

# Android Application as a Information System of Sunda Gastronomic for Tourism Attraction in Bandung City

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**Abstract:** Bandung city in West Java Province has been established as a Priority and Branding culinary destination set by the Ministry of Tourism of the Republic of Indonesia in 2016. The city has a diversity of gastronomic cultural heritage as a support for gastronomic tourism that still preserves the local culture, with unique and authentic characteristics of ethnic Sundanese as tourism products. This tourist attraction has become one of the choices for local, domestic, and foreign tourist to get experience while doing tourist activities. Activity tasting a variety of menus as authentic dishes in Sundanese specialties restaurants, buying various souvenirs and merchandise, seeing attraction making food and beverage, and story telling as the identity of the Sundanese as a native in Bandung City. Researchers have not seen the existence of a Sundanese gastronomic tourism technology information system as a tourist attraction that is feasible easily, and efficiently can be visited by local people, domestic and foreign tourists. The development of Linux-based mobile technology such as Android as a smartphone operating system is quite popular among the general public, and has an affordable cost. Also it is open source, allowing users to develop comprehensive gastronomic education tourism mapping features. Explorative analytical descriptive method of the gastronomic component as a tourist attraction is the name of a restaurant / souvenir center, location, accessibility, amenities, management, description, unique and superior values, also spatial mapping in the city of Bandung. The result is an appropriate technology design based on android application as a Sundanese gastronomic tourism information system in the city of Bandung as a tourist attraction that can be accessed online by tourist

## 1 INTRODUCTION

UNESCO sets the criteria for gastronomic cities in the world, that has a variety of gastronomic tourist attraction activities as explained by Turgarini (2018), namely culinary, raw materials, tasting, serving, educational facilities, unique experiences, nutrition and nutrition content, history / tradition / philosophy to ethics and etiquette. Bandung is a city also has a variety of features, and culture, including gastronomic diversity, which is a typical Sundanese menu that has a tourist destination for authentic raw materials, a place for tasting and serving dishes laden with values of local wisdom, gastronomic education institutions, to gain experience memorable, there are health benefits when enjoying gastronomy because of the presence of clear nutrition, accompanied by history / tradition /

philosophy and ethics and etiquette when enjoying it. Sundanese gastronomic diversity in the city of Bandung can be developed by all stakeholders as part of a gastronomic education tour.

The increasingly diverse location makes it hard for gastronomic connoisseurs to find locations, and restaurants that suit what they want. So far, gastronomic connoisseurs use the manual method to find locations as a gastronomic educational tourism destination by visiting directly. For tourists such a manual method is clearly less effective because it will spend a lot of time.

On the other hand technological developments lately tend to lead to mobile technologies such as Android which is currently a smartphone operating system that is quite popular among the general public. Android is a Linux-based mobile device operating system. One of the advantages of Android

compared to other device operating systems is that it is relatively cheap compared to other smartphone operating systems. In addition, Android is open source so users can develop features that they have not yet desired.

Based on the problem above, the researchers tries to design an application that is able to display, and present information about Sundanese menus that are full of meaning as identity of local wisdom, location or destination of Sundanese gastronomic tourism (raw materials, menus, restaurants, home industries, cooking classes, centers by -by, story telling) which is equipped with information with the shortest distance from Android users in the city of Bandung.

Based on all the descriptions above, then the objectives to be achieved in this study emerge. The objectives of the research carried out are as follows:

- 1) Design and implement an android application as a comprehensive information system (raw materials, menus, restaurants, home industries, cooking classes, souvenir centers, storytelling) typical Sundanese in Bandung as a gastronomic tourist attraction in Bandung
- 2) Display spatial mapping (raw materials, menus, restaurants, home industries, cooking classes, souvenir centers, story telling) Sundanese as a gastronomic educational tourism attraction in the city of Bandung which can be accessed online for local communities, local tourists, the archipelago and foreign countries.

