



# Designing A Web Service Based Recording Application at Asia Farm

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**Abstract.** Asia Farm is a company that operates in the field of egg-laying chicken farming, located in Tadangpalie Village, Pammana District, Wajo Regency. This farm still uses data management that is written in books and recorded weekly on a blackboard, so it can cause problems such as the books being dirty, lost or wet. exposed to water while at the location and the weekly recording will be deleted every week. The data that will be managed is farmer data, cage data, chicken data, production data, vaccine and supplement addition data, sales data, cost data, customer/buyer data, while the number of chickens on the farm is approximately 2000. When they want to process existing data, farmers still fill in livestock data manually so it takes a long time, of course this method is not effective and efficient. This application is based on a Web service so that it can be connected to websites and mobile (Android) so it is very easy to access anywhere because this application is online and is designed to be able to manage all existing data and can provide information related to livestock recording at ASIA FARM

**Keywords:** Chicken Farming, Recording System, Web Service

## 1 Introduction

In Indonesia, livestock business opportunities are still quite promising. One of them is egg-laying chicken farming, because the need for chicken eggs is still very large. Eggs are a food ingredient that is very familiar to our daily lives as a source of protein with advantages including complete amino acid content compared to other food ingredients, and having a delicious taste." Because eggs are a very good food for growing children who need large amounts of protein and minerals and are also recommended to be given to people who are sick to speed up the healing process. Due to the very high needs of society, breeders must be able to achieve high productivity and quality. To obtain high productivity, production management is needed for all chickens kept. One of the causes of the lack of productivity of laying hens is the system for recording chickens which is still manual. Recording is a record of all events regarding livestock being kept which can provide the information needed to

make objective decisions based on existing facts, the decisions made are the best decisions [1], [2].

Because eggs are an excellent food for growing children who need a lot of protein and minerals in large quantities and is also recommended to be given to people who are sick to speed up the recovery process. who are sick to speed up the recovery process. Due to the high demand of needs of the community are very high, farmers must be able to do high productivity and quality. high productivity and quality. To get high productivity requires production management for all chickens raised. One of the causes of the lack of productivity of laying hens is the recording system or recording chickens that are still manual. which is still manual. Recording is a record of all events regarding livestock that are kept which can provide information needed to make objective decisions based on existing facts, so that the decisions made are the most important. facts, so that the decision made is the best decision".

ASIA FARM is a company that operates in the field of egg-laying chicken farming, previous researchers. Research Rio Septian, Hardinata, shows Web-Based Sheep Recording Application Using the Design Thinking Method: from the research [3]web application that helps farmers record and monitor sheep livestock data efficiently and easily. This application was developed using the Design Thinking method, with features that make it easier for farmers to record livestock data such as livestock lists, livestock health conditions, vaccination schedules, and so on. Research from [3] the design thinking method allows writers to understand user needs and provide effective solutions. Also, shows that development of a Mobile-based Chicken Farm Monitoring Information System using React Native and Restfull Web Service (Case Study: Sentosa Alfa Farm) From the results of the needs analysis, it is continued with design in the form of Class Diagrams, Physical Data Models, Sequence Diagrams, API design, and User Interface design. Research from [4].The system implementation is carried out in the form of mobile apps with the Laravel framework and React native. These two technologies will communicate using RESTFUL Web Services. For testing, we use black box testing which gets all valid values and usability testing. Another research [5] shows that development of a Website-Based Cake Ordering System Using Midtrans Webservice as a Payment Gateway (Case Study: De Tasty Cake Shop) : In this research, a cake ordering system will be developed using the Laravel framework and integrated with the Midtrans payment gateway using the Service Oriented Architecture concept. The testing method used was usability testing using the System Usability Scale which obtained a final score of 74.13, which means that the cake ordering system in the Acceptability Ranges assessment obtained acceptable status based on a questionnaire survey of 20 respondents..shows that analysis of the Design Thinking Method in Designing Livestock Recording Applications (Case Study: Tani Karya Bersama Group) : By using the Design Thinking method in developing livestock recording applications, the Karya Bersama Farmers Group can obtain better solutions in managing theSir livestock data. The developed livestock recording application can help them more easily and accurately record and manage their livestock data, so that they can increase the productivity and efficiency of their livestock business. And the last research from shows that implementation Of Rfid (Radio Frequency Identification) Technology For Recording Cattle Farm Data research from.In this service activity, RFID is used to identify cattle in the recording process by integrating

android applications and website applications. The process of recording cattle data will be carried out through an android application in the form of recording for cow identity, cattle ownership, cow health, insemination process in cattle, calf birth, and cattle growth data and sending data to the database.

