E-presence in measuring employee performance in the implementation of national road region IV West Java Province ministry of public works and public housing

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Article Info	ABSTRACT
	Employee attendance is an important factor in ensuring that an agency or company meets its objectives; it is related to discipline and has an impact on the performance of each employee. As a result, there is a need to collect special data to record attendance and absences so that professional activities can be recorded in real time and measured. There are a number of ways to build a good attendance information system, one of which is the use of information technology, where its application is to the Regional Office IV of National Roads Implementation of West Java Province, In other words, the system used in the attendance process still uses fingerprints when used by gluing each employee's finger on the screen. A certain tool One of the concerns of employees during the Covid-19 transmission period at that time, where the implementation of the attendance would result in the touch of one finger to the other, and this was indicated to cause Covid-19 transmission. Based on the above problems and to support the government's recovery and prevention of covid-19 transmission, a web-based attendance application was created, namely the PUPR e-Presence.

INTRODUCTION

Attendance is an important element of government agency work. Through a good attendance system, It is hoped that it can help to monitor the completion process in order to obtain maximum results and meet the objectives set. The presence card is a document that records the hours of each employee's presence in a business that can take the form of a regular presence list or a presence card filled with a timing machine (Setiawan, 2015).

The Region IV National Road Implementation Office of West Java Province, Ministry of Public Works and Public Housing, is one of the government agencies that have responsibility for community services in the field of Road and Bridge Infrastructure services in order to improve the community's economy. The number of employees currently owned is 180 personnel and can be increased according to the needs of the agency. The more important the government organization, the greater the impact on human resources (HR). On this basis, government agencies are responsible for ensuring proper, timely and efficient management of attendance data processing.

The attendance procedure at the Region IV National Road Implementation Office of West Java Province which is in the process of implementation may be considered even less effective and efficient, where everything is still carried out manually from the data collection and the calculation of the hours of presence, hours out, to information not coming in, This affects the relatively lengthy time in the employee attendance recap calculation process, and the form of attendance reports in the form of paper copies that may result in data recording errors, complicate the data search process and there may be a risk of loss of employee attendance data.

To overcome this, fingerprint attendance (fingerprint) is one of the applications of technology to achieve the goal of increasing worker discipline (Husain et al., 2017). Due to the Covid-19 emergency, the fingerprint attendance machine cannot be used temporarily. Therefore, through the Ministry of Public Works and Public Housing (PUPR) made a new breakthrough in the employee attendance system, namely using the PUPR Mobile e-Presence based on the Android and IOS systems. The application serves to record the presence of the user's location using a mobile phone, especially for those who are carrying out tasks outside the office. So, employees of the Region IV National Road Implementation of West Java Province are encouraged to download the PUPR e-Absensi Mobile

application. How to use PUPR's Mobile e-Presence by asking each employee to log in using an eHRM account and upload a photo of themselves during applicable working hours, then the application will automatically record the time and location of the employees. It aims to monitor that the employees of the Implementation of the National Road Region IV West Java Province are actually at the work location that has been determined. During the Covid 19 emergency, this absence is also a solution to guarantee the rights of ASN while carrying out Work from Home (WFH).

This electronic attendance helps to form a concrete unity between the Agency and its employees. The reason is, with this way of absenteeism, employees are required to be more punctual and honest (Rotikan, 2016). The problem with fingerprints that have existed previously has not been able to provide optimal information, especially when the covid 19 outbreak is increasing, considering that many employees still don't want to use them for fear of contracting the covid 19 outbreak.. That reason also underlines that there needs to be a replacement for attendance by using this fingerprint. Another problem that arises with the enactment of a work time change system or known as work from home, which is a reference why it is necessary to develop a system that is needed in assessing employee performance.

