10. Turnitin-DEVELOPMENT OF WEB-BASED BUILDING PERMIT (IMB)INFORMATION SYSTEM

by Irfan Prasetia

DEVELOPMENT OF WEB-BASED BUILDING PERMIT (IMB) INFORMATION SYSTEM
(CASE STUDY AT THE INVESTMENT AND ONE DOOR INTEGRATED SERVICES OFFICE (DPMPTSP) OF BALANGAN DISTRICT)

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ABSTRACT

An integrated information management system is needed to provide convenience not only for organizers but also can provide information such as completion time, costs, and procedures that can be informed directly and transparently. The purpose of this research is to find out the obstacles faced and to design a web-based building permit (IMB) information system with mobile features to speed up the IMB creation process. The research method used is the waterfall model method. The method used to analyze the problems and constraints in the process of making the IMB by the Frontliner, Head of Section, the Technical Team, and the Head of the IMB by experimenting with the application of the IMB Issuance Information System. From the data that has been obtained, an information system design is carried out with the stages of requirements, design, analysis, design, coding, system implementation, system verification, and validation. The results of this study obtained a web-based IMB information system design to facilitate the process of issuing IMB. With the existence of a management information system, IMB proposals based on the results of verification and validation can be applied and provide convenience and speed up the IMB management process.

Keyword: Publishing Information System, IMB, web, waterfall model.

1. INTRODUCTION

Based on the Balangan Regency Regional Regulation Number 14 of 2016 concerning the Formation and Structure of Regional Apparatuses, the Investment and One Door Integrated Services Office (DPMPTSP) of Balangan District was established as a Regional Office that carries out government affairs in the investment sector and one-stop integrated services within the Balangan Regency. DPMPTSP Balangan Regency in carrying out its main tasks and functions as a Public Service in the field of licensing and non-licensing under the authority of DPMPTSP as many as 83 permits, one of which is the Building Permit (IMB).

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The issuance of IMB in Balangan Regency is regulated based on Balangan Regency Regional Regulation Number 17 of 2014 concerning IMB. Article 4 paragraph 1 states "Every person or entity that will build a new building, rehabilitate/renovate buildings, and/or restore buildings must have an IMB." As for its implementation based on the Decree of the Regent of Balangan Number 27 of 2014 concerning Delegation of Authority in Issuing IMB in Balangan Regency, the division of authority for issuing IMB is as follows:

1. For the issuance of IMB located in the Kelurahan Paringin Kota, Paringin Timur, and Batu Piring in the Paringin and South Paringin Subdistricts, it is the authority of the Balangan Regency DPMPTSP.

2. For the issuance of IMB located within the sub-district area, it is the authority of each sub-district in the Balangan Regency.
3. For the issuance of Government Project IMB, the authority is DPMPTSP Balangan Regency.
4. For the issuance of a Telecommunication Tower Construction Permit, the authority is DPMPTSP Balangan Regency.

There is involvement of the technical team in the issuance of the IMB carried out by the DPMPTSP. The time for completion of technical recommendations for IMB is 6 Working Days 15 Minutes as stipulated in Balangan Regent Regulation Number 35 of 2017 concerning Standard Operating Procedures for Government Administration at the DPMPTSP of Balangan Regency. Although the technical recommendation completion time has been regulated, the IMB completion process in Balangan Regency still exceeds the specified time limit.