From the five previous researchers above, the difference in my research is that the first researcher used the design thinking method, the second researcher used mobile apps with the Laravel and React native frameworks, these two technologies will communicate using RESTFUL Web Services, the third researcher used the testing method used is usability testing using the System Usability Scale, the fourth researcher uses the Design Thinking method in developing livestock recording applications, the fifth researcher In this service activity, RFID is used to identify cattle in the recording process by integrating the Android application and website application Meanwhile, my research uses a web service based application so that it can be connected to websites and mobile (Android) and uses black box testing so it is very easy to access anywhere because this application is online and designed to be able to manage all existing data.

The objectives to be achieved in carrying out this research are to design an application that can be used to process data from daily recording easily and quickly so that it can be accessed anywhere and to implement Web Service technology in the chicken farm recording application.

## **2 Research Methods**

**Place and Time of Research** This research process was carried out at ASIA FARM in Tadangpalie village, Pammana District, Wajo Regency. The time required for this research is around 4 months, namely, December 2020 to March 2021. Types of research; The types of research carried out by the author in this research are as follows: Library Research, Library Research is research carried out by taking several journals regarding the definition and concept of designing livestock recording applications, Field Research, and Field Research is research carried out by collecting data directly at ASIA FARM Wajo Regency.

**Testing Methods;** System testing is carried out to determine whether the system being built can function as expected. The system testing methods used in this test are Black Box testing and White Box testing. Black Box testing focuses on the functional requirements of the software. Black Box testing is a complementary approach that is likely to be able to reveal error classes. This testing method is very appropriate to use to find out whether the system is working properly. If the system provides inappropriate output, then an error has occurred in the system and try to find the error.

### 3 Results

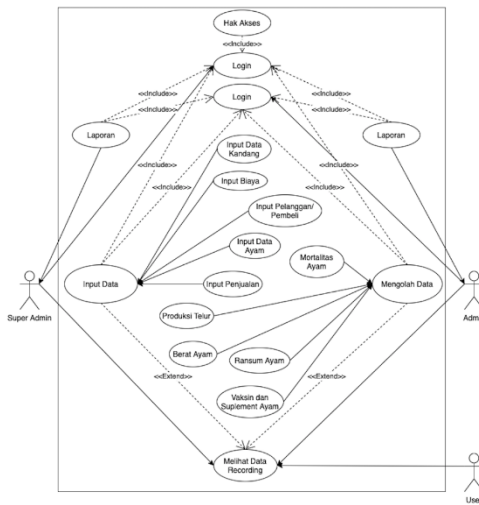
#### 3.1 System Analysis

The initial step in designing this application is to create system documentation using UML (Unfield Modeling Language), using several diagrams, namely: use case diagrams then create activity diagrams, and finally sequence diagrams that show each program or system activity.

#### 3.2 General System Design

##### 3.2.1 Use case diagrams

Serve to carry out the benefits of the system when viewed from the view of people outside the system (actors). In this application the main actor is the user himself who uses the simulation application.

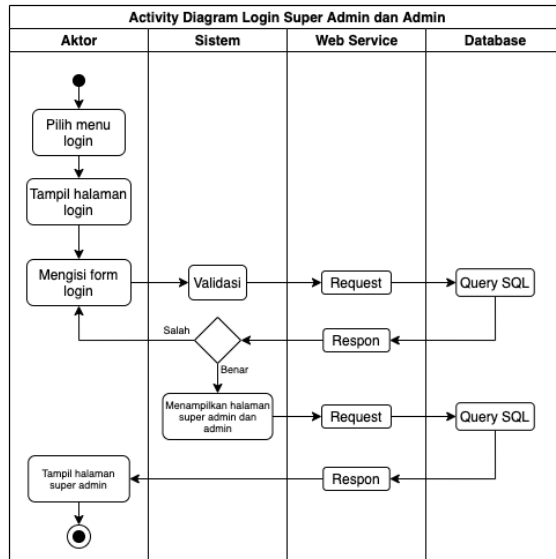


Description:

Super Admin is the owner / owner of the farm who can process farm data, input farm data, process access rights and print reports, and can view recording data directly. Admins are breeders / employees, while the difference between super admins and admins is in the access rights feature where super admins can process admin data and add admins. And users are visitors or vaccinators who have a role that can only view recording data.

