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Employee Presence System Application at the Goods / Services Procurement Administration Bureau at the Regional Secretariat of Central Java Province

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ABSTRACT: Administration Bureau of Procurement of Goods / Services Secretariat of Prov. Central Java is a government agency that applies work discipline as an important capital that must be owned by employees. Based on interviews that have been conducted with the leadership, especially in the bureau, it turns out that there is a problem, namely the employee presence process which requires employees to come to the office which sometimes causes problems because there are employees who have to carry out official duties outside the region so they cannot make presence on time at the office. For this reason, a web-based employee presence information system is made based on Geolocation with the Waterfaal method with the stages: gathering requirements, design, Development, Testing and Maintenance. Based on the results, it can be concluded that the application of the WEB-based employee presence system based on geolocation can solve the existing problems, namely for system managers (admins), employees and leaders can manage and monitor the employee presence process in real time and accurately according to the employee's location..

KEY WORDS: Presence, WEB, Geo Location, Waterfall, UML.

I.INTRODUCTION

Employee performance in an agency can be seen from various aspects, one of which is compliance with discipline during working hours. Therefore, there is no important discipline factor because it will affect employee performance and achievement. Likewise with the Administration of the Procurement of Goods/Services at the Regional Secretariat of the Prov. Central Java which is located on Jl. Pahlawan No. 9 Semarang. So far, employees have been doing daily presence by using a fingerprint presence machine. The use of these machines requires employees to come to the office which causes problems because there are employees who have to carry out field assignments or work outside the area so that they cannot make timely presence at the office. Research [1] found that the problem of employee presence related to work placement as a trigger for low performance can be seen from the low effectiveness of employees in carrying out their duties and responsibilities. For this reason, another solution is needed, namely by using an online WEB-based presence application anywhere, especially for employees who run regional offices.

On the other hand, judging from the current technological developments, smart phones are one of the technologies that are developing very rapidly compared to other technologies. One of its features is the use of the GPS feature [2], which works with two devices, namely the object device that receives the latest location data from satellites and the program monitoring server device on the Google map device to ensure the authenticity of the object's location. With this GPS feature, employees can simply open the Prov site screen. Central Java and fill in presence data which includes taking a photo of yourself, data entry presence and presence at home with any position presence. The purpose of using GPS is to show in real time the actual position based on geolocation with the aim of preventing fraud or data from occurring when the employee concerned is absent. Therefore, the use of a geolocation-based WEB-based employee presence system is a solution that is considered quite effective in overcoming employee problems, especially those who are carrying out field assignments or outside the region.

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II. LITERATURE SURVEY

As stated above, the performance of employees can be seen from their discipline in making presence where the presence itself is a device to calculate employee presence both coming and going during working hours. According to [3] the problem of employee discipline can be seen from the presence of employees who often arrive late for work which shows the low level of employee discipline, besides that there are employees who often do not come to work without clear information, and even employees who do not come for days without permission. Determination of the sample using the proportional layered random sampling method with a total of 154 respondents and analyzed using Structural Equation Modeling (SEM). The result of the study is that there is a direct or indirect effect of servant leadership on employee performance.

While research [4] to see the relationship between work discipline and employee performance in the Office of Public Appraisal Services HerlyAriawan and Partners. The research method used is quantitative associative by distributing questionnaires using saturated samples to 30 employees in the office. By testing the hypothesis using the t test, then at t count > t table or 2.053 > 1.701, it shows that H 0 is rejected and Ha is accepted. The conclusion obtained is that there is a relationship between work discipline and employee performance which shows significant results.

To support discipline in presence, [5] developed a research on "web based presence management system" to overcome the problems of manual presence. In this application in terms of server language using PHP, MySQL and PHP are used as back-end designs while HTML, CSS, JavaScript are used as front-end tools. In this case, the system communicates with a database located on a remote server which will automatically calculate the percentage of presence without any manual paper-based work. It's just that this study from the author's point of view has a weakness, namely it does not include the location of the object. This is in line with the opinion [6] which highlights the assessment of the success of human resources related to presence assessment. The problem that occurs at the research location is the presence of existing employees using the Odoo web-based Enterprise Resource Planning system which stores employee data at incoming and outgoing hours that can be accessed anywhere without any location or area restrictions. With a system without area restrictions, employees can make presence at any place without even having to come to the office.