## 2 LITERATURE REVIEW

### 2.1 Gastronomy

Turgarini (2018) explained her understanding of gastronomy not only focusing on culinary arts or cooking methods, but also on human behavior including choosing raw materials, then tasting, tasting, serving food and experiencing the experience of consuming and searching, studying, researching and writing about food and all matters relating to ethics, etiquette and human nutrition in every nation and country (Soeroso, 2014a, Soeroso & Susilo, 2013, Lilholt, 2015, Shenoy, 2005, Manolis, 2010, Santich, 2010, Pullphothong & Sopha, 2013) . Gastronomy (gastronomy) is the art and science, even appreciation that is cross-ethnic, national, racial, group, religion, gender and culture by studying in detail eating, food and drink for use in various conditions and situations



Figure 1: Conceptual of Gastronomy

Source: Turgarini, 2018

Turgarini (2018) explained that gastronomy emphasizes that food is a core component of every culture. As part of culture, authentic eating (authenticity) is a combination of pleasure, utility, and social (Eagleton, 1997), while food is a dictionary of moods and sensations (Ellmann, 1993), so the relationship between humans and their food is typical. So, the choice of type and how food is consumed will be a marker of identity and difference (Richards, 2002). This perspective shows, food is not just fuel (energy), but also has broad meaning as a means to improve quality of life, a vehicle for socializing, enriching experience, being able to express identity or social status and even becoming a conflict prevention, and a tool to protect land water. Therefore, regardless of presentation, both local residents and tourists visiting a tourist destination, they consistently make gastronomic choices according to their social class identity, which in turn will show power and control in a socioeconomic hierarchy (Everett, 2009) .

Based on the description of Turgarini (2018), Sundanese gastronomy is a part of Tatar Sundanese culture which besides having a utility function (benefit) to fulfill basic human needs, namely to maintain life, also contains behaviors and social norms found in human society in general (Macionis & Gerber, 2011). Sundanese gastronomy can also be said as art and science (art and science) related to the culture of eating good food from the ethnic Sundanese and can be used as a social tool to show the identity of the nation, region and state. In the treasury of tourism, cultural phenomena, especially those related to Sundanese gastronomy, will be transmitted through social learning in the

community, and are expected to provide new experiences in the excitement of traveling.

## 2.2 Gastronomy Tourism

Gastronomic tourism (gastronomic tourism) as part of cultural tourism (NIOS, 2018) is a type of tourism or travel, which is designed with the primary purpose of making food and drinks as the main motivating factor for someone to make the trip. Gastronomic tourism is defined as "pursuing an eating and drinking experience that is unique and easy to remember (the pursuit of unique and memorable eating and drinking experiences)" (Manolis, 2010). Thus, a gastronomic tourist is someone who is willing to travel to other places in an effort to taste and experience authentic local cuisine in a destination or destination (Pullphothong & Sopha, 2013).

Turgarini (2018) states that gastronomic tourism destinations can cover one or more administrative regions while the local gastronomic consumed and the people who are related to it, become a tourist attraction. Gastronomic tourism means of tourists to learn and appreciate a variety of different cultures; the scope is broader than just learning cooking skills (Santich, 2010). Tourists have the motivation to do recreation with the main aim of gaining experience in learning the uniqueness of food in an area (Santich, 2010; travel-industry-dictionary, 2014). Gastronomic tourism is one of the tourist attractions by utilizing cultural diversity.

According to Richards (2015) in Turgarini (2018) gastronomy is very useful for tourism activities because it is the gateway to local culture that can make tourists and local residents enjoy cultural experiences together. Gastronomy is a central part of the tourist experience that will provide a memorable and meaningful experience for tourists. In addition, gastronomy can be a distinctive element of the brand image of the place (Richards, 2012), especially tourist destinations, so that it can be a source of identity, even creating a new identity that is hybrid (Scarpato, 2002).

In this context, according to Turgarini (2018) Sundanese gastronomy cannot be separated from the creations, tastes, intentions, and works of the Pasundan land community. As a cultural heritage, Sundanese gastronomy can relate to the symbiosis of mutualism with tourism. Hjalanger and Richards (2002) say that local gastronomy can play a different role in tourism, for example as a complementary product for tourist destinations, and as a gourmet tourism (Hall et al., 2003), or can be viewed as a

symbol or symbol of local uniqueness (Bonow & Rytönen, 2012). When tourists choose local gastronomy, they also feel the elements of the local character they visit (Bessière, 1998). So, consuming Sundanese gastronomy means absorbing and manifesting and enjoying intrinsic tourism with an aura of locality that is even legendary. Usually in a tourist area many local gastronomies are handled by local artisans so that it is seen as an important part of local heritage and culture.

