

Applications Soil Observation in the Field PT. Anugerah Sumber Makmur Minamas Research Center

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ABSTRACT

Many employees still have difficulty entering data and searching for appropriate data. Employees still input data manually, and it takes a long time. The existence of a soil observation application in the field of PT. Anugerah Sumber Makmur Minamas Research Center was created with the aim of assisting employees in entering data and searching for data quickly and accurately. This application is made using the PHP programming language and MySQL as the database. The system development method in making this application uses the design sprint method. Based on tests conducted on users, this application functionally runs as expected, and the success rate is 92%.

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1. INTRODUCTION

The development of an increasingly complex world of technology encourages every individual to be able to apply it in all activities [1]. Information technology is currently a means to improve the performance of an organization [2]; the role of information technology replaces and strengthens the role of humans by presenting information on tasks or processes [3]. The system is an integrated element with the same goal to achieve a goal [4], and the information system becomes a series of components (humans, procedures, data, and technology) that are used to achieve certain goals [5]. Many fields have used information systems to make their work easier [6]. One of the most accurate and precise implementations of information systems is website-based information that utilizes technology and the internet [7]. Basing information is the result of processing data in certain ways so that it is useful for its recipients [8]; information is considered very important because information can increase knowledge, reduce uncertainty and the risk of failure, and can assist leaders in making effective conclusions and decisions and efficient. One of the important pieces of information from the company where this research is conducted is about inputting land observation data in the field. This shows that an agency or company that will build an information system is advised to design a soil observation application in the field first. Field observation applications are records and reports that are coordinated to make field observation information in the field, which is very much needed to help company management.

PT. Anugerah Sumber Makmur Minamas Research Center is a company engaged in the industrial sector that, until now, in inputting data in the field, is still using the manual method. With a system that is still manual, of course, it is not effective. So that it is possible for errors to occur in the implementation of data input which ultimately results in information that is not timely, inaccurate information, and does not match what is needed.

From the problems above, it is necessary to design an integrated web-based application to help ease management tasks, especially in terms of soil observation in the PT. Anugerah Sumber Makmur Minamas Research Center. Therefore, I was compelled to compile research entitled "Application of Soil Observation in the Field of PT. Anugerah Sumber Makmur Minamas Research Center. "It is hoped that by making a detailed application, users can easily obtain the desired information more quickly and accurately by using this application.

2. RESEARCH METHOD

2.1. Method of collecting data

The data collection stage is a process to describe the data obtained to solve problems at the time of making the application. The data collection stage is carried out in 2 ways, namely:

1. Literature Study

At this stage, a literature study is carried out consisting of journals, theses, books, and previous research papers [9], including reports that are directly related; in this method, the author studies supporting books and related documents and can be used as a reference for conducting research. And describe the discussion [10].

2. Interview

Carried out to the head of the news sector and administrative staff regarding the planning of the design and implementation of the new management information system to determine the needs and feasibility of the system to be designed [11].

At the interview stage, the author had a dialogue or question and answered several people or employees at PT. x regarding the application that will be made so that data is obtained according to the actual situation.

2.2. Sprint Design Method

The Design Sprint is a time-bound framework that uses the concept of Design Thinking (DT) to help a group of people create a new system, service, or feature. The Design Sprint consists of 5 stages, namely understand, cover, divergence, prototype, and test [12].

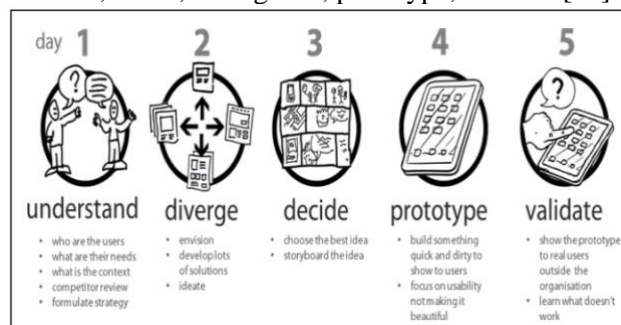


Figure 1. Example of the Design Sprint method

In developing the system using the design sprint method, namely:

1. Understanding

At this stage, the interview process is carried out and conducts interviews benchmarked against similar applications in order to find out the advantages and disadvantages of these applications [13].