##### 3.2.2 Diagram Activity

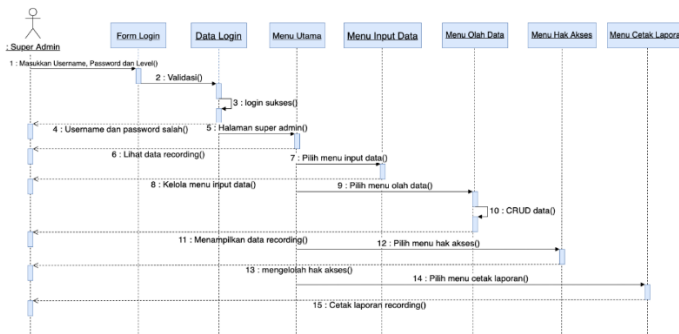
The activity diagram here is intended to describe the behavior or activities that occur in the proposed web service-based layer farm management recording system. The number of behaviors in the application are as follows.



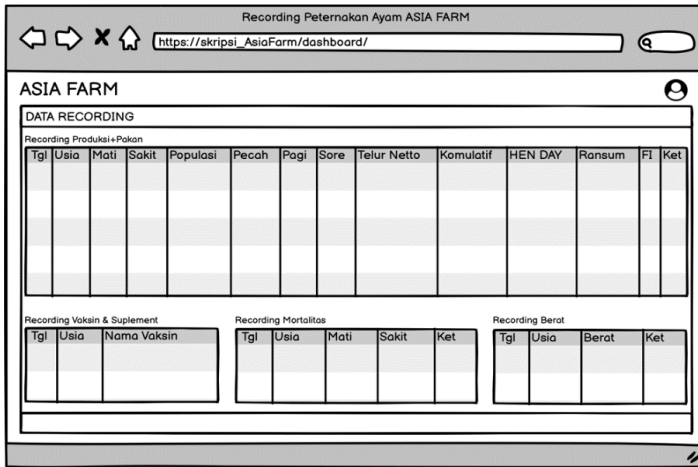
In the Activity Diagram picture, the super admin and admin login have the same activity flow, starting with the super admin or admin logging in by entering the username, password and selecting the correct level. If the validation process is correct, the system will display the main page of the super admin or admin.

### 3.2.3 Sequence Diagram

Sequece Diagram is used to describe the sequence of events or processes that occur in the system. The following is a sequence diagram of a web service-based laying hen farm management recording system: Super Admin Sequence Diagram In this system, Super Admin as one of the actors can access all existing menus when successfully logged in, where each menu has a different focus on data management.







### 3.2.6 Tabel Design

The design of database tables is the process of determining the data settings needed to support system design, so that data processing is more efficient.

#### 1. Chicken Data Table

No	Field Name	Data Type	Value	Description
1	Chicken id	Varchar	15	chicken id
2	Afkir	Enum	Yes, No	Age of hens laying eggs
3	Entry date	Date		Entry date
4	Age	Int	30	Age of chickens entered
5	Total	Int	11	Quantity of chicken
6	Cage id	Varchar	15	Cage id

The chicken data table is used to store chicken data. As can be seen in the table.

#### 2. Item Data Table

The item data table is used to store barcode data according to the name of the item, type of item and price of the item. As can be seen in the table

No	Field Name	Data Type	Value	Description
1	barcode	Varchar	20	Barcode
2	Name1	Varchar	30	Name of goods
3	Name2	Varchar	3	Unit of measure
4	Price1	Double		Price of goods according to barcode
5	Item	Double		Name of item

3. Chicken Weight Table

The chicken weight table is used to store chicken weight data every time it has weighed. As can be seen in the table