To overcome this, according to [7], it is necessary to use tracking system technology which has become a common technology in various fields. This study introduces a web application that can monitor tourists in the Iraqi swamp based on the Global Position System (GPS) to obtain their location and Radio Frequency Identification (RFID) for identification. The method used is the current location of the boat is acquired by GPS and the tourists' identification data collects through RFID tags (cards) attached to tourists which all are integrated in the target boat. Furthermore, the location coordinates and RFID data are sent through GPRS service provided by the GSM network. The results of this application allow tracking and monitoring of tourists and real-time modeling of their movements on Google Map.

Therefore, based on some of the literature above, the author tries to create a web-based employee presence management information system by utilizing the Location Based Service (LBS) feature. This application is built with the PHP 7.0 programming language and Code Igniter 3 while the data storage uses MySql 5.0. It is hoped that with an application that is designed to solve the presence problems that exist in the Goods / Services Procurement Administration Bureau at the Prov. Central Java.

III. METHODOLOGY

The data for this study were obtained by (1) conducting interviews with administrative bureau employees, (2) other supporting data for this research were obtained by conducting a literature study on matters relating to system development and calibration issues. The system development method uses the Waterfall model whose process is shown in Figure 1:`

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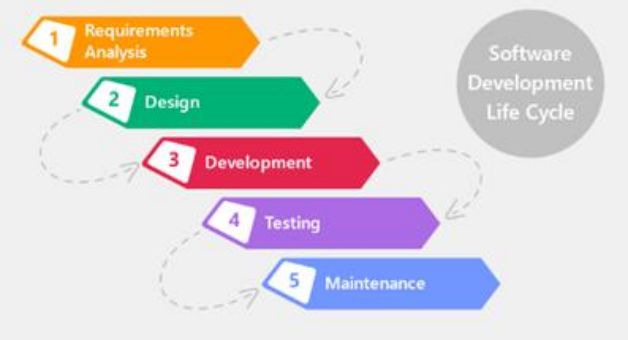

Figure 1. Waterfall Model

Information :

1. Stages of Requirements analysis obtained from interviews with system managers, employees, heads of the Administration bureau to define in detail the new system and function as system specifications.
2. Stages of Design is done by making a model of the whole system using graphic tools from UML which includes Use Case Diagrams and Class Diagrams, followed by user interface design.
3. Software Development is realized by making WEB display using PHP 7.0 and Code Igniter 3 to build the user interface while data storage uses MySql 5.0.
4. Testing is carried out on individual program units before they are combined using Sublime 3.2.1 tools for coding to ensure whether the system is working properly. In addition, testing with the black box method involves verifying whether each function can be executed properly.
5. This Maintenance stage is usually (though not always) the longest stage. This stage involves correcting errors that were not found in the previous stages to improve the implementation of new system services.

IV. EXPERIMENTAL RESULTS

The following are the various stages carried out in the Waterfall model with the results and discussion:

1) Requirements analysis

The results of interviews with system managers (admins), employees, heads of administrative bureaus to see system services, constraints and objectives of the new system which are then defined in detail and functioned as system specifications. The results of interviews with administrative bureau employees produce NIK data, start date, end date, photo, status approval, work, early leave permit, approve by. Meanwhile, interviews with leaders produce employee data plus data on work units, sub-units of work and formations. While the last interview with the admin in addition to producing overall employee data is also schedule code data, expertise, latitude and longitude codes. The results of this interview are used for system specifications as well as for detailed identification of what can be provided by the new system application to be made.

2) Design

After completing the process of identifying what needs are needed for the new system application to be made, the next step is to design with UML modeling using use case diagrams and class diagrams. In the design of use case diagrams, 3 actors are generated, namely system managers, employees, and heads of administrative bureaus. In this case, the admin who runs the system can manage employee data and Global Position System (GPS) data to obtain the location and Radio Frequency Identification (RFID) for identification. Meanwhile, employees can fill in presence data, go home and finally, the head of the Administration bureau can view employee presence reports by downloading and printing presence reports. For more details can be seen in Figure 2.

