RESEARCH ARTICLE OPEN ACCESS

Analysis and Design of Mobile Attendance Applications Using Prototyping Methodsat PT. PAM Digital Teknologi

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Abstract:

At PT. PAM Digital Teknologi, currently employee absences are still using a fingerprint machine, which is complained about by the Human Resources division because many of the employee's fingerprints are unreadable by the machine. One factor is like a wet fingerprint. So that PT. PAM Digital Teknologi requires a system that is able to provide solutions to these problems. Especially at this time, recording employee data, recording attendance is still manual, less structured filing leave and employee business trips, and also employees do not know the details of monthly salary slips received, including work management in a company.Along with the development of technology, PT. PAM Digital Teknologi requires applications that cover these problems so as not to interfere with employee management and better day by day.As a writer, want to analyze and design applications to facilitate employee attendance activities for PT. PAM Digital Teknologi. With interview and survey research methods centered on employees in the scope of the case study, especially in the Human Resources division, it is hoped that supporting data will be obtained for the analysis and design of the application.So the writer can make an application design that is useful for case studies and a solution to the problem of employee attendance at PT. PAM Digital Teknologi.

Keywords **—prototyping, mobile application, attendance, human resources, pt. pam digital teknologi, mercu buana university.**

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I. INTRODUCTION

Human Resources (HR) is one important part of a business organization. With the number of employees who are still fairly evolved, such as PT. PAM Digital Teknologi, attendance using a fingerprint is very good, but there are some fingerprints employees are not readable by the machine. Coupled with a number of problems such as recording employee data and recording attendance is still manual, lacking structured leave and official employee travel, as well as overall attendance reports, and also employees do not know the details of salary slips received per month, including work management in a company. Like other companies that have utilized the role of technology in organizing their human resources, PT. PAM Digital Teknologi wants to make a better attendance system so that it can handle existing problems so that it cannot interfere with other sectors. Based on the description of the background above, the authors propose an analysis and design of attendance applications that are able to work better in the case study and will later be submitted with the title "Analysis and Design of Mobile Attendance Applications using the Prototyping Method".

II. THEORITICAL BASIS

A. Prototyping Method

The system development process often uses a prototype approach. This method is very well used to solve the problem of misunderstanding between

the user and the analyst arising from the user being unable to clearly define his needs. Prototyping is the rapid development and testing of work models (prototypes) of new applications through an interaction and repetitive process commonly used by information systems experts and business experts. Prototyping is also called rapid application design (RAD) because it simplifies and speeds up system design. Some users have difficulty expressing their desire to get an application that suits their needs. This difficulty needs to be resolved by analysts by understanding user needs and translating them into prototypes. This model is then continually improved until it is according to user needs[1].

B. Mobile Application

Mobile applications can be interpreted as a product of a mobile computing system, namely a computing system that can be easily moved physically and which computing capabilities can be used when they are being moved. Examples are personal digital assistants (PDAs), smartphones and cellphones (Reza B'Far, 2005:3) [2].

C. Attendance

Attendance is an attendance document that lists names, hours of arrival, hours of return, and information as guidelines for calculating salary payments. Attendance is a way to find out how far the level of work discipline is, whether working people are able to comply with applicable regulations. Attendance is an element of discipline that aims to improve discipline in an institution[3].Attendance means "absent", but it can also be said that absenteeism is the absence or presence of an object in this case is a person, where the person is involved in an organization that requires notification of the situation or presence or absence in the scope of the organization. Attendance is very influential on the personal performance and institutions where it works, which can be used as consideration of follow-up and making decisions for the continuity of development of the agency[4].

D. Human Resource Management

Human Resource Management, or abbreviated HRM is a science or how to regulate relationships and the role of resources owned by individuals to the maximum so that a goal is achieved. Marwansyah's understanding of management is the utilization of human resources within the organization through the functions of human resource planning, recruitment and selection, development of human resources, career planning and development, compensation and welfare, occupational safety and health, and industrial relations. According to Flippo Human Resource Management is called personel management, namely planning, organizing, directing and terminating employment, developing compensation, integrating, maintaining and terminating employment with human resources to achieve the goals of individuals, organizations and communities[5].

III. ANALYSIS AND DESIGN

A. Research Sites

This research conducted at PT. PAM Digital Teknologi, having the address at the building PAM Tower, Jalan Hayam Wuruk No.33, Jakarta Pusat, 10120. Telepon: 021-34832734.

B. Data Collection Technique

Referring from the case study with the problems that occur and sourced from the existing literature, the data collection techniques that will be carried out are by interviewing the scope of the employees of PT. PAM Digital Technology, so that concrete data is expected to be obtained to support research.

