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Analyzing and Developing a Mobile-Based Geographical Information System

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Abstract

In order to learn about job openings, candidates still rely on manual methods including going to companies and looking at job notice boards, as well as looking through print materials like newspapers, magazines, brochures, and word-of-mouth recommendations. A lot of research is being done to find out about things like the Geographic Information System (GIS), Palembang Job Openings, and Mobile Based. With the help of an information system, job hunters can quickly get comprehensive information. The Internet is a state-of-the-art telecommunications tool; thus, it is expected to make things easier for its users, which is good for job seekers and companies that are hiring. Eventually, job seekers will be able to contact recruiters and companies to post job openings through this program, which may be conveniently accessed online and created as a non-profit organization. This paper presents the analysis of mobile-based GIS requirements and the development of the system that can tackle the mentioned problem above.

Keywords

Geographic Information System, Job Vacancy, Mobile Application, Eclipse, RAD

Introduction

Job vacancies are information about a job available to employees or job seekers, especially for people who do not have a job or are currently looking for work that comes with certain conditions. In search for job vacancies, applicants still use manual methods, such as visiting companies to see job vacancies notice boards and conducting investigations in the media print such as newspapers, magazines, brochures, or word of mouth information. Technological development, especially the internet, forms a new societal pattern that needs fast information and time (Dwivedi et al., 2021).

Therefore, we need a device that can meet that need, the wrong one of which is a smartphone. The development of smartphone users in Indonesia, especially in cities Palembang, is increasing with all the ease of access and features it offers. Plus, various applications are provided to make things easier to work in the app store, making smartphones increasingly attractive to multiple groups (García et al., 2015).

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Increasing the use of this smartphone also encourages the author to make a mobile version of the application. System Geographical Information, Job Vacancy Location, presents information about vacancies on smartphones to make it easy for users to find information via smartphone (Islam & Mazumder, 2010). A geographic information system (computer-based) is used to store and manipulate geographic information.

GIS is designed to collect, store, and analyze objects and phenomena where geographic location is an essential and critical characteristic to analyze (Ershad & Ali, 2020). The Geographic Information System Location application is an alternative for people to search for information on job vacancies whenever and wherever they are, just by utilizing media smartphones (Camilleri, 2017).

Methodology

Method of collecting data

Observation

This method is a method that is obtained by observing data systematically and inquiring about ideas. The observed data are job vacancy data and points location in Palembang City.

Literature Study

Literature study is used for data collection from the internet, journals, and books.

Research Methods

In this study, researchers used a method often used by previous experts, namely the descriptive way. This method has been widely used and aims to describe an event or events. According to Nuriyati et al. (2022), descriptive research in the education and teaching curriculum is essential, describing educational activities, learning, and implementation at various types, levels, and academic units.

Process Design

The researcher creates a narrative where the admin actor logs in after that, can manage job vacancy data, then job vacancy category and user data (Kabir, 2016). The system can click the Logout menu to exit from the [Admin] actor. Then, the Company actor logs in; after that, you can view incoming job applications and input job vacancies, and for out, you can click the Logout menu. The third actor is the applicant, where the applicant registers so he can see job vacancy data and then inputs job vacancies based on the selected job vacancies.

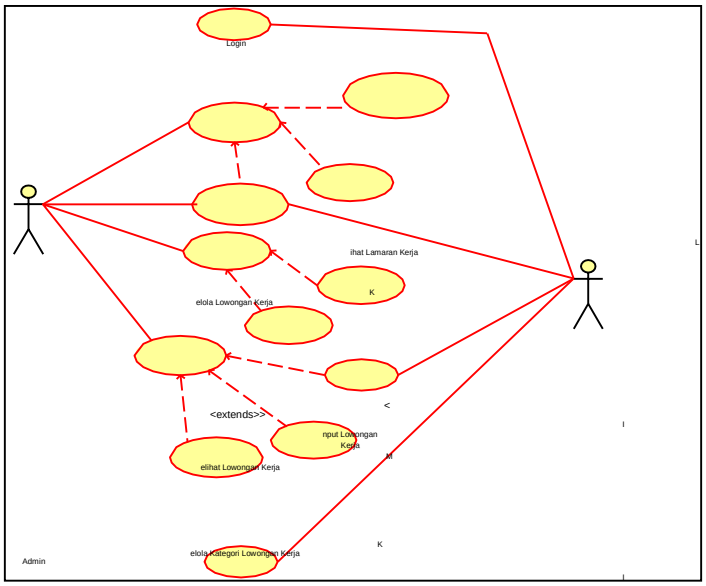

Figure 1. Use Case Diagram

System Design

System Design

1. Job Vacancy Information

When the user wants to see information on job vacancies in the city of Palembang, this information will appear at the beginning after the Splash Screen window ends when the application is running.

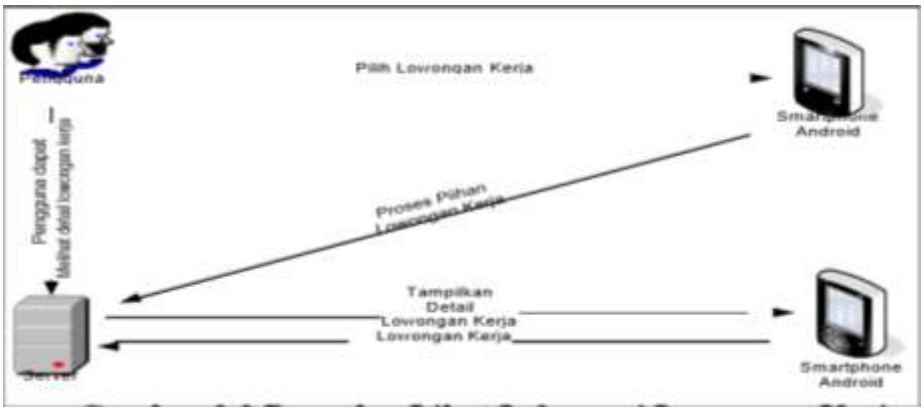

Figure 2. Procedure for Viewing Job Vacancy Information

2. Job Search

When the user wants to search for job vacancies, the user must select the job category menu, then a list of job vacancies will appear based on the selected job category. Select one of the job vacancies on the available inventory, and then the database will respond and display details.

