Attendance System Design Based Mobile Employees to Detect Location Global Positioning System (Gps) And International Mobile Equipment Identity (Imei) Smartphone at Pt. Inovasi Dinamika Solusi

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Abstract: PT. Inovasi Dinamika Solusi is an information technology consultant who recently founded in 2017. The company has several employees that the data must be well-organized, especially in terms of employee attendance are currently no special recording of attendance itself is simply done by using a recording Microsoft Excel gained from history logs report the work, if the employee does not fill the log is then considered to be absent. This way the data can not be used as a reference for reporting and undermining some of the parties because in the process of recording attendance is not recorded in realtime. Information obtained become incompatible and can not be accounted for. The method used Prototype. The prototype method begins by listening to the needs and feedback from users. The design of this android based attendance system provides a feature absent present and return to check the GPS location, check the IMEI is registered on the account with the IMEI on the device. GPS is used to determine the location (tracking) the location of employee conduct must be absent due to the office area, smartphone IMEI is used to determine that the employees use the same smartphone to do absent. With the attendance of an information system based on Android is expected to become operational tools PT. Inovasi Dinamika Solusi.

Keywords: Attendance Officer, Mobile, Global Position System (GPS), International Mobile Equipment Identity (IMEI), PT. Inovasi Dinamika Solusi

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I. INTRODUCTION

PT. Inovasi Dinamika Solusi at Jalan Makmur No. Bojong Koneng 15 Village Sukapada Cibeunying District of Bandung Kidul, is an information technology consultant who recently founded in 2017 [1].

The company has several employees that the data must be well-organized, especially in terms of employee attendance are currently no special recording of attendance itself is simply done by recording using Microsoft Excel derived from history logs report the work, if the employee does not fill the log is then considered to be absent. because the process of recording attendance is not recorded in realtime. Information obtained become incompatible and can not be justified.

From the problems, PT. Inovasi Dinamika Solusi urgently need the attendance system development. Attendance system development in question is to design an information system based on android attendance in order to provide ease of management and attendance recording information with the information accessed quickly, appropriate and accountable.

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Prototype method begins by listening to the needs and feedback from users. Developers and users meet and jointly determine the overall goal for the software and identify any necessary requirements.

The design of this android based attendance system provides a feature absent present and return to check the GPS location, check the IMEI is registered on the account with the IMEI on the device. GPS is used to determine the location (tracking) the location of employee conduct must be absent due to the office area, smartphone IMEI is used to determine that the employees use the same smartphone to do absent. With the attendance of an information system based on Android is expected to become operational tools PT. Inovasi Dinamika Solusi

II.   LITERATURE REVIEW

In the study conducted by Agus Prasetyo, Arif Bijaksana and Novi Safriadi titled "Information System Lecturer and Student Attendance Using Fingerprint On Informatika Studies Program University Tanjongpura". This study discusses how to design a system of absence to presence of lecturers and students use the sample fingerprint attendance recording process [2].

In the study conducted by Mohamad Dimyati, Enes Ariyanto and Galih Hendra entitled "Construction of the Student Attendance-Based Fingerprint Using Wireless Communications" This study discusses the design attendance system in which there is data transmission between attendance device and the server using a local wireless network. The process of using fingerprint attendance begins with a process enroll (register) fingerprint in attendance device using fingerprint sensors [3].

In the study conducted by Henny Febriana, Julham Sitorus and Meliza Lubis entitled "Attendance Information Systems at PT. COSPAR Sentosa Jaya Using Java Programming Language "This study discusses the making of the system by using Ms. Visio and Its Applications in the manufacturing process using the Java programming language as well as in the process are stored in MySQL [4].

In the study conducted by Husni Sulaiman, Zahir Zainuddin and Supriadi Sahibu entitled "System Face Detection to Identify Presence Students Method Using Eigenface PCA" This study discusses attendance system by implementing security systems face identification which consists of several stages such as face recognition, face authentication, localization faces, face tracking and facial expression recognition [5].

In the study conducted by Muhammad Benny Chaniago and Apri Junaidi entitled "Student Presence Using RFID and Telegram Messenger Application: A Study in SMK Unggulan Terpadu PGII Bandung, Indonesia" This study create a Telegram Messenger application for student presence as a solution [10].