RESEARCH METHODS

The application development method used for software development is using the waterfall model. The waterfall is one type of application development model and is included in the classic life cycle, which emphasizes sequential and systematic phases. (Sommerville, 2011) Explains that there are five stages in the Waterfall Method, namely Requirements, Design, Implementation, Integration Testing, and Operations and Maintenance.
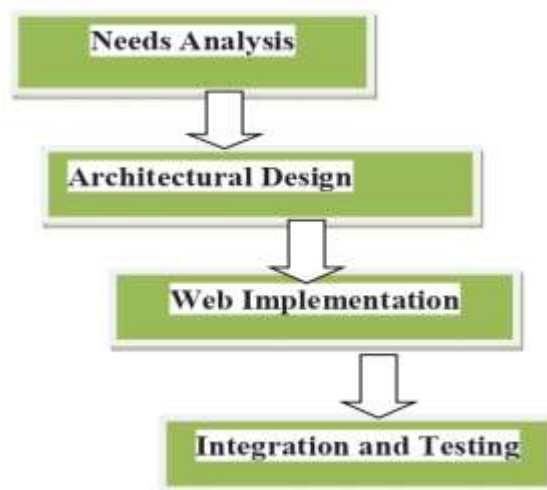

Figure 1 Waterfall method (Sommerville, 2011)

RESULTS AND DISCUSSION

Needs Analysis

In designing the Ministry of PUPR's e-Attendance Information System, the functional requirements of each user are as follows:
1. User Needs
   The needs of users used in the construction of the Employee Attendance Information System website are as follows:
   a. Admin Needs
      1) Admin logs in before entering the administration page by using the id-user and password
      2) Admin can add, change password, and delete administrative data.
      3) Admin can add employee data to the login page.
      4) Admin can carry out the employee attendance process.
      5) The attendance process will enter and the admin can change and delete employee data

6) Admin can add, change and delete employee data.
7) Admin can view and print attendance data reports.
b. Employee Needs
1) Employees can add employee data on the employee login page.
2) Employees log in before entering the employee index page using the employee NIP.
3) Employees can perform the attendance process in and out attendance process based on time on the attendance page.

2. System Requirements
The system requirements in the design of the employee attendance information system for the implementation of the National Road Region IV West Java Province are as follows:
a. Analysis of system requirements for Admin
1) The system validates the username and password.
2) The system will give access rights to the admin to be able to enter the administrator page if the username and password match.
3) The system will deny access rights to the admin if the uses name and password do not match.
4) The system provides facilities to be able to add, change, and delete some of the data that is used to display it in its entirety on the website of the Personnel Attendance Office of the National Road Implementation Region IV West Java Province.
5) The system will stop Admin access on the administrator page if you have logged out.
b. System Requirements Analysis for Employees
1) The system validates the username and password to enter the user page
2) The system will give access rights to the user to be able to enter the user page if the username and password match.
3) The system will deny access rights to the user if the username and password do not match.
4) The system provides facilities to be able to add, change, and delete some data used to display attendance data.
5) The system stores attendance data performed by the user.
6) The system will stop user access on the user page when the logout process has been carried out.