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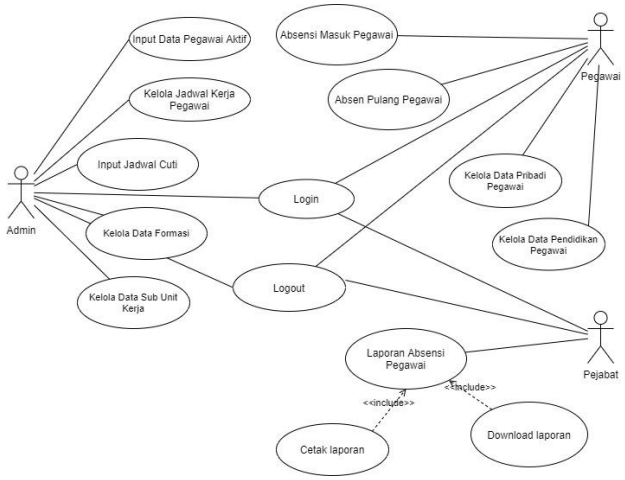

Figure 2. Use Case Diagram

The next design is to create a class diagram model in Figure 3. Class diagram is a description of the structure and flow of the database in a system to be built.

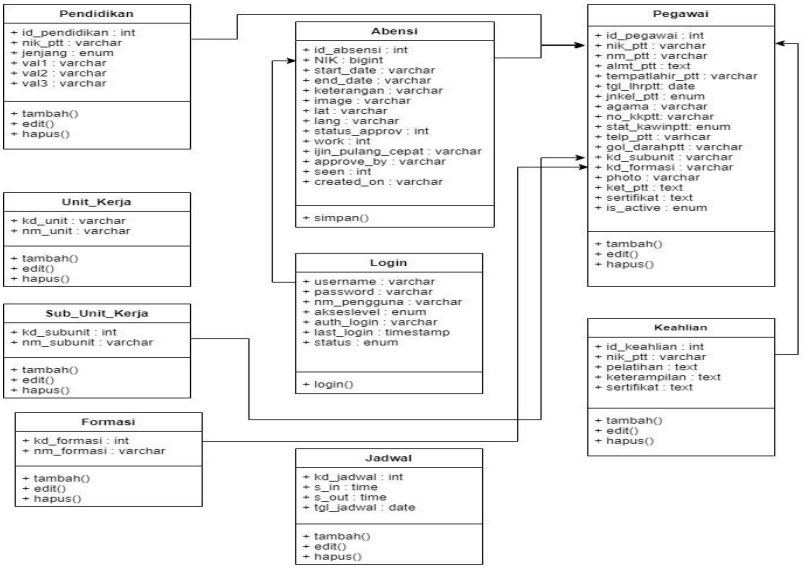

Figure 3 Class Diagram

The final design is to design databases in the form of tables containing fields, types and sizes using MySql software. The results of the visualization of the table can be seen in Figure 4 which contains 10 tables, namely: Users, Employees, Unit_kerja, Sub_unitkarya, tb_geoatt, ma_education, ma_family, ma_keahlian, schedule, formation tables.