C. Research Flow Design

The stages that will be carried out to conduct research in the analysis and design of attendance systems at PT. PAM Digital Teknologi starts with:

1) ***Analyze****:* Analysis of problems that occur using the method of collecting related data is obtained by data collection techniques, namely interviews.

2) ***Design:***After obtaining these data, the next stage is formulating the attendance application design through UML diagram forms.

3) ***Diagram:***Formulate the UML diagram forms into an attendance application interface design using a design application called Adobe XD.

4) ***Application Design:***After all the attendance application interface design is complete, the next stage connects (prototyping) using the same application (Adobe XD) so that interaction between the designs occurs so that the contents of the attendance application can be visualized.

5) ***Evaluation:***Evaluation of prototyping is the next stage whether the system that has been designed is in accordance with the problems that occur. If there is an evaluation, then back to the stage of formulating the diagram, if not, then enter the final stage.

6) ***Finalizing:***The final stage is finalizing the analysis and design of the attendance application so that it can be implemented by the party (developer) PT. PAM Digital Teknologi.

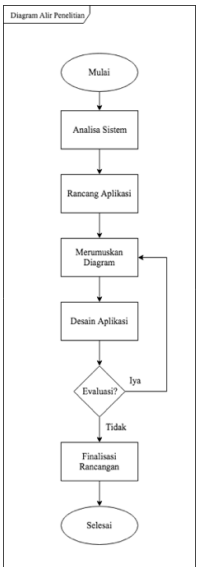

Fig. 1 Research Flow Diagram

D. User Identification

User identification defines the actors involved and interacts directly with the system. Based on the general description of the system more explained in the previous section, there are three users who will use the application:

1) ***Employee:***Is a user who performs attendance activities as an important activity that supports other activities such as filing leave, submitting official travel, managing work and seeing salary slips.

2) ***HRDepartment:***Is a user who is responsible for employee data so that attendance activities can be carried out.

3) ***Head of Division:***Is a user who has the right to the preparation of work for which the activity can be carried out by the Employee.

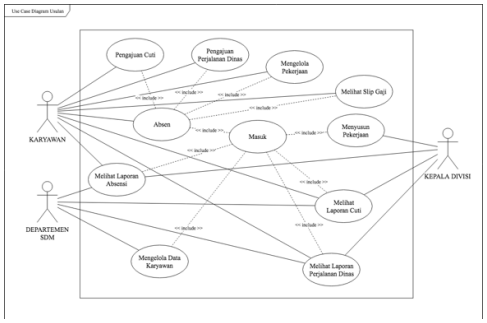

Fig. 2Proposal Use Case Diagram

E. Architectural Design

The design of the application architecture looks at the activities that occur from all actors involved, such as:

1) ***Attendance:***The actors involved are Employees absent, which is absent and absent. After that, the results of the absence can be made a report that can be seen by the HR Department and Division Head.

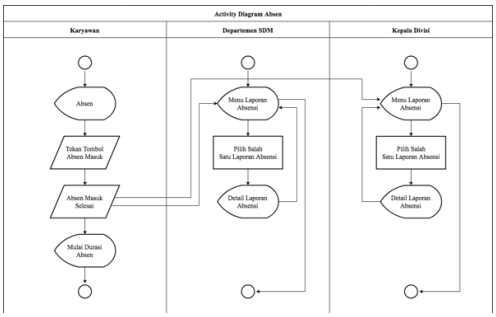

Fig. 3AttendanceActivity Diagram

2) ***Filling Leave:*** Aktor yang terlibat yaitu Karyawan melakukan pengajuan cuti, setelah selesai melakukan aktivitas tersebut, dapat disetujui atau dibatalkan oleh Kepala Divisi.

3) ***Submission of Official Travel:***As with the filing of leave, the actor involved is that the Employee submits an official trip, after completing the activity, it can also be approved or canceled by the Division Head.

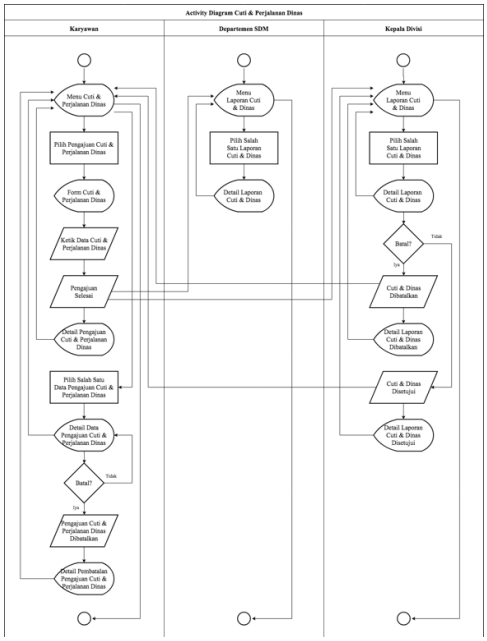

Fig. 4Leave & Official Travel Activity Diagram

4) ***Work:***Overall work activities can be managed and compiled by the Employees and validated by the Division Head.