Architectural design
At this design stage, system design is carried out, both architecture and user interface design. The following is as the cloud architecture of the Ministry of PUPR's e-presence application:
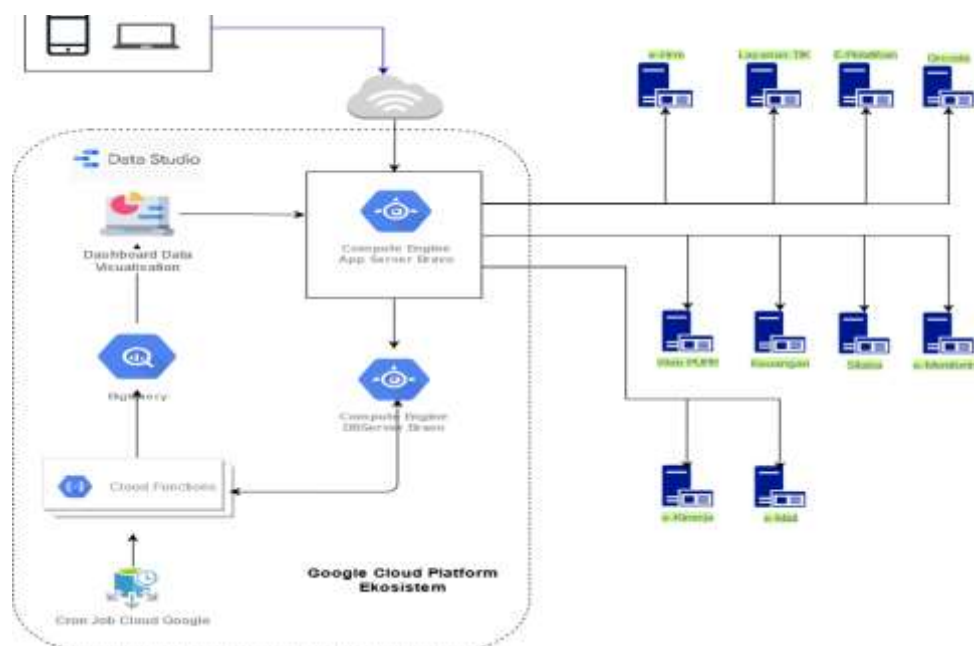

Figure 2 Architecture-Presence of the Ministry of PUPR

Web Implementation

At this implementation stage, modules are developed which include the Ministry of PUPR's e-Presence application, web front end and back-end with results as shown in the following screen shot:

MOBILEAPP

The following is a screenshot of the User Interface of the Ministry of PUPR's e-Presence application based on android mobile:

Figure 3 Interface remainder login


Figure 4 Interface login account

Figure 5 Interface login account

Figure 6 Interface Home

Integration and Testing

At this stage, trials of both functions and features are carried out on each module in the Ministry of PUPR's e-Presence application which includes the mobile app, web front end and web back-end. The results of testing and integration of the e-Presence application can already operate stably as shown in the following dashboard recap:
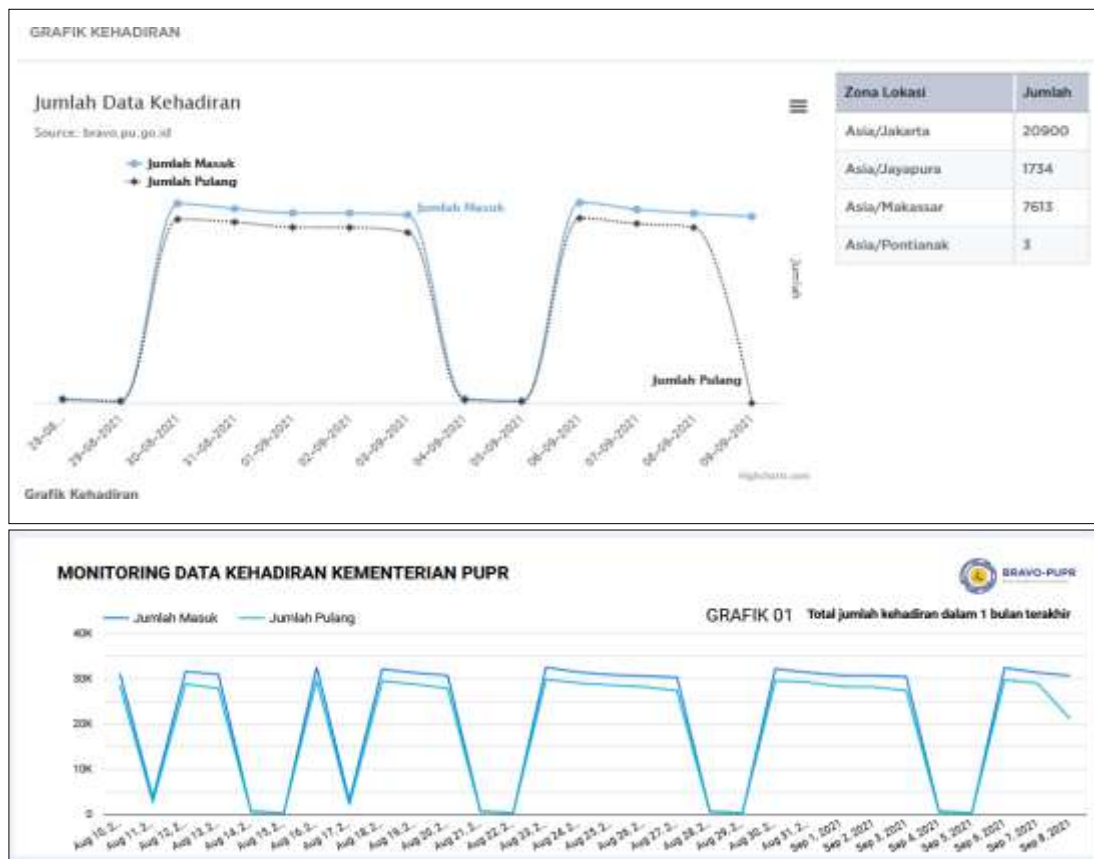
Figure 7 Interface Recap Dashboard Monitoring