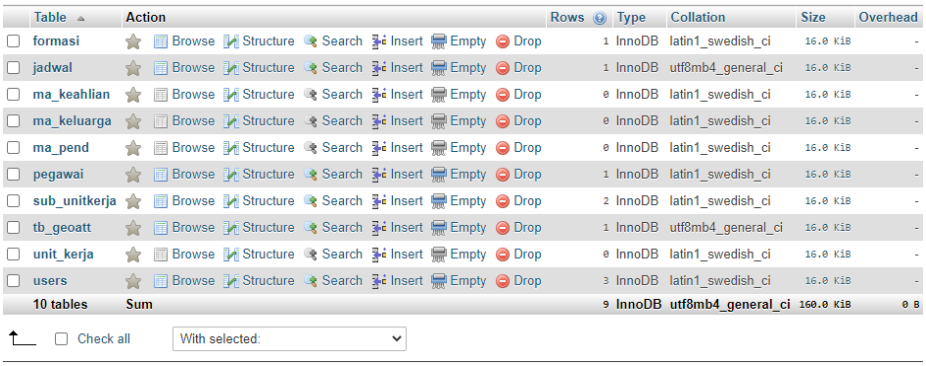

Table	Action	Rows	Type	Collation	Size	Overhead
formasi	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	16.0 KiB	-
jadwal	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
ma_keahlian	Browse Structure Search Insert Empty Drop	0	InnoDB	latin1_swedish_ci	16.0 KiB	-
ma_keluarga	Browse Structure Search Insert Empty Drop	0	InnoDB	latin1_swedish_ci	16.0 KiB	-
ma_pend	Browse Structure Search Insert Empty Drop	0	InnoDB	latin1_swedish_ci	16.0 KiB	-
pegawai	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	16.0 KiB	-
sub_unitkerja	Browse Structure Search Insert Empty Drop	2	InnoDB	latin1_swedish_ci	16.0 KiB	-
tb_geoatt	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
unit_kerja	Browse Structure Search Insert Empty Drop	0	InnoDB	latin1_swedish_ci	16.0 KiB	-
users	Browse Structure Search Insert Empty Drop	3	InnoDB	latin1_swedish_ci	16.0 KiB	-
10 tables	Sum	9	InnoDB	utf8mb4_general_ci	160.0 KiB	0 B

Check all With selected:

Figure 4. Visualization of database tables using MySql

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3) Development
After stage 2 is complete, the next step is to develop a new system using the PHP and HTML programming languages with the following results:
User Login Page. There are 3 login users in this system, namely: logins for admins, employees and officials. the difference is that admins can access all system functions while officials can only log in and view employee presence reports while employees only have the function of filling in profile data and doing presence. After the user accesses the website page http://localhost/absensi.php.then the system will display a login form as shown in Figure 5, followed by inputting Username and Password.

Figure 5. User login page

Admin dashboard page. This page is the first screen when logged into the system with access rights as Admin. In this view, there are 3 push button options, namely the Dashboard menu. Employee menu which contains active and non-active employees as well as Settings menu which contains Work Sub Units, Formation, Schedule, Recap. In summary, the main page view can be seen in Figure 6

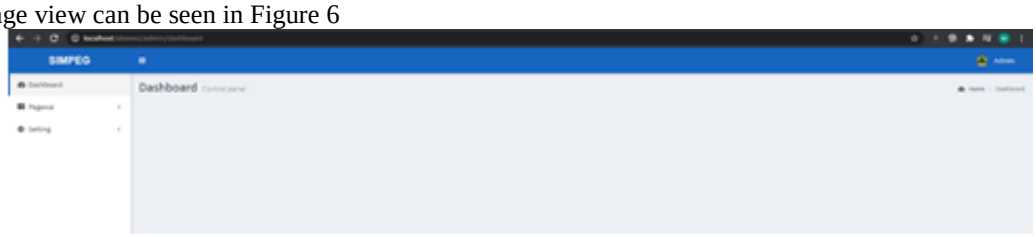

Figure 6. Admin dashboard

Employee Page. On the employee menu page there are active and non-active employee sub menus where admins can add, delete and edit employees for active employee sub menus as shown in Figure 7 below:

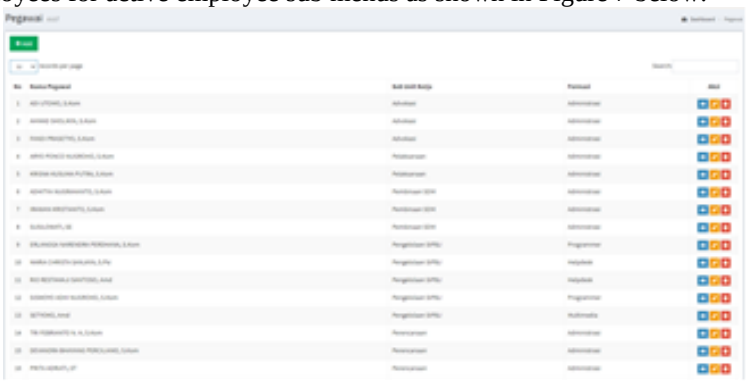

Figure 7. Employee Page

Formation page. On this page the admin can add and edit the name of the employee formation as shown in Figure 8.