Bandung city has been known to have many places to enjoy gastronomy, both those sold at malls, traditional shops and street-halls. The spectrum of types of food and beverages, how to process raw materials, how to deliver to consumers and consumer behavior, is relatively broad. Another gastronomic element that is displayed in several outlets is the way of presentation that has Sundanese characteristics.

## 2.3 Information System

Understanding Information Systems (SI) in a comprehensive manner, is contained in the following description by John F. Nash which states SI is a combination of people, facilities or tools of technology, media, procedures and controls meant to organize important communication networks, certain processes or transactions and routines, help management and internal and external users and provide the basis for making appropriate decisions. Information system functions, namely:

- 1) To increase the accessibility of existing data effectively and efficiently to users, without the intermediary of the information system.
- 2) Improve the productivity of application development and system maintenance.
- 3) Ensuring the availability of quality and skills in utilizing information systems critically.
- 4) Identify the needs regarding information system support skills.
- 5) Anticipate and understand the economic consequences.
- 6) Determine investments to be directed at information systems.
- 7) Develop an effective planning process.

## 2.4 Mapping

Soekidjo (1994), Juhadi, and Liesnoor (2001) explained that mapping is a grouping of a group of regions related to several geographical locations of the region which include the highlands, mountains, resources and population potential that influence socio-cultural which have special characteristics in use of the right scale. The technique is in making

data, continued in data processing, and presentation in the form of maps (Juhadi and Liesnoor, 2001).

Intan Permanasari (2007) states that there are three (3) stages of the mapping process that must be carried out, namely:

- a. Data Collection Phase, is the first step in the mapping process.
- b. Data Presentation Stage, is an effort to describe or describe the data in the form of symbols, so that the data is interesting, easy to read and understood by users (users).
- c. The stage of using maps, is an important stage because it determines the success of making a map. A well-designed map can be used / read easily.

The final result of mapping is a map as a representation or description of abstract elements or features selected from the surface of the earth or celestial bodies and generally depicted on a flat plane and scaled down or scaled (ICA, : 1973, Intan Permanasari).

## 2.5 Restaurant

Restaurant is a place or building that is commercially organized, which provides good service to all guests in the form of food and drink. There are restaurants in a hotel, office or factory, and many also stand alone outside the building. The purpose of restaurant operations is to make a profit as stated in the definition of Prof, Vanco Christian from the School Hotel Administration at Cornell University in his book *Marsum WA*. Besides aiming at a business or making a profit, satisfying guests is also a major restaurant operation. Restaurant means money, because it must know exactly how to manage it, how to make guests happy and satisfied so they always want to be a restaurant customer (Marsum WA, 2005: 7-8). Sundanese restaurant is a Specialty Restaurant, a restaurant whose atmosphere and decoration are entirely adjusted to the typical type of food served or its theme. Restaurants like this provide ethnic food or certain countries such as other countries namely China, Japan, India, Italy and off course Sunda. The service is more or less based on the procedure of the country where the special food came from. Likewise, the Sundanese Restaurant presents the culinary culture of West Java in the city of Bandung.

## 2.6 Android

Android is a Linux-based operating system designed for touch screen mobile devices such as smartphones and tablet computers. The operating system is done with an open source (open source), and Google mirilis code under the Apache license. Code with open source, and licensing licenses on Android allows software to be freely distributed and distributed by device makers, wireless operators, and application developers. It is also the choice for technology companies who want a low-cost, customizable and lightweight operating system for high-tech devices without having to imagine from the start. Then android is also developed into additional applications on television, game consoles, digital cameras and other electrical devices. The open nature of Android has led to the emergence of a large number of application developer communities to use open source code as a basis for application development projects, by adding new features for advanced users or operating Android on devices officially released using other operating systems (Wikipedia, 2013).

Android is considered as a complete, open and free future platform as follows (Safaat, 2012):

- Complete platform, designers can take a comprehensive approach when they are developing the Android platform. □
- Open source, the Android Platform is provided via open source license, developers can freely develop applications. □
- Free Platform, android is a platform or application that is free to develop.