The Application security layer controls access to sensitive information. This includes web servers, e-commerce, internet and voice services. Applications can be protected through the use of:
1. Authentication
2. Authorization
3. Password Policy

Server applications have the potential to be compromised by a number of different methods, including:
1. Denial of Service Attack: attacker tries to prevent legitimate users from accessing information or services. By targeting the computer and its network connection, or the computer and network of the site you want to use.
2. Directory Traversal Attack: is an HTTP exploit that allows an attacker to access restricted directories and execute commands outside the web server root directory.
3. Buffer Overflow Attack: A buffer overflow occurs when a program or process tries to store more data in the buffer than intended to accommodate the additional data may contain code designed to trigger certain actions, essentially sending new instructions to the computer being attacked .
4. SQL injection: is an attack where malicious code is inserted into a string which is then passed to SQL Server instance for parsing and execution.
5. Password guessing attacks

Disscussion

The development of this e-attendance application also refers to the conditions of the Covid19 pandemic, as described by (Ye et al., 2020), "During the covid19 prevention and control period, the technology side (technology companies) must prevent the misuse of technology, while from the regulatory side (government institutions and platforms) must be careful to advance technology for the good and benefit of society".

The presence of government employees at work is also one of the main performance indicator

assessments so that it can be seen the extent to which employees continue to carry out activities well even though they work from home (work from home). As quoted from (Whitelaw et al., 2020), that "the integration of digital technology during the Covid 19 pandemic is a policy and response that can be one of several characteristics in a country that has seen regarding COVID-19 in carrying out prevention"

According to Buana D, which was further written by Suci et al (2021), that 'in Indonesia itself has made efforts to slow the spread of Covid-19 by doing 3M, maintaining distance, wearing masks, and washing hands', therefore it is very important. There is no direct contact with any object, for example a fingerprint tool. . As researched by (Yadukul et al., 2022), that one of the causes of COVID-19 is related to fingerprint authentication security, because those who use sensors such as fingerprints have the potential to transmit viruses.

The same thing was researched by (Okereafor et al., 2020) that, "Direct physical contact with fingerprints can increase the possibility of contamination with harmful microbial pathogens (covid19)". As quoted by (Okereafor et al., 2020), that the scanner after use can increase the possibility of transmission of germs that cause disease.

According (Asadzadeh et al., 2022), that to combat this pandemic, the government (Iran) and decision makers in this country should consider strategic planning that combines successful experiences against COVID-19 and state-of-the-art IT capabilities.

The results of this attendance can also provide benefits in the form of performance as indicated by the use of an application, as researched by (Istambul, 2019) regarding I-Performance, that "The impact of using I-Performance provides control and reminders for employees (lecturers) to always they are reminded of the responsibilities of the program they propose, and the interaction is a form of absenteeism related to performance that must be carried out. Furthermore, employee performance information is always presented in the I-Performance application in real time".