2. Diverge

At this stage, the process of finding solutions to the problem of input data will be carried out, aiming to collect solutions that are considered capable of overcoming the existing problems [14]

3. Decide

At this stage, together with employees discussing by issuing ideas submitted, all ideas are developed into a new idea to solve the problem [15].

4. Prototype

At the application stage, the process of forming and implementing ideas and focusing on application development [16]. At this stage, a demo is also carried out for employees so that the results are as expected.

5. Validate

This is the stage of testing the appearance and features that are made and then reviewing with the client the advantages and disadvantages of these features. In addition to testing aimed at users, it can also be aimed at stakeholders or an expert in a particular field [17]

3. RESULTS AND ANALYSIS

The following is a discussion of system analysis that runs up to application implementation.

1. Running System Analysis

Analysis of the running system can be seen at:

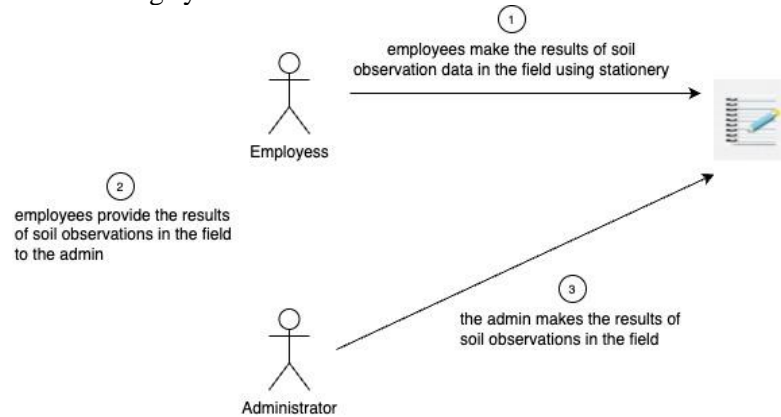


Figure 2. Running system

Figure 2 is an ongoing system where employees and admins input land observation data manually.

2. Proposed System Analysis

The analysis of the proposed system can be seen in Figure 3.

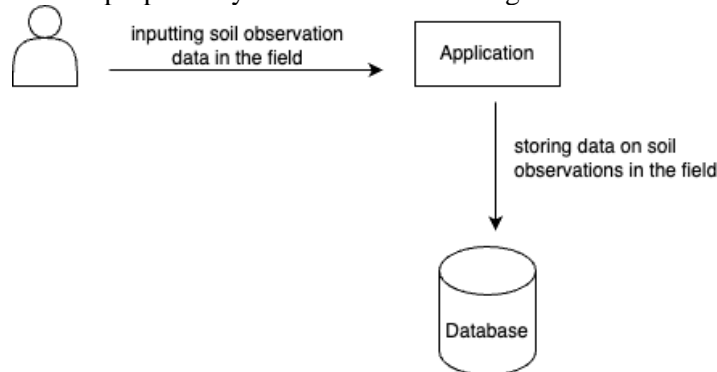


Figure 3. The proposed system

Figure 3 is the system proposed by the author is an integrated application that helps the process of inputting data more quickly, accurately, and precisely in a computerized manner so that it can produce reports that can be printed directly when needed.

3. Hierarchy Chart Design

The following is a hierarchical chart design for the application of soil observation in the field of PT. Anugerah Sumber Makmur Minamas Research Center can be seen in

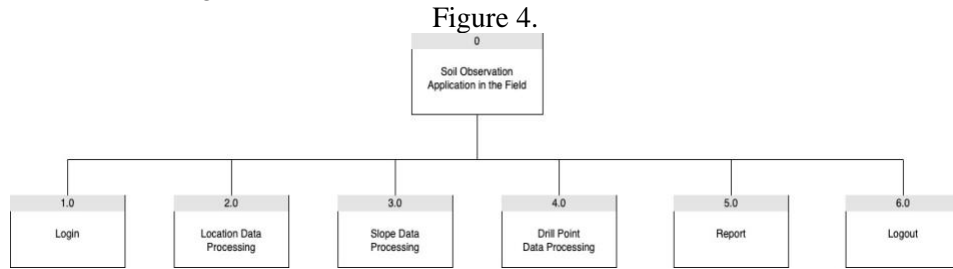


Figure 4. Hierarchy Chart

Figure 4 Hierarchy Chart above can explain the form of the application of soil observation in the field of PT. Anugerah Sumber Makmur Minamas Research Center, there is an admin menu where an admin has full access rights to the application. The admin menu includes Login, processing location data, processing slope data, processing drill point data, printing reports, and logging out.