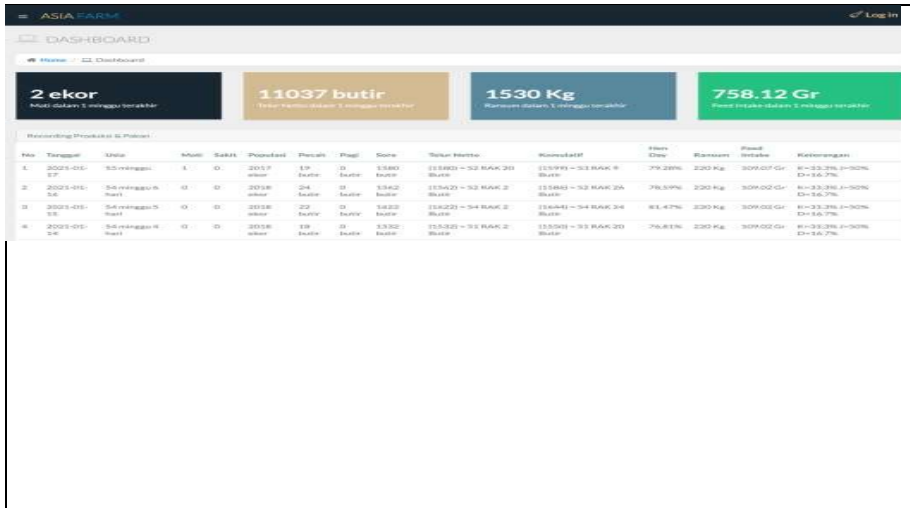
3.2.7 System Test Methods

Black Box Testing

1. Main Page Menu Testing

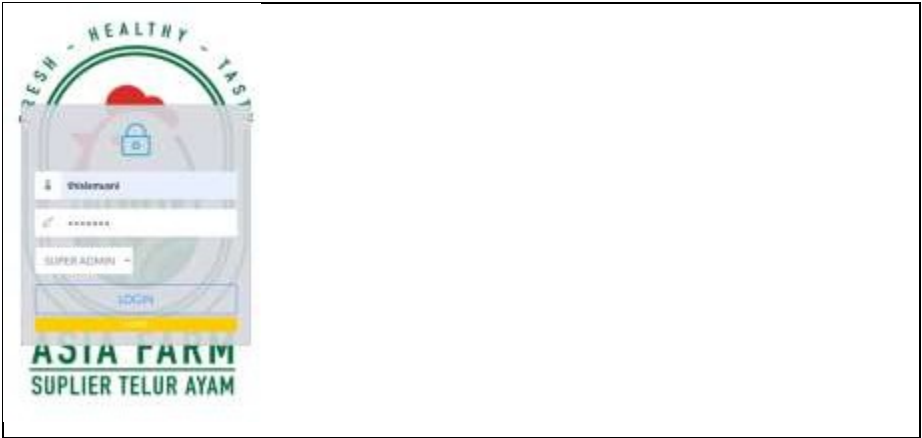
Test Factor	Description	Result
Run the program	Successfully displayed the main page	√
Klik menu login	Successfully displayed the form login	√
Screenshoot		





2. Testing Form Login (Web)

Test Factor	Description	Result
Press the button login	Successfully display the dashboard form page if the username and password are correct according to the account type	√
Press button login	Successfully displays error message if username and password are incorrect	√
Screenshot		