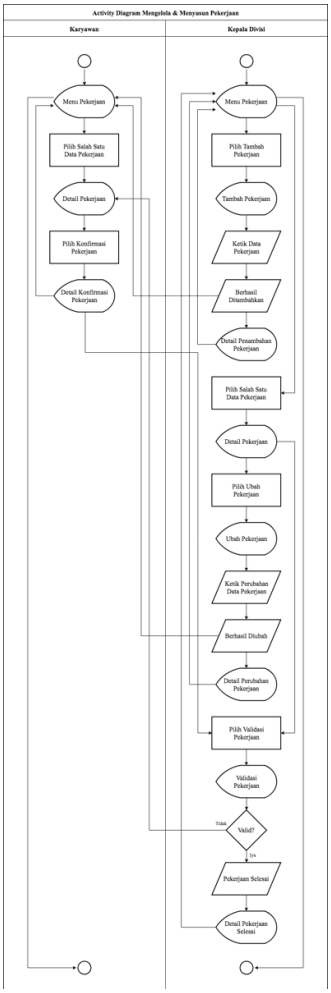

Fig. 5Managing & Arranging Work Activity Diagram

5) ***Employee Data:***Activities to manage employee data are carried out by the HR Department. Such as adding and changing employee data.

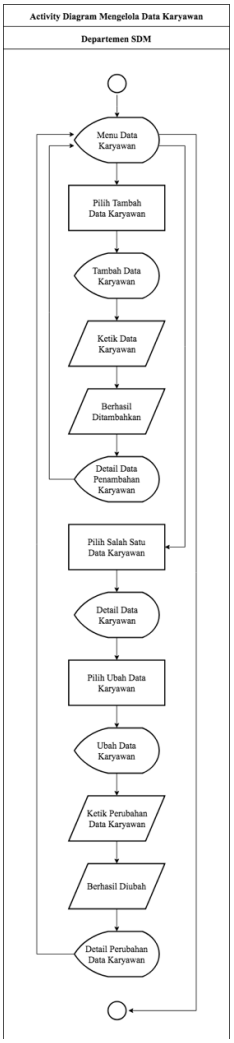

Fig. 6Managing Employee Data Activity Diagram

6) ***Salary Slip:***Activities to view salary slips are the last activity carried out by the Employee as a finalization activity of all activities carried out by other actors.

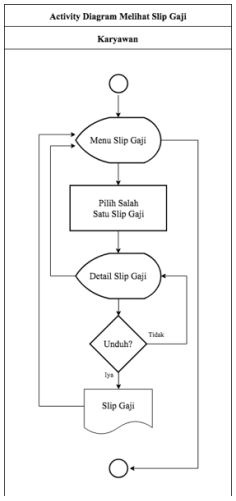

Fig. 7See Salary Slip Activity Diagram

F. Database Design

Database Design that can be generated from activities that have been carried out by actors can be made into the next stage. The formed tables include Employees, HR Departments, Division Heads, Absences, Leave, Official Travel, Employment, Reports and Salary Slip.

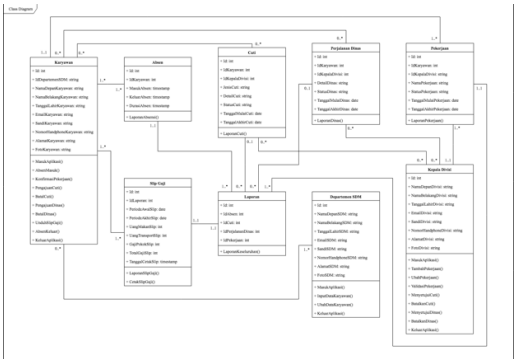

Fig. 8 Class Diagram

G. User Interface

The first activity is done is absent. The activity is carried out by the Employee actor as a prefix activity before carrying out other activities.

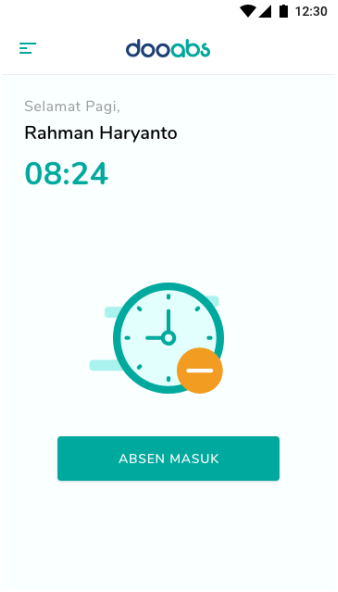

Fig. 9Employee - Attendance

The next activity that is carried out is the submission of leave and official travel. This activity needs approval from the Head of Division so that the business processes that occur are not hampered.