4. Data Flow Diagrams (DFD)

The following is a data flow diagram on the application of soil observation in the field of PT. x can be seen in Figure 5.

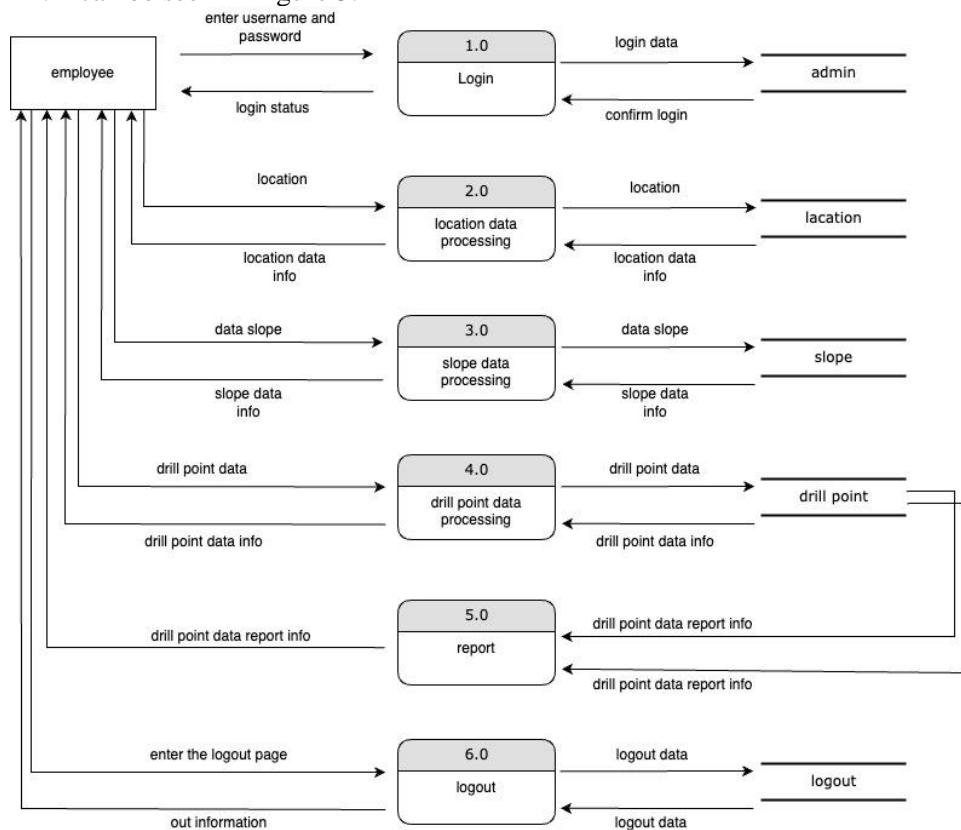


Figure 5. Design Data Flow Diagrams (DFD)

Figure 5 above shows the data flow diagram in this application has 1 process, namely admin Login and entering location data, slope data, and drill point data. After entering, the data will be saved in the report.

5. Entity Relationship Diagram (ERD)

The following is the ERD design for the application of soil observation in the field of PT. Anugerah Sumber Makmur Minamas Research Center can be seen in Figure 6.