In research conducted by Paulus, William, Vincent Otniel and Felix Pandi entitled "Attendance System Based on Radio Frequency Identification (RFID) on Mikroskil" This study discusses a study of the ability of contactless cards with RFID tags embedded in them to support the process of absences that will scan in attendance machine then use the data processing application to produce more accurate presence information [6].

RFID is particularly classified as "better bar code" is advertised, and "smart barcode." The media announced regularly that the days of bar code are numbered and that RFID will replace barcodes immediately. Recently, the fact shows RFID has some clear advantages over the barcode, but bar codes provide several distinct advantages over RFID. Behind all of enthusiasm over the advantages of RFID to bar codes that are advertised by media; the other side is quietly, sometimes deliberately, neglected in the press. As a result, a common belief form that barcodes are a safe loser when compared to RFID, regardless of the context. This is a completely false belief Brannon. 1995; Firdaus, 2010 [10].

2.1 Global Positioning System

Global Positioning System (GPS) satellite system works with navigation and positioning that is owned and managed by the United States. The system is designed to provide position and speed of the three-dimensional as well as information

about the time, continuously throughout the world without depending on time and weather, for many people simultaneously [7]. There are several ways to obtain these data are as follows:

1.   GPS *Provider*, In determining the location of *user*, The device will be directly connected with the satellite in order to obtain the coordinates of *user*,

2.   *network Providers*, In determining the location of the user, when the device can not be connected to a satellite, then automatically, the device will search for the position of *Base Transceiver Station* (BTS) of *network provider* such devices. Before connecting with GPS *provider* or *network provider*.

2.2 International Mobile Equipment Identity

According to Director General of Resources and Equipment of Post and Information (SDPPI), Ismail MT, International Mobile Equipment Identity (IMEI) is a special identification number issued by the GSM Association (GSMA) for each slot GSM card issued by the mobile phone manufacturer. The function of this IMEI to know the identity of mobile devices, check the warranty and are useful for tracking a cell phone device if it is lost [8].

III.   METHODOLOGY

Figure 1. Stages Process Prototype method [9]

In the Process Flow prototype development at the first stage the process of defining the needs and requirements analysis. In the second stage a prototype of the application to be built, starting from the design of the interface and then proceed with the preparation of the architecture as well as components related to applications built subsequently made the development of a system where the application to be built according to the prototype that was created earlier after successful application testing process is carried out before the application is implemented [9].

IV.   IMPLEMENTATION AND RESULT

4.1 Analysis of the Current System

As mentioned in the introduction above, no special recording of absences in PT. Inovasi Dinamika Solusi only is done by recording using Microsoft Excel derived from history log report jobs stored on google drive. As depicted in Figure 2 below.


Figure 2 Log History

In this figure, there is a column heading hour clock starts and finishes, but things like that there is no evidence that we are in the office, it could be an employee write the report log out of the office without a present in the office. Then the employee's presence is in doubt.

4.2 System Design

In this study, for the new system analysis system design based mobile absent employee attendance will be described by use case, activity diagrams and system interface design.

4.2.1 Use Case Diagram

In this study, the design of the system's functionality will be illustrated by the use case. There are two actors is User and Admin, to the user is defined as an employee who confirm their attendance and administrators to manage the user as
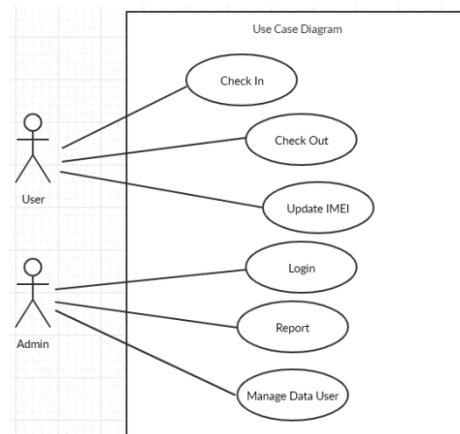
illustrated in Figure 3, below.