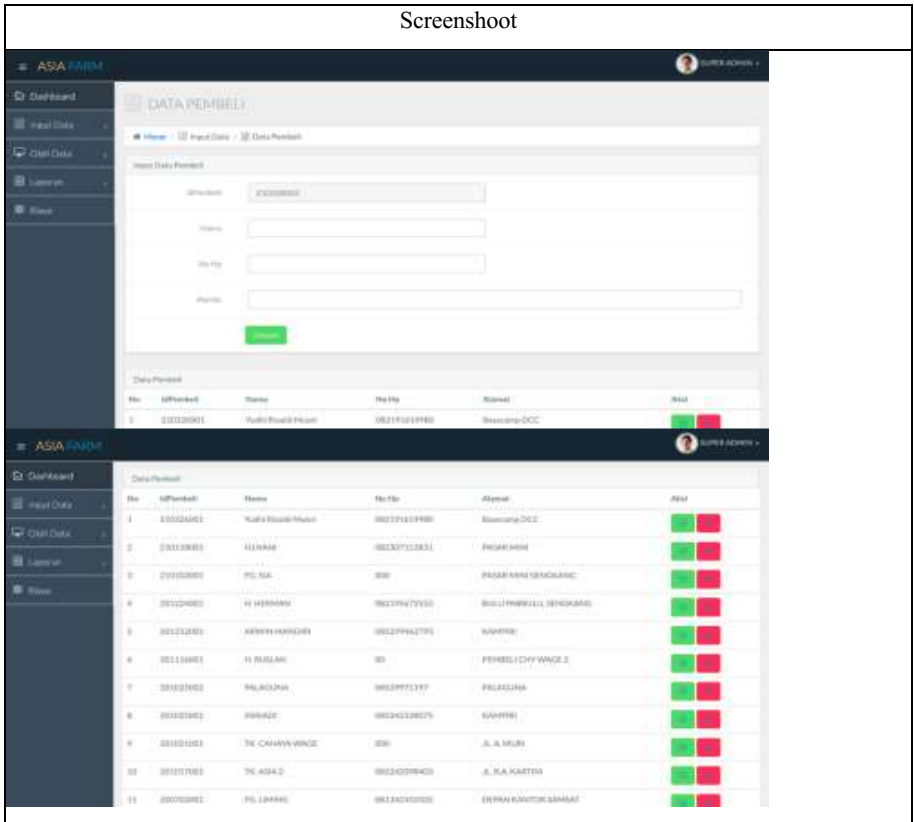


3. Super Admin and Admin Page Menu Testing (Web)

Test Factor	Description	Result
Click Menu Dashboard	Successfully Displayed Super Admin And Admin Pages	√
Click Menu Input Data	Successfully Displayed Menu Input Data	√
Click Menu Input Buyer Data	Successfully Displayed Data Pembeli	√
Click Menu Input Data Chickhen	Successfully Displayed Data Chickhen	√
Click The Cage Data Input Menu	Successfully Displayed Cage Data	√
Click The Item Data Input Menu	Successfully Displayed Data Input Menu	√

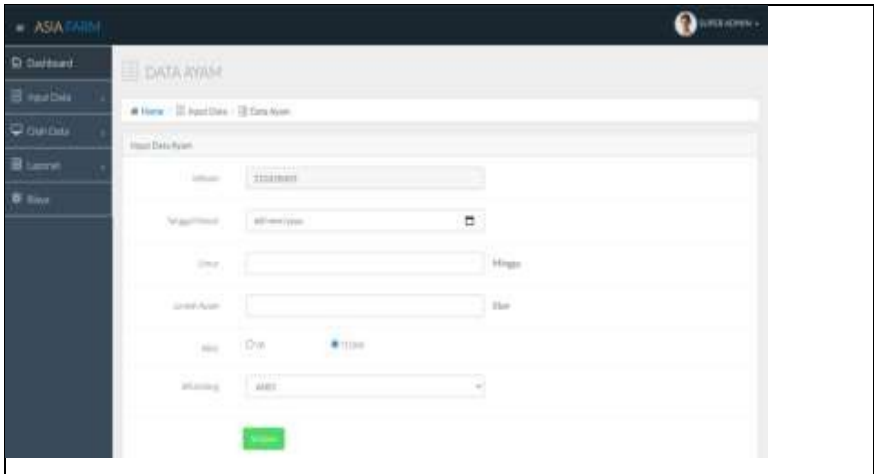
Test Factor	Description	Result
Click the data processing menu	Successfully displayed the data processing menu	√
Click the production data processing menu	Successfully display production data	√
Click the ration data processing menu	Successfully displayed ration data	√





5. Testing Form Edit Data chicken (Web)

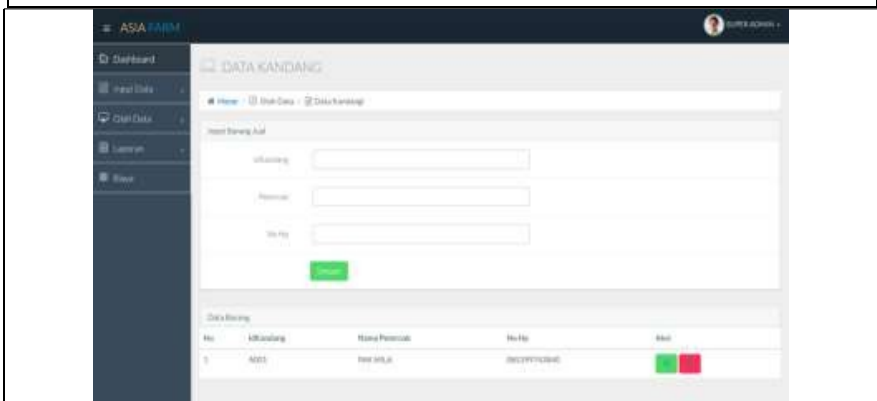
Test Factor	Description	Result
Click the save button	Successfully save chicken data	√
Click the edit button	Successfully displayed chicken data edit form	√
Click the delete button	Successfully deleted chicken data	√
Screenshot		