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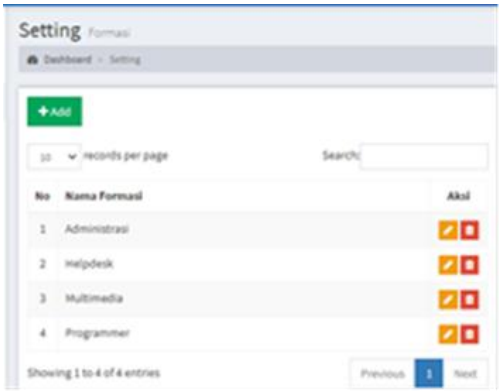

Figure 8. Display formation

Schedule page. On this page the admin creates an employee schedule to be used as a presence page for employees as shown in Figure 9.

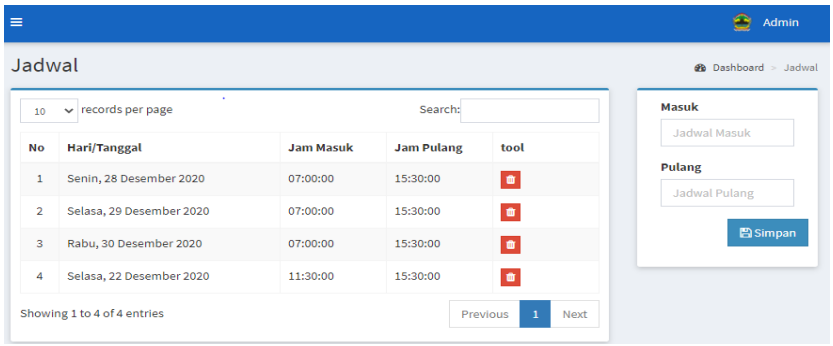

Figure 9. Display of employee schedule

Presence Page. Based on the schedule made by the admin, employees can make presence at any location in real time and display photos as shown in Figure 10.

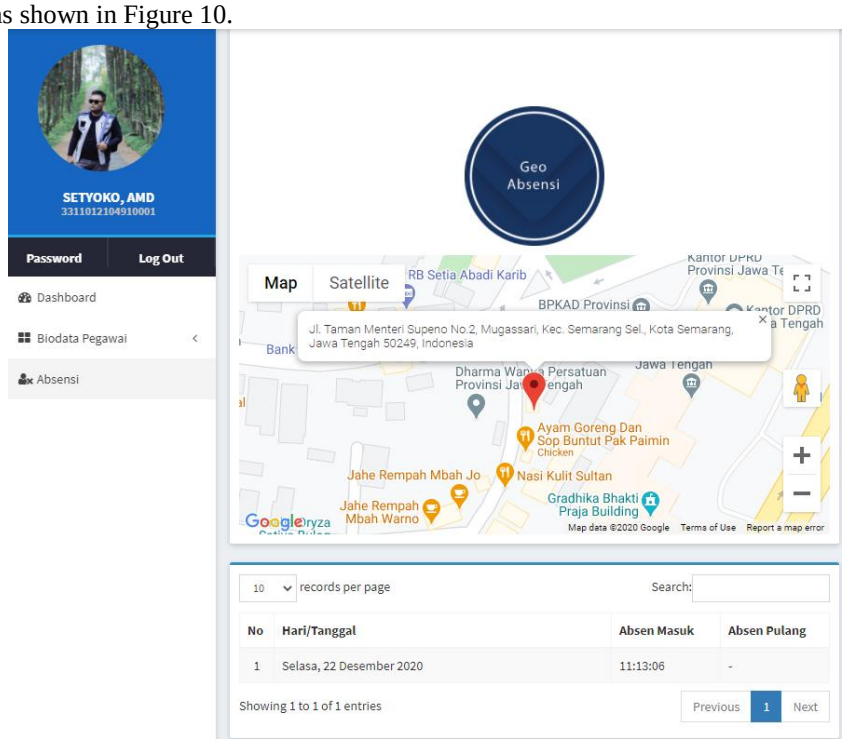

Figure10. Presence Page View

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Recap page. This page contains presence reports that have been carried out by employees which contain arrival time, return time, information and location at the time of presence as shown in Figure 11.