Along with its development, Android has various versions, including (newbiedroid.blogspot.com):

- a. Android 2.3-2.3.7 (Gingerbread)
- b. Android version 3.0-3.2 (Honeycomb),
- c. Android version 4.1-4.3 (Jelly Bean),
- d. Android version 4.4 (KitKat), this version is predicted to be compatible for use on Android smartphones ranging from High-end to low-end classes.

## 3 RESEARCH METHOD

### 3.1 Research Subjects and Subjects

This study inventory of raw materials, menus, restaurants, home industries, cooking classes in the

city of Bandung as a tourist attraction. The database is then entered into Android, and mapped to facilitate local and domestic tourists, as well as Macangara to be able to access the map for the purpose of traveling to this city.

### 3.2 Methods of Collection, Data Collection, Data Analysis

This study conducted an exploratory, descriptive analytical study for Sundanese restaurant inventory that had a component as a tourist attraction in the city of Bandung, this stage was to identify the leading Sundanese Restaurant as a tourist destination by including: Sundanese Restaurant name, location, accessibility, amenities, manager, general description, unique and superior value. In addition it is required:

- 1) GPS coordinate data for each Sundanese Restaurant location, and components as tourist attractions, obtained through measurements.
- 2) Attribute data, obtained from the Bandung City Culture and Tourism Office, PHRI, Cafe and Restaurant Association, and the public and private sectors as well as the public. Field survey included.

The equipment used in the study is specified in hardware and software, as follows:

- 1) Hardware consists of: 1) a laptop device with Intel (R) Core (TM) processor specifications i3-2310M CPU @ 210 Ghz (4 CPUs), 350 GB Hard Drive, 2.00 GB RAM. 2) Handheld / Mobile GPS. 3) Camera. 4) Android Smartphone.
- 2) Software or software, which consists of: 1) App Inventor (version v.134), used as a media for making applications. 2) Java Development Kit (JDK), so computers can read the Java programming language.
- 3) Google App Engine, used to open App Inventor in the browser.
- 4) Python 2.7, used to read the visual block programming language.
- 5) Google Chrome, used as an App Inventor application media both online and offline.
- 6) Microsoft Office Visio 2007, used for system design and / or application diagrams.
- 7) Photoshop CS5, used for making user interface appearance and / or editing photo attributes.
- 8) VideoPad Professional, used for editing video attribute data.

Data processing is carried out:

- 1) Program design, at this stage is to design a program which will determine the final results of the application that has been made, which includes designing the system, user interface, and activity that will be run by the user.
- 2) Application System Design. In designing an application system that is designing a system of activities that exist in the application and will be made using the UML (Unified Modeling Language) method.

### 3.3 Resesarch Stage

- 1) **User Intergace Design**, the design of the user interface or the appearance of the application to be made must be able to provide an overview and explanation of each image, text and navigation of the application.
- 2) **Application Coding**, In building an application, of course the system coding is required. Coding in making applications with App Inventor uses codes that are in the form of interrelated visual blocks so that later applications can run or function according to design.
- 3) **Test with Emulator**, this is a step is to test the project that has been created using an emulator.
- 4) **Implementation**, in this section the authors carry out three stages of implementation namely Download Project and applications, application installation to the Android hadset, and blackbox testing.

### 3.4 Research Flow Parts

Here is a flow diagram from this research :

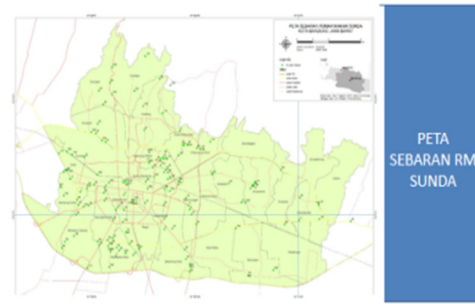
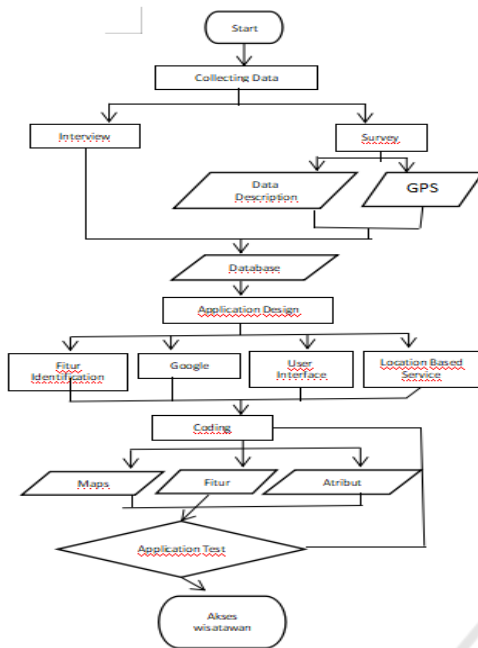