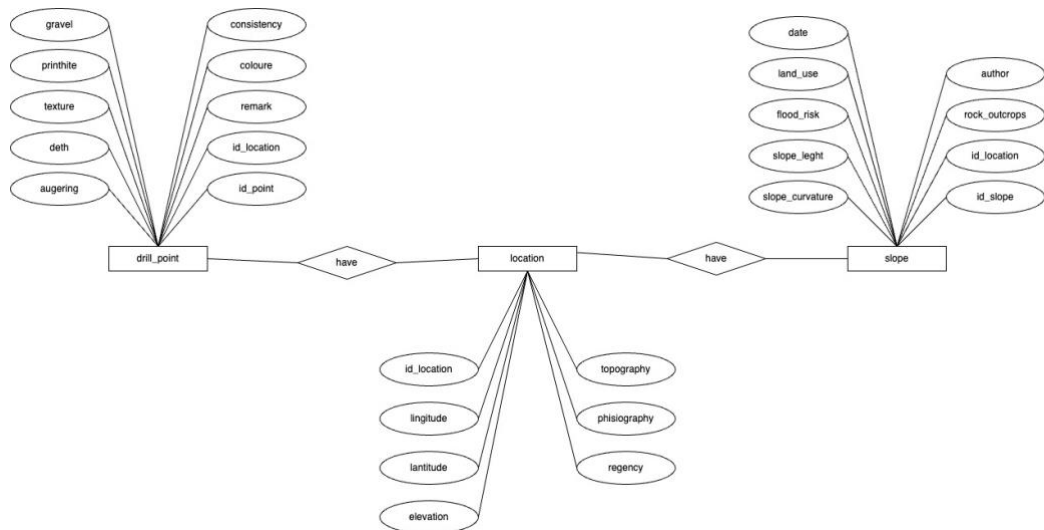


Figure 6 Entity Relationship Diagram (ERD)

Figure 6 is a database flow consisting of three entities, each entity representing the name of a table in the database. Land observation application in the field of PT. Anugerah Sumber Makmur Minamas Research Center. Each attribute that exists represents the existing columns in the database. Relationships that connect entities according to their roles, entities can be seen in their cardinality.

6. Application Implementation

The following is the implementation of the soil observation application in the field of PT. Anugerah Sumber Makmur Minamas Research Center can be seen in Figure 7.

a. Login Interface

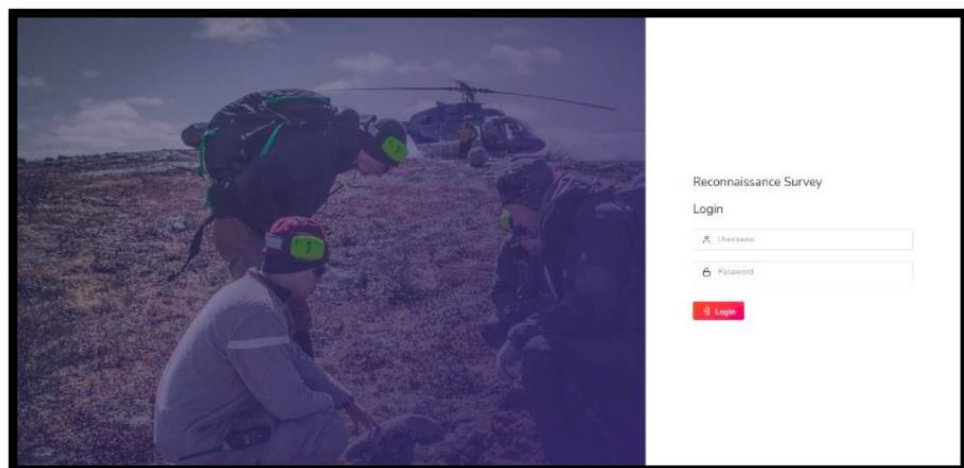


Figure 7. Implementation of the login interface

Figure 7 is a user login form interface where in the process, the user enters the username and password data; if correct, it will enter the dashboard display, while if it is incorrect, a warning will appear that the username and password are incorrect so that the user returns to the login form and enters the data correctly.

b. Main Menu Page (Dashboard)



Figure 8. Dashboard Main Page

Figure 8 is the main page showing several menus, namely the Home menu, Data Input menu, report menu, and Logout menu.