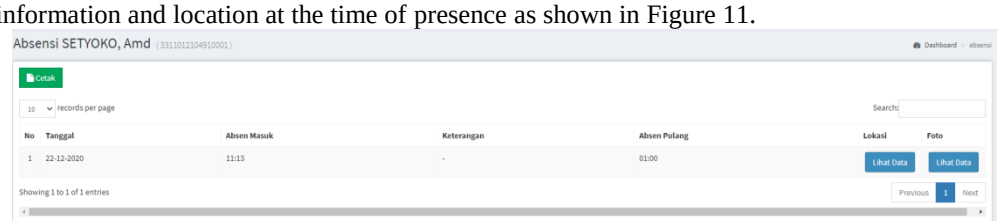

Image Recap View 11

Data Page. In addition to making a presence, every employee can update personal data for their profile as shown in Figure 12.

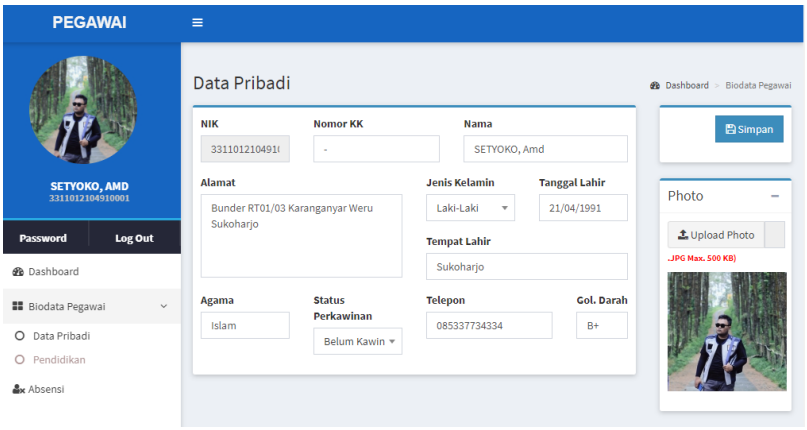

Figure 12. Employee Data Display

Presence Report page. On this page the head of the Administration bureau can view, download or print all presences that have been made by employees as shown in Figure 13.

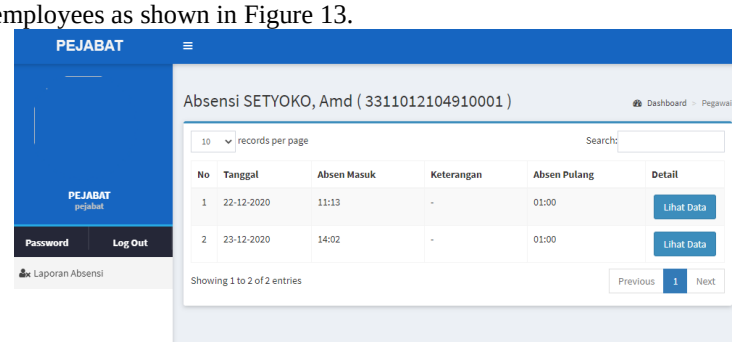

Figure 13. Presence Report Page Display

V.CONCLUSION AND FUTURE WORK

The conclusion obtained is that the application of a WEB-based employee presence system based on geolocation can solve the problems that exist in the Goods/Services Procurement Administration Bureau at the Regional Secretariat of Prov. Central Java. For system managers (admins), this application makes it easier to manage employee data which includes presence, work schedules, leave schedules, formation data and sub-unit data. In addition, leaders can monitor the presence of their employees and print the results of their presence. Meanwhile for employees, because this application is based on WEB based on Geolocation, it will make it easier to make presence, especially for those who are carrying out field assignments outside the office. Overall this application can minimize costs for companies considering the use of Google Maps which is free and uses the HTTP protocol as a method for data transmission.

The suggestion for future work is that this application can be developed by adding notifications on mobile phones when employees are about to enter working hours or after hours of going home so that employees do not forget to make presence.

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