One of the causes of the lengthy process of completing the IMB is the result of the IMB recommendation from the technical team which often takes a long time. This is because of the limited Human Resources (HR) of the State Civil Apparatus (ASN) who should have served in the DPMPTSP but are still placed in the other local government office (SKPD), especially placed also in Public Works and Public Housing Office (DPUPR), resulting in communication problems because the busyness of each ASN in the SKPD is different. The lack of information on operational standards for the IMB process from DPUPR also made it difficult for Front Office officers at DPMPTSP to answer questions from the public about how long the IMB process at DPUPR would take. From these problems, the IMB management system does not run optimally. In addition, the system for sending requests for technical recommendations from DPMPTSP to the Technical Team or vice versa which is still manual also makes it difficult for the public to check the existence of the IMB application file. Based on these problems, DPMPTSP needs to study a breakthrough or create a licensing management system that can simplify the process of issuing IMB following the

existing time limit. An integrated information management system, which can provide convenience not only for the organizers (DPMPTSP) but also can provide information such as completion time, costs, and procedures that can be informed directly and transparently. With an integrated information management system, the public knows the position of file requests, costs, and the existence of data connections between each part of the work unit. The solution to the problem in this research is to build a web-based IMB information system with mobile features on DPMPTSP Balangan Regency.

There are several related studies to solve this problem. First, the research conducted by Waspodo et al in 2015 entitled Information System for Building Construction Permit Services and Land Use At the Sumedang Regency Investment and Licensing Agency. The results of this research are IMB Information System Services and web-based IPPT is an information system that can be a business solution in registers, transparency of request status, inspection, calculation and determination of permits, issuance of permits, delivery information, and dynamic summary reports. Second, research conducted by Wahyuni in 2018 entitled Development of a Web-Based IMB System with Mobile Features in Baso District, Agam Regency. The result of his research is that a web-based IMB information system with mobile features can calculate IMB retribution automatically.

From this description, the difference between the information system built and the IMB information system in several previous studies is that in previous studies there was no feature to find out the status of the application by the applicant and there was no mobile feature for the Technical Team and Section Head. With the mobile feature in this information system, sending IMB review data can be done easily, quickly, and accurately. This can support and improve the performance of Balangan Regency DPMPTSP employees in serving the community. Based on the background and problems presented along with research related to these problems, a study was carried out to build an IMB information system that can be a solution to IMB processing

problems on the object under study with the title "Information System for Issuing Building Permits (IMB).) at the Office of Investment and One-Stop Integrated Services, Balangan Regency".

2. RESEARCH METHOD

Data collection

a. Primary Data

Primary data is data obtained through resource persons by conducting direct questions and answers and guided through questions that are following the research focus that has been prepared previously. This data is sourced including interviews and discussions with the applicant and the Frontliner by presenting the online IMB information system concept. Interviews were conducted with the Head of Data and wanted to find out about the system that was made, namely: the need for easy, precise, and fast access to information in IMB processing. Interview with the Technical Team, the data to be searched to find out the system that was made, namely: the need for information in the form of reports and document storage.

b. Secondary Data

This data includes data obtained from the IMB applicant: application letter, statement letter of no objection to one side of the building, statement letter of willingness to comply with Balangan Regency Regional Regulation No. 13 of 2007 concerning building demarcation lines, land permit statements, photocopy of applicant's ID card, photocopy of PBB, photocopy of land ownership certificate, building drawing/sketch, the recommendation from the District, DPMPTSP Kab. Balangan, Technical Team data, Balangan Regency Regional Regulation No. 17 of 2014 concerning Building Permits, Balangan Regent Regulation No. 35 of 2017 concerning Standard Operating Procedures for Government Administration at the Investment Office and One-Stop Integrated Services of Balangan Regency, literature studies, and previous research, web applications, along with the software used in this study such as PHP and several software templates that are widely available on the Internet.

Requirement/ Approval System

At this stage, an analysis is carried out on the problems faced by the Head of Office in terms of ease, accuracy, and speed in the process of making IMB.

a. User Needs

In the identification stage of user needs, initial data collection has been carried out by approaching and consulting users from the website. From this stage, it is expected to obtain a User Level Structure and User Requirements that are used for System Design, compiling the navigation structure of the Main Menu and Sub Menus in a web so that efficiency is obtained for the web where menus that are not needed are not used, so it is emphasized to User Requirements. From this stage obtained User Data (User Level) and User Requirements (User Requirements).