c. Menu Page Data Input Data

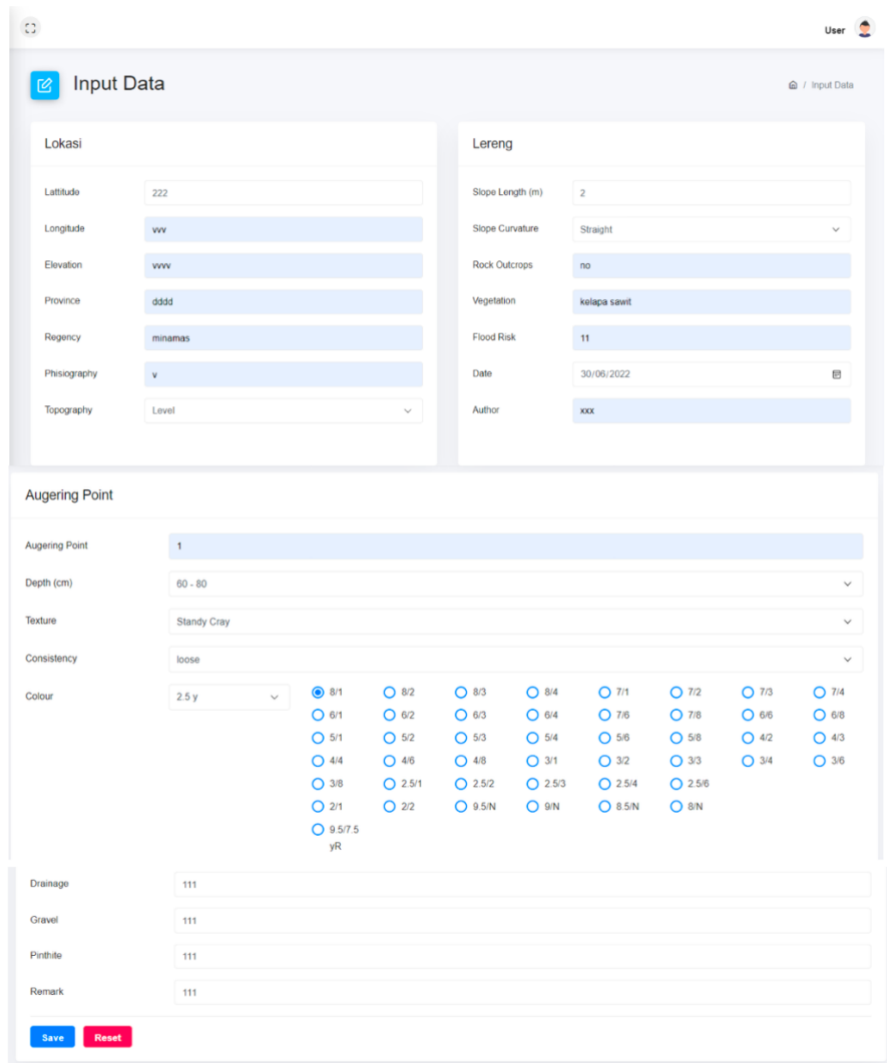


Figure 8. Home Dashboard

In figure 8, on the data input menu, the user has access rights to input location data, slopes, and drill points.

7. Testing System

Functional testing Applications for field observations of PT. Anugerah Sumber Makmur Minamas Research Center uses the Black box testing method, which is a testing method that focuses on the functional specifications of the application.

Table 1. System test scenario

No.	Scenario	Desired Result	Result Achieved	Conclusion
1	Enter username and password	Not filled in any of the fields	The system will refuse and will raise a warning	According to expectations
2	Enter the correct username and password	Enter the correct username and password	Login is successful; the system accepts and continues to enter the main page	According to expectations
3	Enter the wrong username and password	Entering the wrong username and password	The system refuses and displays the message "Invalid Username and Password."	According to expectations
4	Enter all the fields in one of the locations, slope, and drill point data input forms and leave one field blank	not filled in one of the fields	The system refuses and displays the message "Please fill out this field."	According to expectations
5	Input all fields on one of the location data input forms, slopes, and drill points	Fill in all fields	The system receives and displays the message "Data was input successfully."	According to expectations
6	Edit data on soil observation data	Changing ground observation data	The system successfully made data changes and displayed the message "Data Updated Successfully."	According to expectations
7	Delete data on soil observation data	delete ground observation data	The system successfully made data changes and displayed the message "Data Updated Successfully."	According to expectations
8	Export data version of	Cetak semua	The system	According to

Excel on soil data observations	data laporan pada aplikasi pengamatan tanah.	accepts and switches to a whole new tab to display report data	expectations
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Based on the test, the success of the functional program was found, and this shows that the application can be used to provide information for inputting data for employees. Overall, 92% of tests were successfully carried out using the black box method.

4. CONCLUSION

Application of information systems for field observations of PT. Anugerah Sumber Makmur Minamas Research Center can make it easier for employees to search for data quickly and accurately. This system can also print the results of the soil data input report and search for the desired land data input report.

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