6. Testing Form cage data (Web)

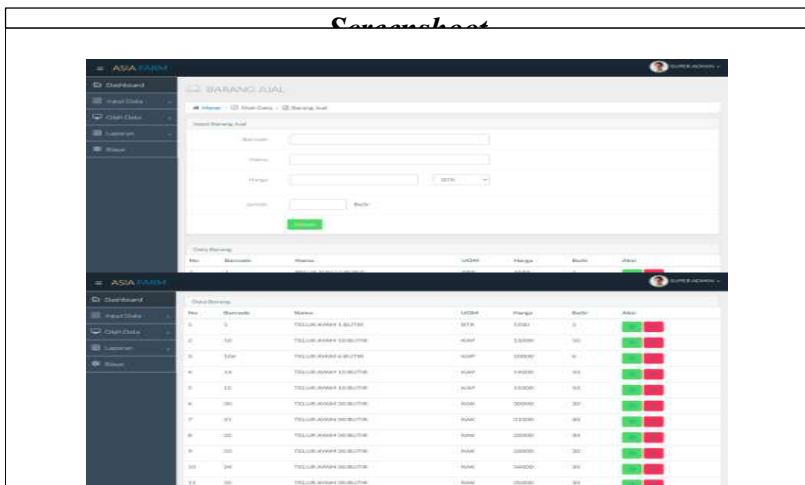
Test Factor	Description	Result
Click the save button	Successfully save cage data	√
Click the edit button	Successfully displayed the cage data edit form	√
Click the delete button	Successfully deleted cage data	√

Screenshot



7. Testing Form Data input (Web)

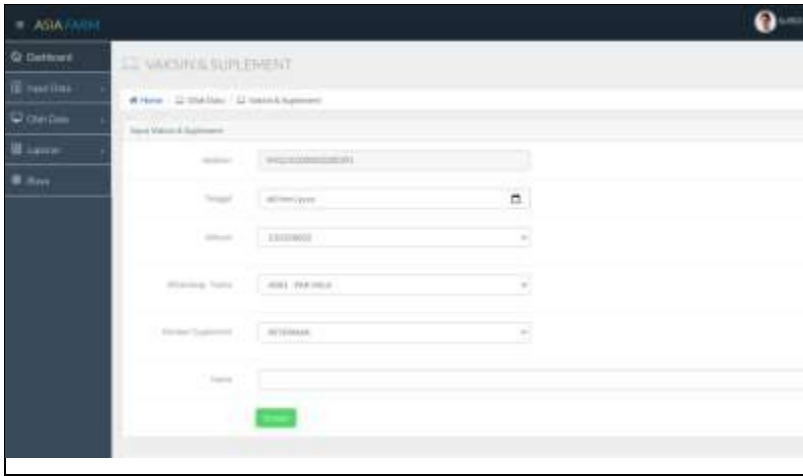
Test Factor	Description	Result
Click the save button	Successfully save merchandise data	√
Click the edit button	Successfully display the edit form of selling item data	√
Click the delete button	Successfully delete merchandise data	√



8. Testing form processed product data (Web)

Test Factor	Description	Result
Click the save button	Successfully save production data	√
Click the edit button	Successfully displayed the production data edit form	√
Click the delete button	Successfully delete production data	√
Screenshot		





10. Testing Form Data weight chicken (Web)

Test Factor	Description	Result
Click the save button	Successfully save data on the weight of chickens	√
Click the edit button	Successfully display chicken weight data edit form	√
Click the delete button	Successfully deleted chicken weight data	√

4 Conclusion

From the results of observations we made at the laying hen farm at Asia Farm, where initially this farm still used data management written in books and weekly recordings on a blackboard, so it could cause problems such as the books being dirty, lost or getting wet in the water when they were at the location. and weekly recordings will be deleted every week. And after this recording system is used, each function of the system part is as expected so that this system provides information about recording or recording efficiently so that the productivity of laying hen farms at Asia Farm increases. It can be seen from the comparison of Hen Day values each day so that the owner can predict the amount of production each day. Where this system can be used mobile to view recording recording results so that it is more efficient



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