User Level on the website consists of 2 levels, namely administrator and user. At the user level, they are divided into several categories, namely Budget User Authorization (KPA), Head of Division, Head of Division, Front liner, Technical Team, and Applicant.

b. Information Needs in the form of Reports
Reports are mandatory in every activity implementation, both during implementation and after the implementation of activities. From this report, a summary of information is obtained and must be able to translate various activities in the IMB making process so that it can be understood by stakeholders and other parties.

c. Document Management

In this document management, we can store all kinds of documents, both hardcopy documents that have been scanned (scanned) or indirect softcopy. This document management functions as an archive of IMB documents and is a backup document for hardcopy documents and vice versa. And also, to make it easier for other parties who have the interest to get transparent and fast access to the information.

3. ANALYSIS AND DISCUSSION

In this study, the system developed was to create a data input system consisting of user data input, IMB application file data input, technical team recommendation data input, and retribution calculation data input. User data consists of applicant data, file recipient data (front office), Service Head data, Service Head data, Technical Team data, and Head of Service data. Each of them will be given their account to be able to access the system developed according to their level. IMB application file data that has been entered in the system provides IMB description information. Recommendations and retribution calculations are reported periodically by the Technical Team. The role of the Head of Service, the Head of Service, and the Technical Team is to verify the progress report on the IMB application along with supporting attachments provided by the Applicant. After being verified then the signing process from the Head of Service. The Petitioner can monitor the progress of the IMB making process through this system. After all, processes are completed, it is only necessary to submit the permit/non-permit documents to the Applicant.

At the analysis and discussion stage, analysis and discussion of the research results obtained from the design stage to the system validation will be given. It will be seen whether all the problems and research objectives have been properly resolved through an integrated information management system with additional mobile features. In addition, recommendations or suggestions for system development can also be given.

4. PROGRAM APPROACH AND DESIGN

a. System User

The login page is for restrictions on access rights to enter the website for the Information System for Issuing Building Permits (IMB) whose users have been divided into 5 levels as previously explained. The results of the level selection are then translated into a database design that contains user information and user data details based on the fields that have been created (Tabel 1).

Table 1 User Level

No	User Type	Level	explanation
1	Super Admin	5	This level 5 can see all permissions and can also add admin accounts.
2	Admin (Frontliner)	4	Level 4 can add permission data manually and also serve as chat reply from users.
3	Verifier (Kabid / Kasi)	3	Level 3 is tasked with monitoring and verifying incoming permit files, as well as determining the technical team that will survey permits.
4	Technical Team	2	Level 2 is the account used for the technical team on duty in the field.
5	User	1	Level 1 is used for IMB applicants