Figure 3 Use Case Diagram

4.2.2 Business Process Design System

The business processes of the system to be built in this research will be described in the activity diagram. The activity is described that the login process and attendance, which is illustrated in Figure 4 and Figure 5.
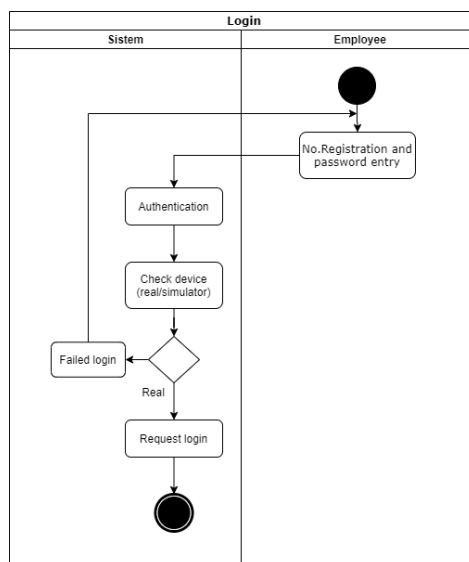
Figure 4 Diagram Activity Log
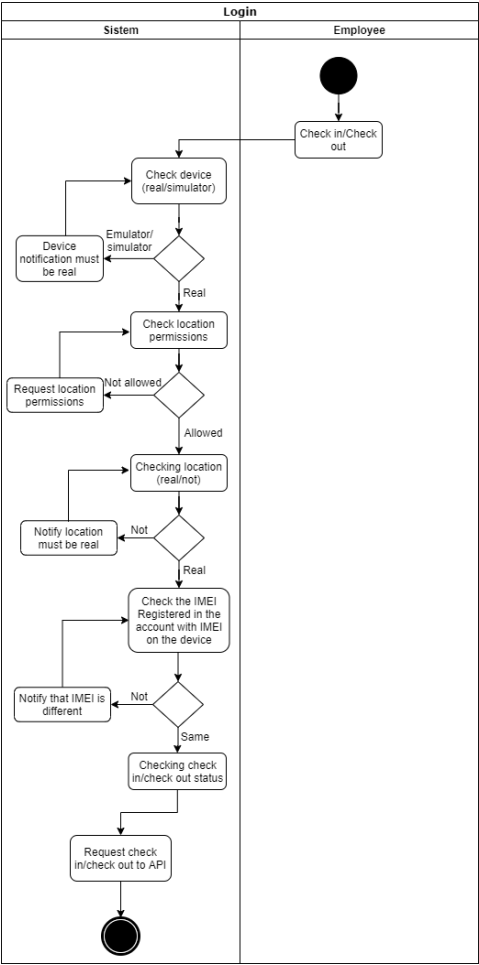
Activity Diagram Figure 5 Attendance

4.2.3 System Interface Design

This study will describe the interface design of a mobile-based employee attendance system that consists of the login page, the update page IMEI, missing pages, the report page.

A.   Interface Design Login Page

The design of the user interface login page used to enter the employee attendance system in accordance with the access rights owned by each user of the system.
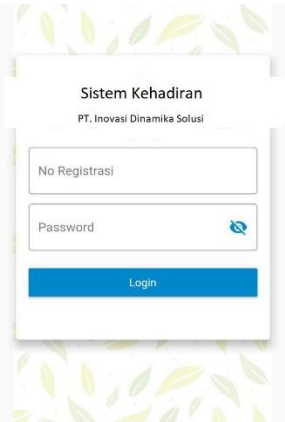

Figure 6 Login page

B.   Interface Design Update page IMEI

IMEI update page interface design to pnew engguna first install or replace the device it is required to update the phone's IMEI, Update IMEI is important because it is used to replace the IMEI so users can clock in and go home.
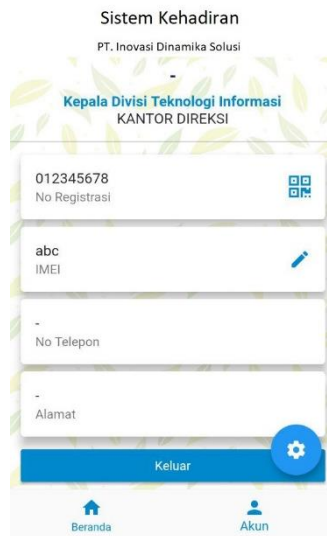
Figure 7 Settings page to update the IMEI
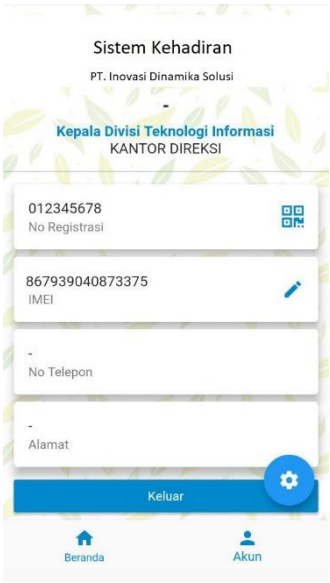

