of the previous system, such as less than optimal data integration, slow application response to multiuser use, and inefficient information presentation.

The resulting system is able to provide solutions in the form of real-time monitoring of goods prices, interactive data visualization, and centralized data management. With key features such as informative dashboards, commodity management, and price statistics, the system supports faster and data-driven decision-making. In addition, system security and efficiency are enhanced through the implementation of user authentication and reliable database technology.

For further development, the system can be enhanced with historical data-based price prediction features, integration with Internet of Things (IoT) technology for stock monitoring, as well as the development of more specific mobile applications for general public users.

5. Authors' Declaration

Authors' contributions and responsibilities

| √ | The authors made substantial contributions to the conception and design of the study. |

| √ | The authors took responsibility for data analysis, interpretation and discussion of results. |

| √ | The authors read and approved the final manuscript. |

6. Acknowledgement

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