QUALITY CONTROL MANAGEMENT SYSTEM DESIGN: FRAMEWORK-BASED OF SIPRIMA MOBILE APPLICATION

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ABSTRACT

Nowadays, technological developments have a profound impact on all areas of human life. We as humans cannot avoid the influence of the evolution of the times, as well as with the business world. The use of technology in the world of business has a tremendous positive influence, so PT Prima Teknikindo Raya created an application called SiPrima. The Siprima application is an application that serves as a recording and management system for PT Prima Tekindo Raya. This application was created to solve the problems that are owned by PT Prima Technikindo Raya, which is the recording system that is still manual and is considered quite difficult, therefore it was created an app called SiPrimima which can help solve problems experienced by the PT Prima Techindo Raya based on Android to make it easier to work [1] to be able to avoid the influence of the development of the times, as well as with the business world. The use of technology in the world of business has an extraordinary positive influence, so the company PT.Prima TeknikIndo Raya created an application called "SiPrima". The application SiPrima is an application that functions as a quality control management system of production quality of products within the company. The application was developed to address the issue of the management of the quality control system's ineffectiveness and efficiency in controlling production quality. Therefore, it was created a Siprima application that can help solve problems experienced by the Company.

Keywords: Technology, Evolution of the Times, Business, Positive Impact, Management, SiPrima

1. INTRODUCTION

Technological advances have changed the way people live and brought a new paradigm into the business world. The wave of globalization that has affected all aspects of human life has changed a lot of human thinking patterns [2], Information Technology is also widely used in governmental institutions as well as private companies [3]. PT Prima Teknikindo Raya, a new enterprise in the machinery industry, was founded in 2018 at Jl. Melati No.03, Balonggabus, Candi District, Sidoarjo District, East Java 61271. Despite its being new, the company is eager to grow its business, strive to overcome competitors in the sector, and build the company's reputation.

In facing the Industry Revolution 4.0, the Company still has constraints on the part of the recording system, recapitulation of data, and customer lead management. This leads to a lack of effectiveness and efficiency in customer queue management. Due to such lacking the solution becomes a practical option, the existence of the system of recording, data leadership, and customer queue management is expected to improve the efficiency of the Company PT.

To overcome this challenge, the proposed solution is the development of a mobile application called SiPrima which is expected to facilitate the quality control process of orders. The use of this system is hoped to help PT. Prima Teknikindo Raya improve the performance of their company. Thus, a "SiPrima Application" has been redesigned.

The research objective of the SiPrima application is to help the process of quality control of new orders in the Company, while quality control is the quality control process that is divided into several processes i.e. first, the supervision in the production process is by taking samples at the same time distance and performing statistical verification to see if the process started well or not [4]. It can analyze data that is easy to understand, real-time monitoring, and can be tailored to the needs of the company. In the description of the planning of making SiPrima framework-based mobile application, then the problem appears is how to help the process of quality control new orders in the company

2. LITERATURE REVIEW

2.1. FlutterFlow

Flutter is a goggle-owned portable framework that can be used in the creation or design of applications which can be converted for mobile applications or created from a single line of code [5]. Moreover, flutterflow is also called visual development that can design, create, and implement ideas on a framework-based mobile application quickly and practically, but keep an eye on the attractive level of design quality of a mobile application based on framework.

2.2. Firebase

Firebase is a behind-the-screen facility that integrates mobile applications into the cloud storage

[6]. It is also a platform that provides a variety of tools and services when creating mobile applications, with the presence of firebase helping to make mobile application development services faster and more efficient.

2.3. Figma

Figma is one of the materials or theories used to design interfaces in a mobile application, besides figma is commonly called tools. By designing through figma there are many benefits one of which provides many additional plugins.

2.4. Use Case

Use Case is a part of the UML (unified modeling language) that serves to describe the system with the user.
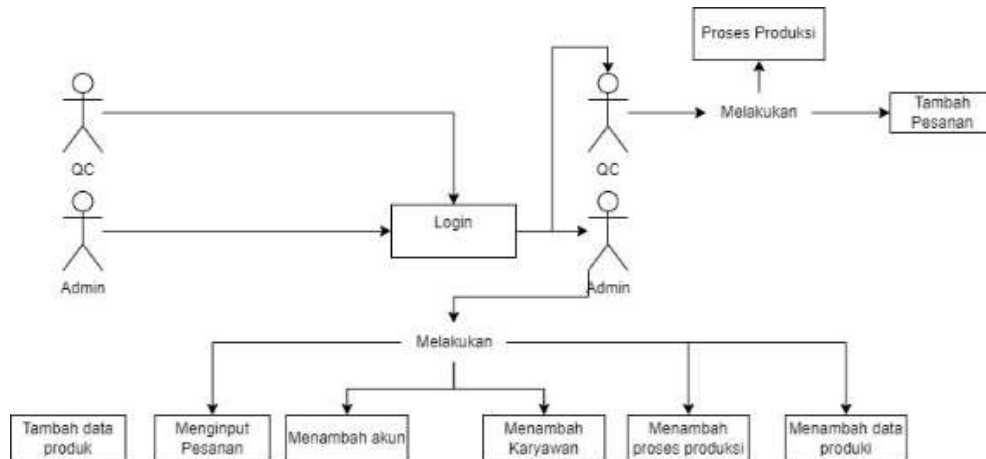

Figure 1. Use Case Aplikasi

In the user quality control can perform production processes and add orders, while the admin does add product data, enter orders, and add accounts, add employees, add production process, and add production data.