b. System Framework

The system framework in this study can be described in Figure 1. Meanwhile, the output of this system is in the form of an approved IMB Permit. Details of the data flow can be seen in Figure 2.
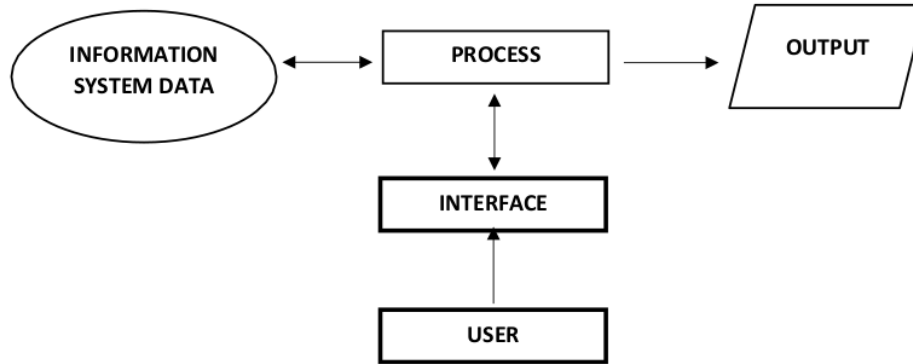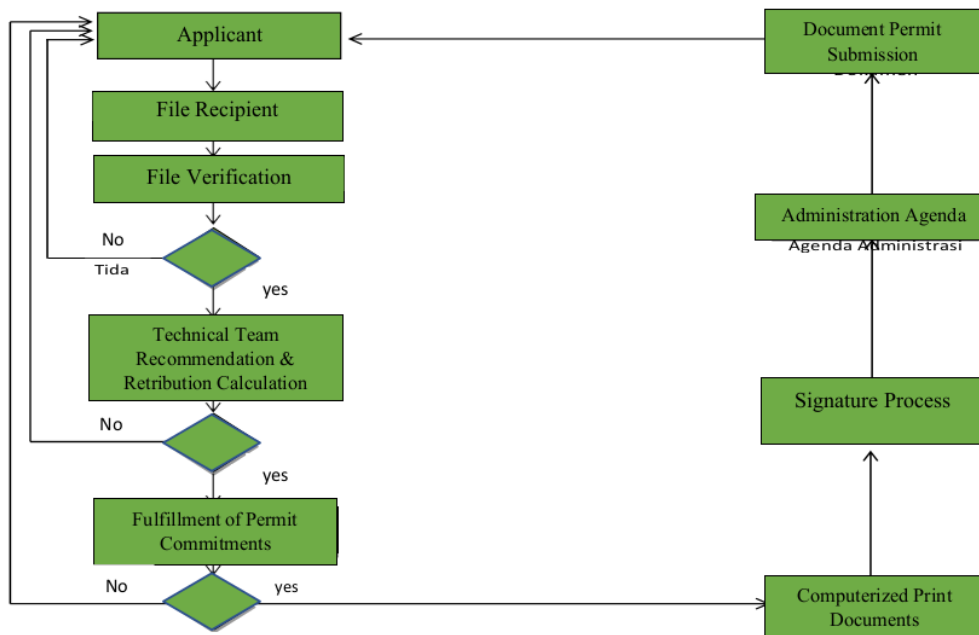
Figure 1. Research System Framework

Figure 2. Data Flow Diagram of Building Permit Information System

c. Information System Database

The database component in the IMB management information system is a collection of several tables that store data where each table has data fields consisting of user data, building data, permit status data, and admin data. The data is stored in a database to make it easier to process data and can be displayed when needed. The relationship between tables in the database can be seen in Figure 3.

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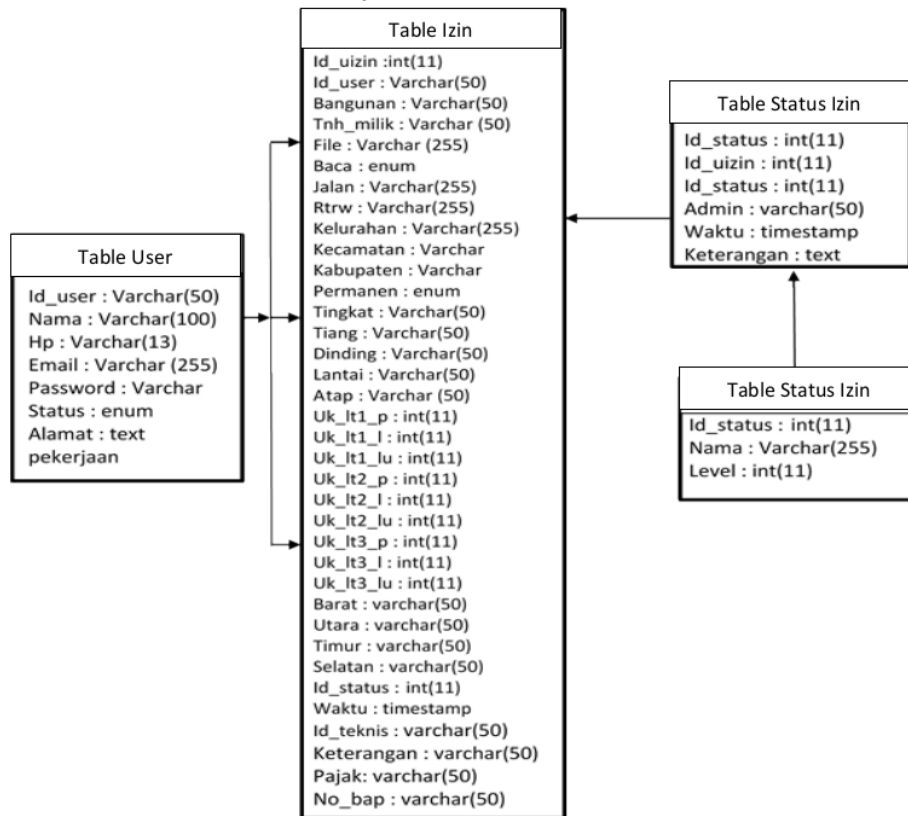
Figure 3. Database Table Schema