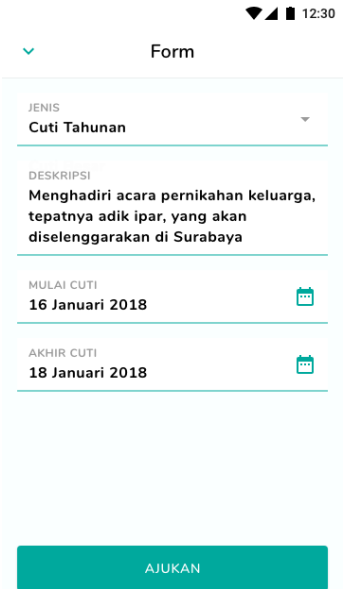

Fig. 10Employee – Filling Leave

Fig. 11Employee – Submission of Official Travel

If the employee wants to confirm the work, this activity can be done if the employee has got a list of jobs that have been made by the Division Head.

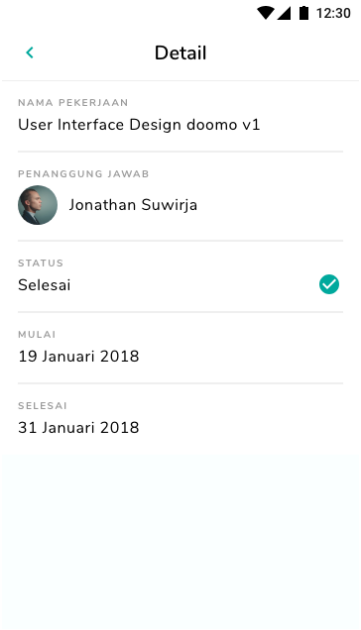

Fig. 12Employee – Work

Employee data management carried out by the HR Department intends to add and change employee data as the most important data so that the activities of this system as a whole can work.

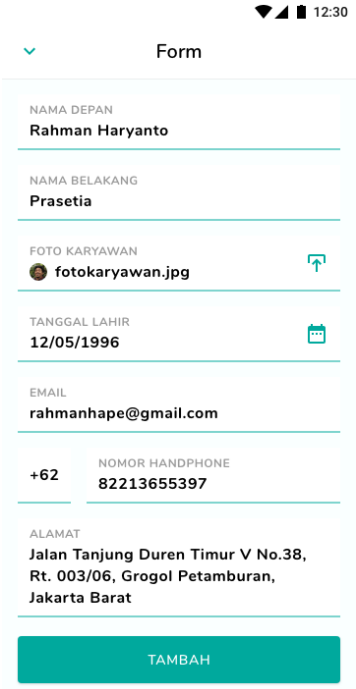

Fig. 13HR Department – Employee Data

Then the activities that have been carried out produce activities to see the paycheck, so that the business process can simplify and solve existing problems.

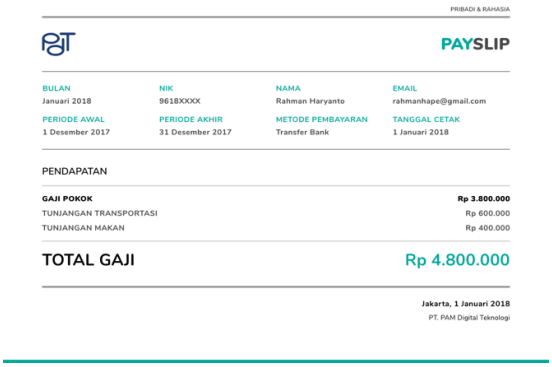

Fig. 14Employee – Salary Slip

IV. CONCLUSIONS AND SUGGESTIONS

A. Conclusions

The conclusion obtained by the author during the analysis and design of mobile attendance applications using the prototyping method is to use the prototyping method, the application of the application form can be clearly described in accordance with the business flow that occurs. The activities carried out by employees are one of the supporting factors for carrying out other activities.

B. Suggestions

From the experience gained during analysis and design and also referring to other related research, the author will provide related suggestions, namely the existing features are expected to be developed into more detailed features because they are open source. Analysis and design of mobile attendance applications using prototyping methods are expected to be able to use other methods for actual application development.

ACKNOWLEDGMENT

I would like to say thank you especially my parents, Mrs. Inna Sabily Karima, Mr. Handrie Noprisson, Ms. Inge Handriani, Ms. Anita Ratnasari, Mr. Jacob Suryanata, Ms. Intan Prasticha, all staffs of PT. PAM Digital Teknologi, all lectures and staff of Universitas Mercu Buana, and all my friends for their help and support.

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