Figure 2: Spacial Mapping Sundanese Restaurant Sunda in Bandung City

The research flow is description data, and location data (GPS) of raw materials, description of Sundanese Recipe, Raw Material, Nutrition, Story telling (history, tradition, philosophy), locations of Sundanese Restaurants, Home Industries, Food Souvenir Shop,

And also from survei the researcher find 87 food souvenir store in Bandung city. The data is then processed to obtain appropriate technology for Sundanese gastronomic education guides and educational tours for local communities, archipelago tourists, and foreign tourists in the form of an android application design and comprehensive education information system for Sunda gastronomic tourism attractions in Bandung and Sunda online maps as educational tourism attractions

## 4 RESULT AND DISSCUSSION

### 4.1 Development Stages

The history of Sundanese food in Bandung City can now be traced up to 200 years based on interviews with various sources such as Angleng, Dapros, Getuk, Kasreng, Kolontong, Ulen and others. Based on a scientific study of Sundanese food in writing there is in the book of the People of the Priangan, which records the menu of the food of the people, food, traditional ceremonies, until the philosophy listed in the 18th century. Sundanese gastronomy traditions. and philosophy There are 25 types known today.

The model of developing Gastropedia information systems is to use a spiral model whose development is iterative or repetitive. The function of this model is to make changes, additions and develop a software with a series of additions to get better quickly and precisely based on the wants and needs of its users.

Bandung city is a storefront of a gastronomy in West Java Province. The results of the literature review, in-depth interviews, observations, surveys, expert discussions and FGDs are conducted, it is known that traditional food and drinks in the city of Bandung consist 303 recipe of food and beverage of Sunda. Based on the results of tagging and spatial mapping for 154 restaurant Sunda in 34 districts in Bandung city obtained the following map:

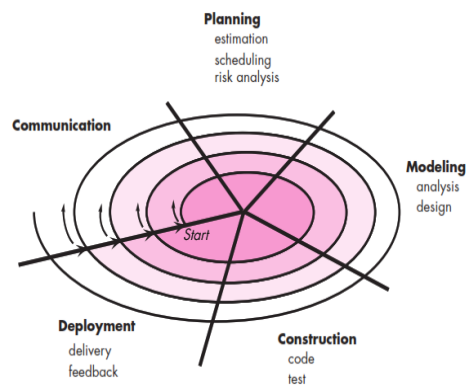


Figure 3: Development Stage of Spiral Model Information System

- 1) **Communication**, is early stage of this model to communicating the needs of information system development from users to people who will develop the software. At this stage, a list of data to be processed will be produced, which includes data on restaurants, souvenir shops, cafes, places to sell raw materials, industrial houses, and festivals, as well as encyclopedias about Sundanese snacks that are in the city of Bandung. Also determined the desired features, namely location mapping and GPS to help direct users to that location
- 2) **Planning**, when software developers estimate development duration and scheduling. At this stage the timeline or information system development is generated .
- 3) **Modeling/Design Implementation**, the information system developers design a user interface (UI) and user experience (UX) design. First, the developer makes a mockup using graphics processing software, Adobe Illustrator. This mockup serves to provide an overview of the layout of each page in the application. The design components include logos, icons, text, images and navigation buttons.

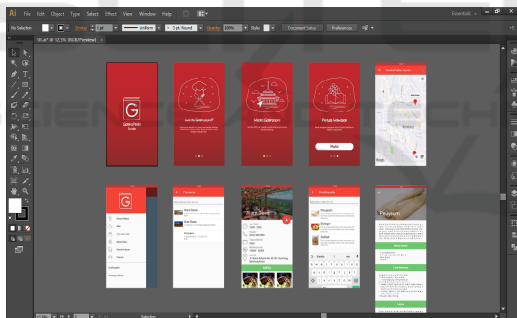


Figure 4: Making Mockup

Then the UI design that has been designed on mockup is implemented using XML in the Android Studio software.

