Design of culinary information system based on android using multimedia development life cycle

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Abstract. The development of smartphone application technology makes it easier for people to obtain information without being limited by space and time. One of them is the development of an Android smartphone-based culinary information system application that allows culinary information to be accessed anywhere and anytime online with the hope that it can be utilized in the field of marketing and promotion to increase sales and revenue. This article aims to design an Android-based culinary information system application to make it easier to provide culinary information to the public. The methodology used is a multimedia development life cycle with stages covering, concept, design, collecting, assembly, testing, and distribution materials. The results of this study are in the form of android-based culinary information applications. Contributions given by this application can provide typical culinary information from various regions, especially in Indonesia.

1. Introduction

Culinary tourism is currently one of the attractions of tourists visiting an area, even many countries in Asia are trying to develop a strategy so that tourists can visit their state, one of them is by promoting the characteristics of their local food [1]. The nature of local food in a tourist area is considered as one of the essential aspects that affect visitor satisfaction [2,3]. With the development of mobile devices such as Android smartphones that can display text, images, sounds, animations, and videos change people's patterns and behavior in obtaining information [4–6], especially information about culinary. People are spoiled by the ease of accessing information, especially information that is packaging in an attractive multimedia-based manner. Multimedia-based information is a way of presenting information by combining text, images, audio, and animation that provides experience to users in navigating, interacting, working and communicating [7]. The presence of multimedia is also considered to be proof of impressive technological progress in delivering information to the public [8].

The changing paradigm of society towards food expectations is not only to fulfill the needs, but to develop culinary tourism to find the satisfaction of taste, service, facilities, and the atmosphere of the scenery. The number of culinary places makes the choice of culinary tourism to be visited to be increased and becomes an obstacle for the society in finding culinary types and locations caused by lack of culinary information facilities that can be accessed on a mobile basis, so it is necessary to develop applications that can answer those needs by building culinary information applications Android-based smartphone. The efforts needed to make an Android-based culinary information application, namely, must pay
attention to the estimation of development costs, time, resources, methods, and implementation targets [9–15].

This article aims to design an Android-based culinary information system application to help people promote their regional specialties, as well as help tourists, get culinary information. The limitation of this work is only providing information about local culinary from various regions in Indonesia which include types of cuisine, places, and descriptions of regional specialties. The application development methodology uses the Multimedia Development Life Cycle (MDLC) approach [16,17]. The results of the work are in the form of an Android-based culinary information application. The contribution given from this application is to provide typical culinary information from various regions, especially in Indonesia.

2. Method

2.1. System development
In this design using the method of developing the Multimedia Development Life Cycle introduced by Luther [16], then further developed by Sutopo [17], which consists of six stages namely concept, design, material collecting, assembly, testing and distribution as in figure 1.

![Figure 1. Multimedia development life cycle.](image)

2.2. Activity workflow

![Figure 2. Activity workflow.](image)

Figure 2 is a workflow activity based on the MDLC method. The stages start from Literature Review, User Identification, Device Used, Storyboard Design, Navigation Structure Design, Collecting Materials, Distribution, Assembly, and Testing.
3. Results and discussion

3.1. Concept
The stages of the concept are needed as the initial stages of the process regarding the application to be made, including the features that will be used in the application, the steps carried out namely, Study of literature, producing written sources in the form of journals, articles, and other sources related to the research topics made research reference; Identify users, Android smartphone users who are looking for typical Indonesian culinary information; Hardware, used for the construction and testing of applications made from the needs of personal computers (PCs) and Android smartphones; Software, is a tool used for designing, building and testing Microsoft Visio applications, Adobe Flash CS6, and Android operating systems.

3.2. Design
The design stage is the design specification of the application program architecture to be created, to describe the description of each scene using storyboard and navigation menu structure.

3.2.1. Story board design

| Scene | Description |
|-------|-------------|
| Scene 1 | Scene main menu page, which contains a menu of culinary info, about, and exit. |
| Scene 2 | Scene page menu info culinary, which contains the culinary city of Bandung, Bekasi, Bogor, Cimahi, Depok, and Tasikmalaya. |
| Scene 3 | About the scene page menu, this menu contains information about the application. |

3.2.2. Structure menu navigation. Figure 3 is a navigation structure design of a culinary information system based application on Android.

![Figure 3. Navigation structure design.]

3.3. Material collecting
Material collecting is needed to make culinary information applications in the form of images and text. The ingredients are not always finished materials, but there are also materials that must be made in advance or modified in such a way according to the design requirements of the application.

- Image, Collection of image data is intended to get pictures that match the needs of making an application; the final result of the image file used is a *.png format.
- Text, Collection of text data is to make the selection and determination of text that will be used as material content in the process of making culinary information applications. The collected text data is then quoted and processed to make it more structured. The results of the text are then stored in the storage media for inclusion in the application.
3.4. Assembly
Assembly stage is the stage of the process where each element of data that has been collected such as image and text data is put together into a single application using the application processing software. At this stage includes the process of implementing images and text and the design of the application interface display.

3.4.1. Implementation. The implementation process consists of image implementation and text implementation. Image implementation is the stage of the application creation process that combines previously processed images into each scene using Adobe Flash CS6 software. Text implementation is the process of presenting the contents of the material in each scene, the text from the content of the material is processed first and then entered into the software by copying the text into the stage.

3.4.2. Display interface. Some examples of application information culinary based on multimedia in an Android smartphone:

![Figure 4. Application implementation in Android smartphone.](image)

3.5. Testing
Application testing is based on the functionality of each navigation button and features. If there is a button error or function that does not work, the application will be repaired before being distributed. The testing process uses the black box method, with the conclusions of all application functionality running well.

4. Conclusion
Based on the discussion on the results of the study, the outcome is that the application of culinary information with multimedia is expected to help users to obtain culinary information and culinary locations to be addressed. Providing an alternative to the community to get about culinary details around it. For further development, it can be done by adding geographic information system-based application features to make it easier for users to know the route and distance to the culinary location.
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