d. Entity Relationship Diagram (ERD)

The relationship between tables in the databasecan be seen in Figure 4.
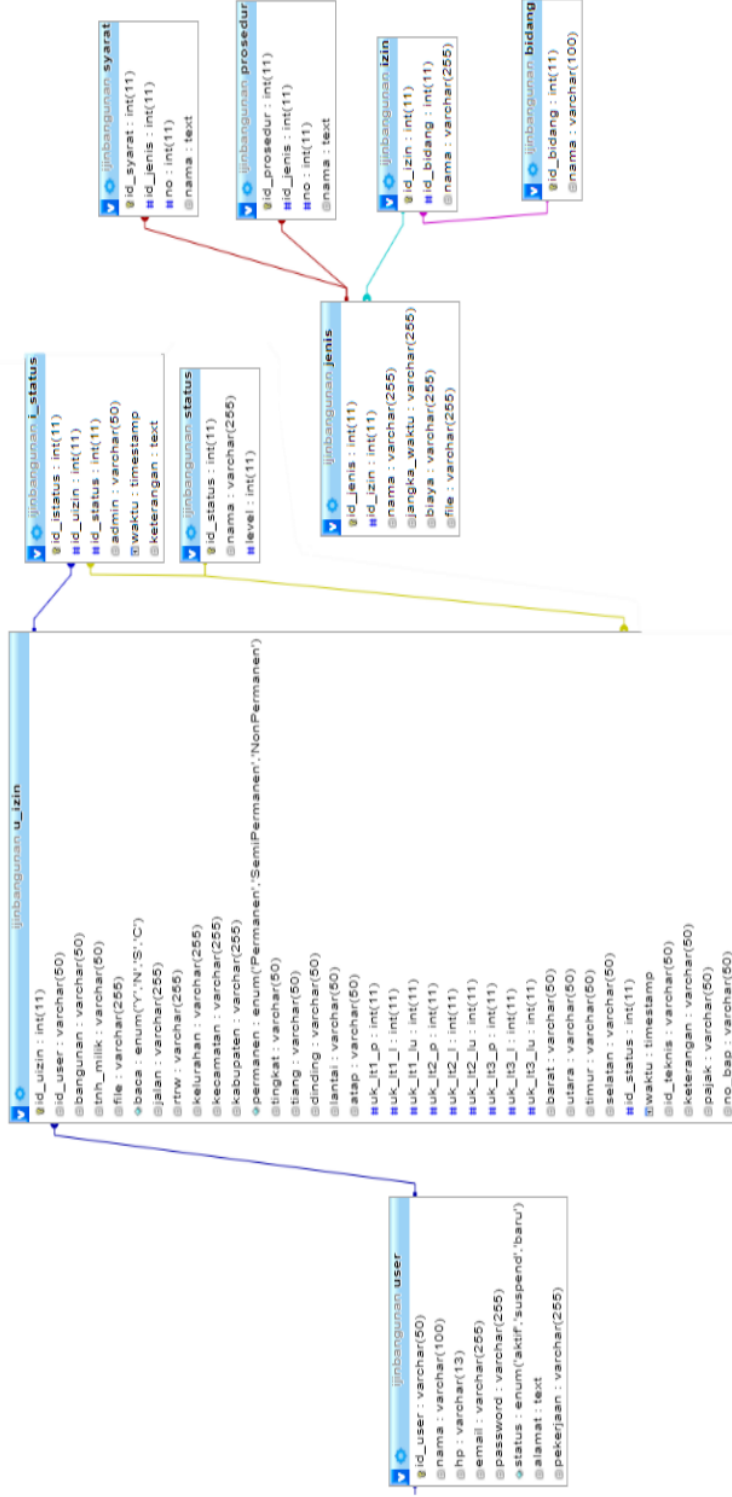