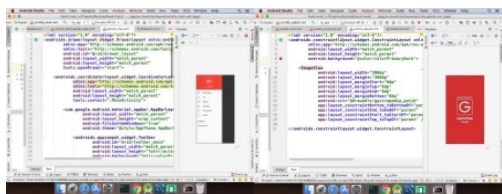


Figure 5 Design Implementation at Android Studio using XML

- 4) **Construction or Function Implementation**, is implementing functions so that the features of the software can run as they should. The function implementation is carried out using the Kotlin and Java programming languages in the Android Studio software.

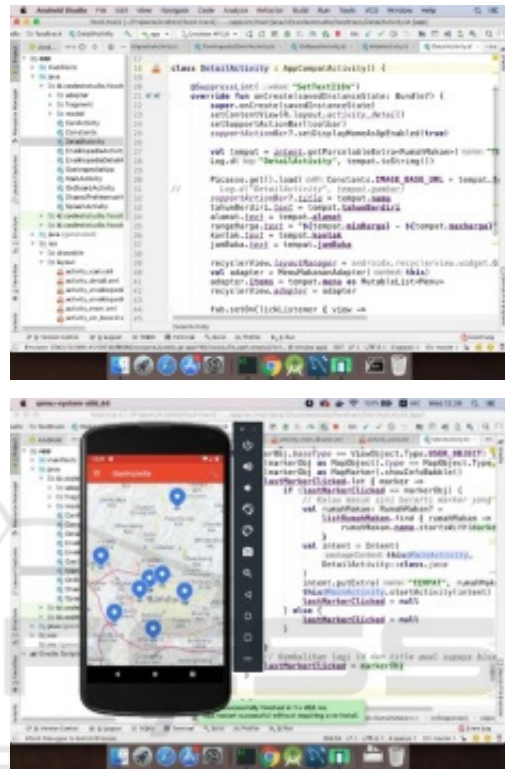


Figure 6 : Function Impementation at Android Studio

At this stage also developed a web-based application to facilitate the admin in managing data such as adding, reading, updating, and deleting data.

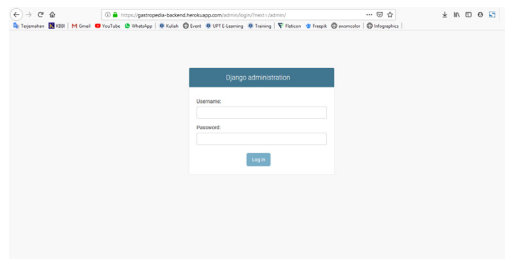


Figure 7 : Login Django Page

- 5) **Deployment**, applications that have been developed are then evaluated. The user role is very necessary at this stage. They can provide input and responses, evaluate work products

and ensure that the required products comply with all provisions.

**6) Guidance to Use Gastropedia Sunda Application**

*a. Menginstal Aplikasi*

To get the Sunda Gastropedia application, please download the application here

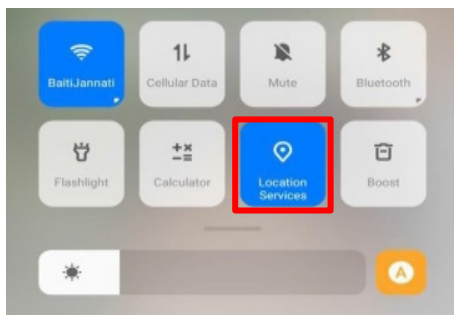


Or you can enter through this link <http://bit.ly/gastroapk>. Then install on your smartphone. To install the application to a smartphone device, you must first change your smartphone settings as follows:

1. Open Menu Setting
2. Choose Menu Security
3. Check menu "Unknown Resources"

*b. Choosing Enciclopedia Menu*

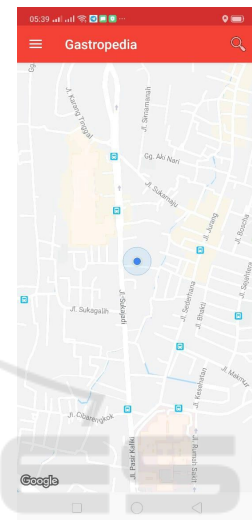
- 1) *Access Aplikasi*, before starting the application, you are required to first activate the GPS service / location service that is usually found in the pop-up menu on the top of your smartphone.