CONCLUSION

The Ministry of PUPR's e-Attendance application has been produced for the National Road Implementation Office Region IV West Java Province, which provides convenience for employees in managing and accessing attendance information both in terms of its use and in the reporting process. By using the Ministry of PUPR's e-Attendance application, where employees can minimize data loss and errors both in the attendance process itself and in making attendance reports, and with this application, prevention of Covid19 transmission can be minimized because it does not use fingerprint technology. And attendance data can be processed in a structured manner which can provide convenience to employees in the process of searching for attendance data.

REFERENCES

Asadzadeh, A., Mohammadzadeh, Z., Fathifar, Z., Jahangiri-Mirshekarlou, S., & Rezaei-Hachesu, P. (2022). A framework for information technology-based management against COVID-19 in Iran. *BMC Public Health*, *22*(1), 1–15.

Doukas, Charalampos, Thomas Pliakas, dan Ilias Maglogiannis. 2010. *Mobile HealthcareInfromation Management Utilizing Cloud Computing Dan Android OS.* Argentina : IEEE Publisher.

Handayani, Putri Kurnia. 2016. Sistem Informasi Administrasi Data Kepegawaian Pada Bagian Personalia PT. XYZ. Jurnal Simetris, Vol 7 No 1 April 2016

Husain, A., Prastian, A. H. A., & Ramadhan, A. (2017). Perancangan Sistem Absensi Online Menggunakan Android Guna Mempercepat Proses Kehadiran Karyawan Pada PT. Sintech Berkah Abadi. *Technomedia Journal*, *2*(1 Agustus), 105–116.

Istambul, M. R. (2019). The impact of i-performance in changing the work culture of lecturers to increase the productivity of three pillars (tri dharma) of higher education in Indonesia. *Universal Journal of Educational Research*, *7*(4), 15–21.

Okereafor, K., Ekong, I., Markson, I. O., & Enwere, K. (2020). Fingerprint biometric system hygiene and the risk of COVID-19 transmission. *JMIR Biomedical Engineering*, *5*(1), e19623.

Rosa, A.S dan M. Shalahuddin. 2013. Rekayasa Perangkat Lunak Terstuktur dan Berorientasi Objek. Bandung: Informatika Bandung.

Rotikan, R. (2016). Sistem Informasi Absensi Berbasis Web Untuk Kegiatan Konferensi. *Sisfotenika*, *6*(1), 46–55.

Sibero F.K ,Alexander. 2014. Web Programming Power Pack.Yogyakarta : Mediakom.

Suci Anggraini, Muhamad Akbar, Alex Wijaya, Hadi Syaputra, Muhammad Sobri. 2021. Klasifikasi Gejala Penyakit Coronavirus Disease 19 (COVID-19) Menggunakan Machine Learning. Journal of Software Engineering Ampera.

Sutabri. 2012. Konsep Sistem Informasi. Yogyakarta : Andi Offset

Setiawan, P. (2015). *Pengertian dan Jenis–jenis absensi*. Retrieved from gurupendidikan: http://http://www. gurupendidikan. co. id ….

Sommerville, I. (2011). Software engineering (ed.). *America: Pearson Education Inc*.

Whitelaw, S., Mamas, M. A., Topol, E., & Van Spall, H. G. C. (2020). Applications of digital technology in COVID-19 pandemic planning and response. *The Lancet Digital Health*, *2*(8), e435–e440.

Yadukul, S., Parmar, P., Srirambhatla, A., Arora, A. J., Mada, P., & Reddy, D. (2022). Virtual autopsy in India: The need of the hour. *Journal of Forensic Medicine and Toxicology*, *39*(2), 4–7.

Ye, Q., Zhou, J., & Wu, H. (2020). Using information technology to manage the COVID-19 pandemic: development of a technical framework based on practical experience in China. *JMIR Medical Informatics*, *8*(6), e19515.