Augmented reality location based service application as culinary location indicator

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Augmented reality location based service application as culinary location indicator

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Abstract
Technological developments cause the need to get information quickly and accurately, especially on smartphone devices, interactivity is one of the important points in the development of an application. One of the interaction technologies that is currently being developed is augmented reality technology in the form of location based services. Augmented Reality is a technology that can integrate virtual objects with the real environment in real time and allows users to interact with virtual objects naturally to find the direction of the location and provide the information users need. The application that will be made will utilize the sensors found on the smartphone to recognize the location of the building and Augmented Reality technology to label the building displayed by the smartphone screen.
The goal to be achieved is to produce an information service system that adopts Augmented Reality technology with tracking techniques using GPS location based services, in order to visualize a situation for digital content created by computers with the real world in an integrated manner so that users can easily find location information and find out information. -information on the device. The implementation method is the method of transferring knowledge to partners, namely creating a virtual location and information system application with a real environment.
The proposed activity plan in order to achieve these goals is to conduct research, make designs, present the results of the design, implementation and evaluation, counseling and training (assistance) by equipping soft skills in using system applications that have been built and simple troubleshooting techniques, as well as documenting research results in the form of reports and scientific publications as well as intellectual property protection.

Keywords: Augmented Reality; Culinary; Tracking Locations

Introduction
The development of information systems is an important factor for a business to be able to compete in the world economy, including the culinary tourism sector. Malang City is a tourist city where as the number of tourists coming to Malang City is increasing, it is hoped that tourists can easily reach culinary tourism in Malang City as well.
Augmented Reality is an interactivity technology that can integrate virtual objects with the real environment in real time, allowing users to interact with virtual objects naturally. Augmented Reality technology is a tracking technique using a GPS location based service, in order to visualize a state of digital content created by a computer with the real world in an integrated manner so that users can easily find location information and find out information on the device. The partner in this community service is the culinary tour of the Hanifa food stall which has been established and operational since 2018. Augmented Reality is implemented in the application works by giving a label to the building displayed by the smartphone screen.
The Global Positioning Service (GPS) based tracking technique is currently gaining popularity and has been widely developed in smartphone applications, by utilizing the GPS features in smartphones.

This application will take data from the GPS and then display it in the form of the direction we want in realtime, there are even some applications that display it in 3D.

The ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model was developed by Reis and Mollenda in the 1990s. This ADDIE model aims to be a reference in building training program tools and infrastructure that is effective, dynamic and supports the performance of the training itself.

Research Methodology

The problem faced by partners today is that information related to partners is still very limited, so an information service system that adopts Augmented Reality technology is needed with tracking techniques using GPS location based services, in order to visualize a situation for digital content created by computers with the real world. in an integrated manner so that users can easily find location information and find out information on the device.

System analysis is carried out in a process related to the initial stages of the research method. In the research method taken using the waterfall model. In the waterfall model, there are several stages which include the communication stage and the planning stage. (Laksmana, 2021). At the communication stage, interviews and observations were carried out. The observation process is carried out by direct observation. The interview process was carried out by conducting questions and answers to match the data and information from the observations. After conducting direct observations and interviews, user needs analysis, data requirements analysis and functional requirements analysis can be arranged.

1. Analysis Needs

a. Data Needs Analysis

Analysis of data requirements serves to describe the location-based service virtualization Augmented Reality system at restaurants into components that will be evaluated and identified. The system to be analyzed is a system that contains information about everything related to the visualization of Augmented Reality location based services in restaurants. The requirements needed are:

1. Information on how to create an application.
2. Images to create the application interface.
3. Location

b. Input Analysis Needs

The input requirements for the location based service Augmented Reality Application are

1. The user runs the application.
2. The user selects the menu on the main page of the application.
3. The user activates the camera and augmented reality and GPS features on the smartphone.
4. The user points the camera towards the front, right, left or back until they find the location.
5. The user touches the found detail information button.

c. Process Analysis Requirements

Process requirements in the Augmented Reality location based service application are:

1. Display the image on the application.
2. Read the selected menu input.
3. Activate the camera and augmented reality and GPS features on the smartphone.
4. Displays the symbol for the location of the restaurant.
5. Displays information.

d. Output Analysis Needs

This analysis is carried out to find out what are the outputs produced by the system. Based on the analysis carried out, the output of the Augmented Reality location based service application is in the form of Augmented Reality and information.

2. ADDIE Method

The ADDIE method aims to make improvements to the application if problems or malfunctions are found before the application is actually implemented and tested.

Results and Discussion

1. Implementation of Main Menu

This is the Implementation of this main menu page which will first appear when the application is run. The implementation of this main menu page consists of three menu options, namely Location, About, and Exit.

Fig 1: Main Menu View

2. Implementation of Location Menu

This page is a page that displays a map. This page has 1 button, namely the Augmented Reality view button.

Fig 2: Location View

3. Implementation of Augmented Reality View

On this page is a page that displays Augmented Reality Culinary Tourism in Malang City. On this screen (page) will come out several symbols of culinary tourism available in this application. When the symbol is touched, information will come out containing the name of the culinary tourist spot, address and picture.

Fig 3: Augmented Reality View

4. Implementation of Restaurant Information Details

On this page is a page that provides information on restaurants that were previously touched by the user.

Fig 4: Information Details View

5. Route Implementation

On the Route page in this location based service augmented reality application, it displays the route of the user's location to the selected destination.

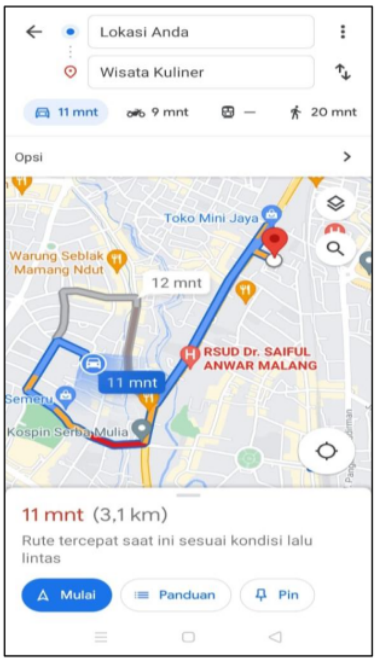

Fig 5: Route View

6. Implementation About

On the About page in this location based service augmented reality application will display information from the application developer.

Fig 6: About View

7. Implementation Exit

On the Exit page in this location based service augmented reality application, it contains 2 (two) buttons, namely YES and NO.

Fig 7: Exit View

Evaluation

The last stage is using the ADDIE method. At the evaluation stage the author uses a form of summative evaluation, which is an evaluation carried out after the last version is applied and aims to assess the overall effectiveness of the application. At the evaluation stage using the summative method, the authors concluded as follows:

1. The application is in accordance with the purpose for which it was built.
2. All function elements work well.
3. The information conveyed is easy to understand and self-explanatory.

Conclusion and Suggestions

Based on the results of the stages that have been carried out, it can be concluded that through the Augmented Reality Location Based Service Application for Culinary Tourism in Malang City users can find out the location and get information easily about Hanifa Culinary Tourism.

The suggestion from the author is that this Culinary Tourism Augmented Reality Location Based Service Application can be developed on a smartphone operating system with an IoS or Windows Phone operating system, or other partners who need it.

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