Figure IV.4 ERD (Entity Relationship Diagram) Information SystemIMB Management

5. VERIFICATION AND VALIDATION

a. System Verification

The tests were carried out to involve several Frontliners using different accounts for each Frontliner. Table 2 shows the results of the system verification that has been tested.

Table 2. Function Testing on the Front liner

Functional Testing	Successful Status
Displaying forms based on user level	√
Displays a detailed list of permissions being processed	√
Add User	√
Activate and suspend user accounts	√
Deleting a user account	√
Show data	√
Save data	√
Editing user account data	√
Updating data	√
Adding IMB data manual	√
Download attachments	√
Uploading attachments	√
View and reply to chat	√
Exit the form	√

Table 2 shows a test carried out as an administrator with the usual admin level (Frontliner). Frontliner can perform the process of adding and managing user accounts as well as editing data and changing user passwords, helping users enter manual IM application data input and view and reply to chats from users. In addition, this account will also approve the registration of users who have registered

b. System Validation

To find out the success of the application made, direct testing is carried out on several users who will use this application. The first is to test the application for the administrator user at the One-Stop Integrated Service and Investment Service (DPMPTSP) of Balangan Regency by asking the participation of one of the existing staff. Table 3 shows tests that were carried out.

Table 3. Application Testing Against User Administrator

Functional Testing	Successful Status
Fill in username and password	√
Displays the main menu	√
Show data	√
Making IMB Application	√
Entering user data	√
Create a user account	√
Uploading IMB data	√
Updating data	√
Save data	√
Exit the form	√

Based on Table 3, it can be seen that the application can run well. Based on the monitoring results, the administrator user is quite able to understand the commands in the application and can apply them because the administrator is quite fluent in using the application.

6. CONCLUSIONS AND SUGGESTIONS

From the results of designing a web-based IMB information system to facilitate the IMB issuance process, the following conclusions can be drawn:

1. The obstacles faced include:
   a. Lack of access to information to the public in obtaining the development of IMB in a fast and accurate time.
   b. Documentation of supporting documents for making IMBs that are not properly organized and stored.
   c. Coordination between parties involved in making the IMB is not maximized.
2. With the management information system, IMB proposals based on the results of verification and validation can be applied and provide convenience and speed up the IMB management process in Balangan Regency.
3. With this application, it is hoped that it can be extended to all departments.
4. Firmness is needed from the agency leadership to use this application to facilitate monitoring of the licensing process.

5. An affirmation in the rules for using this application is needed for the user level in presenting data.
6. For further research, it is recommended to be able to apply digital signatures so that the issuance of IMB letters can be done digitally.
7. It is also expected for further research so that other permits can be added which are the authority of the service.
8. This application is still not integrated with applications owned by the central government so that in further research it can be integrated into applications owned by thecentral government.
9. In the application, it is necessary to add an online Technical Team Minutes Form feature and an inspection deadline notification feature or warning for the Technical Team.

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