Figure 8 Page Update IMEI

Figure 9 Page IMEI Successfully Update

C.   Interface Design Presence page

Presence page interface design is the main thing in this attendance system design, because it will record our presence every day either presence enter or return. But when the absence must be in the office area.

Figure 10 Page Successful Presence

Figure 11 Page Successful Presence

D.   Interface Design Report page

Draft report page interface displays a list of absences that employees know the report absences. The red text indicates the presence employee. Can be presence so it looks more detail or lack of hours worked by employees.
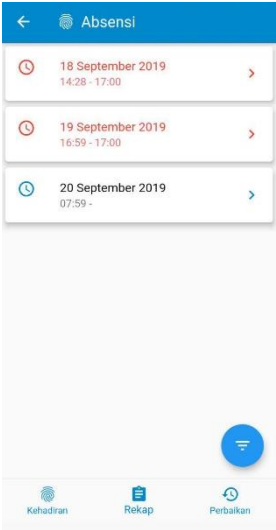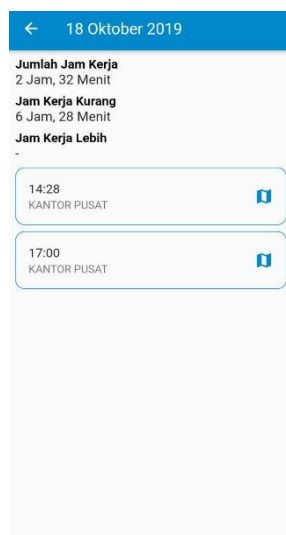

Figure 12 Weather Report Absences

Figure 13 Absence Details page

V. CONCLUSION

The results of this study are:

1.   Employee attendance system design has been carried out in accordance with user needs and system requirements.

2.   Results of this research is a model of employee attendance systems where system functionality described with use case diagrams, a business process described by the activity diagram and interface design.

VI. REFERENCES

[1] [1]https://idsolutions.id/#about (Accessed on 11 February 2020)

[2] [2] Prasetyo, A., Bijaksana, A., & Safriadi, N. (2018). Information Systems Lecturer and Student Attendance Using Fingerprint On Study Program Informatics University Tanjungpura.Vol. 6, No. 2.

[3] [3] Dimyati, M., Ariyanto, E., & Hendra, G. (2019). Student Attendance-Based Design Fingerprint Using Wireless Communication, Vol. 4, No. 2,

[4] [4] Febriana, H., Sitorus, J., & Lubis, M. (2018). Attendance Information System At PT. COSPAR Sentosa Jaya Using Java Programming Language, Vol. 5, No. 1.

[5] [5] Sulaiman, H., Zainuddin, Z., & Sahibu, S. (2019). Face Detection System for Identification of Students Attendance Eigenface Method Using PCA, Vol. 1, No. 2.

[6] [6] William, P., Otniel, V., & Pandi, F. (2013). Based Attendance System Radio Frequency Identification (RFID) On Mikroskil. Vol. 14, No. 2.

[7] [7] Adikara, Fransiskus (2013). Analysis and Design Based Attendance System Global Positioning System (GPS) On Android 4.x. Proceeding of National Seminar on Information Technology.

[8] [8]https://www.hariankartini.com/2019/08/cara-cek-imei-hp-legal-atau-ilegal-di-website-Kemenperin.html (Accessed February 20, 2020)

[9] [9] Khosrow-Pour, M. 2005. Encyclopedia of Information Science and Technology (5 Volumes). Idea Group Reference.

[10]   [10]Chaniago, Muhammad Benny., & Junaidi, Apri. 2019. Student Presence Using RFID and Telegram Messenger Application: A Study in SMK Unggulan Terpadu PGII Bandung, Indonesia. International Journal of Higher Education. Vol. 8, No.3.