3. RESEARCH METHOD

The method used in the design of the Siprima application is a qualitative method, the qualitational method is a method that focuses on the way of deep observation, so that it can produce the study of a more comprehensive phenomenon. The stages in this method are as follows

3.1. Observation Stage

This data is observed directly to the partner in accordance with the needs of the current partner, namely to identify problems or effectiveness and efficiency in the management system of quality control orders and the quality of production of the PT Company.

3.2. Interview Stage

During this phase, live interviews with partners are conducted by conducting discussion sessions as well as a team questioning session with partners.

3.3. Application Design Stage

In this process, our team designed an Android application by creating a Siprima application based on a framework and flutter as a databse. Flutter is the medium of the database tool used to create the framework that is suitable for mobile application development.

3.4. Implementation and Evaluation Stages

Software development covers several stages, namely need collection, analysis, planning, implementation (coding), testing, and maintenance. Once the application is designed, we try to implement and evaluate the application created by conducting application testing and evaluation on the part of partners. This can be beneficial to the partner after the testing, then it will go through the evaluation phase on a Siprima framework- based mobile application. With the testing and evaluation, then will obtain the result that the application has a bug or error in it and according to the needs of the current partner

Table 1. Observation Stage

No.	Problem Identification	Partner Need
1.	No quality control management system	Designing by creating an automated quality control system
2.	Creating a new order is still using the manual	Create an admin user to make it easy to create new orders in a mobile application

This table represents an early stage in the design or creation of the SiPrima framework- based mobile application. The phase undertaken is the observation phase, this phase is the phase of

identification of the current partner's problems and requests as required.

Table 2. Interview Stage

No.	Questions	Partner's response
1.	How does the management system process use the system manually. Is the process efficiently used?	The process of using the manual system is not so fast, it is difficult for the user to control orders. No, the process is inefficient to use as it can inhibit the production quality process
2.	How does the management system process use the system manually. Is the process efficiently used?	There are no priorities that have been done or have not been done
3.	How do we regulate the quality of production?	The way to regulate the quality of production is to record each quality of the production part with a manual system.

This table is a table of interviews with partners, containing questions and answers related to the system currently in use. On this system partners can do it well.
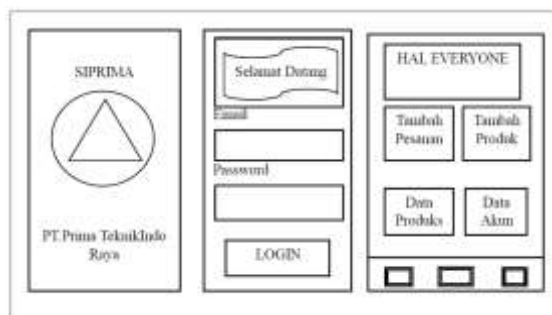

Figure 2. Application Design

The picture shows the design of the application before creating the framework- based mobile application "Siprima". This planning is essential, because with the design of the application, the partner can provide input or request according to the needs of the current partner.

Figure 3. Implementation and Evaluation Stage

In this table is a mock up design table designed using flutterflow media. In this phase is the implementation and evaluation phase of a design idea that has been made based on the needs of the partner that is currently needed, prior to the design of the mobile application "Siprima" is made, there needs to be an evaluation related to the design on the part of the partner so that the partner can evaluate what parts of the features need to be added.

4. RESULT AND DISCUSSION
4.1. Implementation

Figure 4. SplashScreen Feature

This display shows a splashscreen display of the SiPrima application that contains images that can represent the meaning of the name SiPrima which consist of the information, recording and management system for PT Prima Teknikindo Raya

Figure 5. Login View

In the View this is the login menu when the admin runs the program [10] into the SiPrima application. In that login menu the user must enter an email and a registered password. We can use our individual Google accounts to log in or sign in in this view as well.

This is a home view of the SiPrima application. In this page we will present some features and menus such as add order features, add product data, production part data, account data, employee data,

and production process and in this page, there is also a bottom menu that contains four features namely home, history, orders and accounts.

Figure 6. Admin Home View

4.2. Application testing

During the design process, the "Siprima" application is tested to determine whether the framework-based siprima mobile application is functioning properly.

Table 4. Application Testing

No.	Activity	Expected Result	Testing Result
1.	Type email and password on login feature	The email input system was successfully added, so the application immediately switched to the home page	As expected.
2.	Adding order menu and prioritize order that have been done or have not been done	The order system will show notification that the order was successfully added and became a priority	As expected
3.	Adding registered product data plus product	The system is successfully added to product list and system automatically switched to product details page	As expected
4.	Filling or editing order data	The system will automatically change according to what was previously edited in the order data feature	As expected
5.	Sequencing added data on production division	The system succeeded and automatically switched to the production part data feature	As expected
6.	Editting user account	The system will switch to the user details page and successfully add in the user feature section, which previously had its role as an administrator changed to quality control. (quality check)	As expected

In the table above are the results of application testing carried out by the partners. After doing the testing of this application, that the design of the framework- based application "SiPrima" can be said in accordance with the needs and expectations of the current partner. With the presence of this application helps the quality process of production to be more effective and efficient

5. CONCLUSION AND SUGGESTION

With the creation of this SiPrima application design, it is known that the application has advantages, disadvantages, as well as benefits, namely: There are still weaknesses in the design part of the mock up; it is simple and lack of animation, the application has not been able to be connected to

the playstore, the application only dedicated to the administrative part and quality control only. May the next project of this application Siprima can be developed and designed as interesting as possible by bringing up the latest ideas. The design of applications can be more interesting and connected through the play store. When developing a mobile application, the framework allows for public access in addition to being reserved for partner users.

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