After the GPS service / location service is activated, then you can access the Sunda Gastropedia application by pressing the Gastropedia icon on your smartphone as below

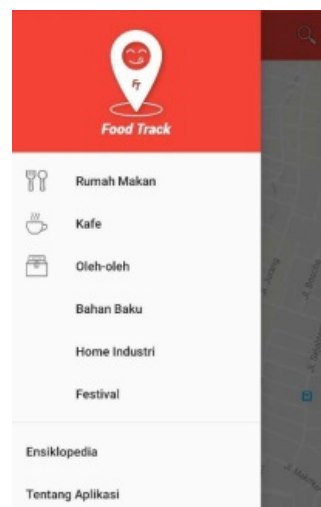


In the initial view after clicking, the application display will appear as below.



In the initial view you will be directed to the Google map view

- 2) *Menggunakan Aplikasi*, to use this application you can click on the icon in the top corner of the application. When clicking on the icon you will see a menu item that can be selected, i.e :





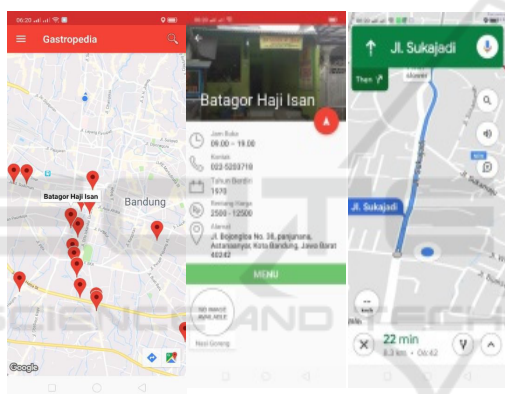
a. *Food Track*, it contains information on addresses that you can select / click in the area of Bandung, including :

1. Restaurant
2. Cafe
3. Food Souvenir Shop
4. Raw Material
5. Home Industry
6. Festival


b. *Ensiklopedia*, contains knowledge about various types of Sundanese food found in West Java.

c. *About Application*, Information about the developer of this application

3) *Pilihan Menu Food Track*, is is content that displays the folder containing the location tag option address info / location, as below.



The location tag when clicked will appear writing the name of the destination restaurant, clicking again writing the name of the restaurant that appears then you will be directed to the restaurant information menu that you click, including opening hours, contact numbers, years of standing, price range, address, until to the menu in the restaurant.

If you use a private vehicle, you can click on the red arrow  to be directed directly to the Google Map that gives access to the road that can be passed to get to the restaurant.

The Encyclopedia Menu is content that displays information on food knowledge contained in West Java, including raw materials used in its manufacture, how to make it, even to the location where we can find the food.

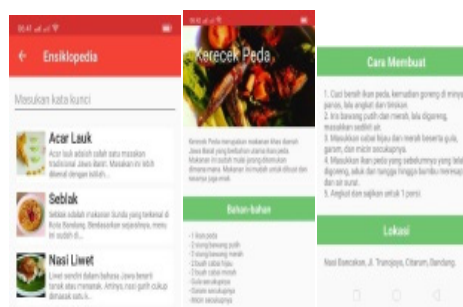


Figure 8: Encyclopedia

## 5 REKOMENDATION

The results of this research is successful in making a search system for Sundanese gastronomic tourism destination locations ((raw materials, menus, restaurants, home industries, cooking classes, gift centers, story telling) as a gastronomic educational tourism attraction in Bandung based on an android application. By presenting comprehensive, and educative information (raw materials, menus, restaurants, home industries, cooking classes, gift centers, storytelling) gastronomic education tourism attractions in Bandung based on an android application.

This can be done by spatial mapping of raw materials, menu, restaurant, home industry, cooking class, center of souvenir telling as an android tourism-based gastronomic tourism attraction, which certainly contributes to the android app information and education system for the development of Sundanese gastronomic education tourism in the city of Bandung.

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