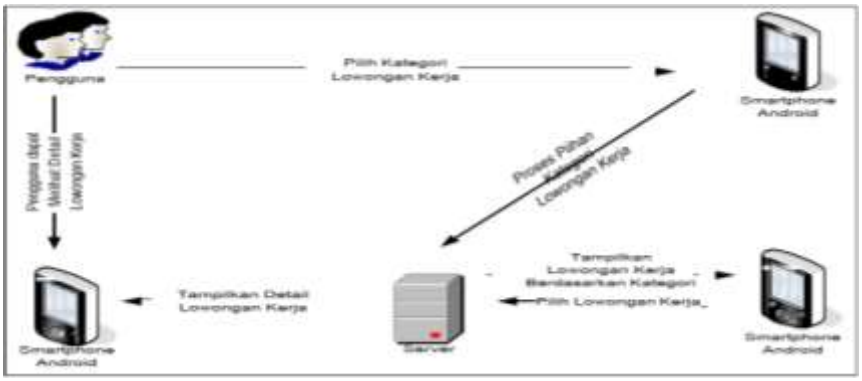

Figure 3. Job Search Procedures

3. System Development Method

The software application development method will be used is the Rapid Application Development (RAD) method. This method develops Android applications (Android Mobile Development). According to Beynon-Davies et al. (1999) Rapid Application Development (RAD) is a development cycle designed to provide much faster and higher quality results than traditional life cycles. This software application development method consists of 4 stages, namely the Requirements Planning Phase, the User Design Phase, the Construction Phase, and the Evaluation Phase (Delima et al., 2017). The steps taken are:

a. Requirements planning phase.

This stage is the process of collecting materials or data following the research that will be developed. The requirements needed at this stage are:

1. Data collection techniques
2. Analysis of system requirements
3. Identification of actors
4. Identify use cases.

b. User Design Phase

At this stage, use case diagrams, sequence diagrams, activity diagrams, and class diagrams will be made.

c. Construction Phase

This stage is the stage of building an application by implementing the results of the user design phase into the programming language used.

d. Evaluation Phase

This stage is the stage of the application testing process that has been built.

Results and Discussion

Results

Based on the research that has been done, it produces a Mobile-Based Geographic Information System Application for Job Vacancy Locations in Palembang City. With this application, it is hoped that it will make it easier for the community, especially the city of Palembang, to find job vacancy information based on the desired category. This information is in the form of a description of the company's job vacancies, and the distance to the location traveled, as described by Ali et al. (2021). The results of this study were designed and applied in the form of an Android application. This application is made with the concept that it is easy to use by its users. With a flow that is easy to understand and understand, it is hoped that it can help people who will later use this application. The following is a discussion of the entire application and its functionality.

Discussion

Admin Login Page

This page allows the admin to access the web server system; the admin can log in with the email and password registered in the database. If the email and password are correct, it will go directly to the home page.

Figure 4. Admin Login Page

Admin Company Data Page

This page displays company data information that the admin has input.

Figure 5. Admin Company Data Page

Admin Job Seeker Page
This page displays user data that has been registered and validated.

Figure 6. Admin Job Seeker Page

Admin Jobs Category Page
This page displays the vacancy category data that has been entered.

Figure 7. Admin Jobs Category Page

Admin Job Vacancies Page
This page displays job vacancy data. Admin can add or delete job vacancy data on this page.

Figure 8. Admin Job Vacancy Page

Admin Job Vacancy Data Input Page
This page is a page that is used to add new data in job vacancies.

Figure 9. Admin Job Vacancy Data Input Page

Display of User Register

This page allows users to create an account, which will later be used to enter the application system.

Figure 10. Display of User Register

Display of User Login

This page is a page for users to access the system. Users can log in with the email and password registered in the database, which the admin will later validate. They will immediately enter the main page if the email and password are correct.

Figure 11. User Login Display

Main Display of Job Vacancy
This page is the start page of the application built by the author. In the appearance of this start page, there are three main menus: Search, open job vacancies, categories, and logout.

Figure 12. Main Display of Job Vacancy

Display of Job Vacancies Categories
This page displays job vacancy categories that the user can select.

Figure 13. Display of Job Vacancies Categories

Display Job Vacancy
This page displays a brief description of a company and information in the form of terms and conditions for prospective applicants.

Figure 14. Display of Job Vacancies

Display Google Maps

This page displays the company's location, path, travel time, and distance from the current user's location to the company's site.

Figure 3.12 Display of Google Maps

Conclusion

This requirement analysis of GIS that includes job vacancy geographic information system application can help users obtain detailed and accurate information on job vacancies in Palembang. The development of this application can help the user conduct a job search by writing a description of the necessary information. The user can also choose a category of job vacancies by interest and type of work. The information system displayed is in the form of company location information, distance traveled, and estimated travel time from the user's current location to the company location.

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