



Faculty of Computer Science and Information Technology

***e-HALAL FOODS GUIDANCE SYSTEM  
FOR TOURISTS***

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Bachelor of Computer Science with Honours  
(Software Engineering)  
2014



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requirement for the degree of  
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# **SISTEM PANDUAN MAKANAN e-HALAL UNTUK PELANCONG**

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Projek ini merupakan salah satu keperluan untuk  
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## **ABSTRACT**

Consuming Halal product is a great concern to all Muslims. It is written in the Holy Quran that all Muslims are obligated to prepare and consume Halal products especially foods. A current problem facing by tourists is to Halal foods in Malaysia. A possible solution is by using a mobile checker for Halal status on foods. However, due to high cost in purchasing an application, this work presented a web based system e-Halal Foods Guidance System, to identify and search status for the Halal, Haram and Mashbooh foods product based on code and keyword. A main feature of this system is focusing on searching method that able to verify and recognised of foods product confirming its status Halal, Haram or Mashbooh which accessibility to a database. Based on the result of functionality and usability testing, the respondents are giving a good feedback after testing the overall system modules and responds for this system. Therefore, the features of this system hopefully would ease, help and benefit tourists who visit Malaysia to overcome the issue on Halal recognition foods during their trip.

## ABSTRAK

*Pengambilan produk Halal adalah keutamaan kepada semua umat Islam. Ini telah ditulis dalam al-Quran bahawa, adalah menjadi kewajipan kepada umat Islam untuk menyediakan dan menggunakan produk Halal. Masalah yang dihadapi oleh pelancong adalah untuk mengenalpasti status sesuatu produk makanan yang diiktiraf Halal di Malaysia. Penyelesaian yang diambil adalah dengan menggunakan pemeriksa mudahalih untuk mengenalpasti status Halal pada makanan. Walaubagaimanapun, disebabkan kos yang tinggi untuk membeli sesuatu aplikasi, kertas kerja ini telah membentangkan status sistem berasaskan web untuk mengenalpasti status carian Halal, Haram dan Mashbuh produk makanan berdasarkan kod dan kata kunci. Ciri-ciri sistem ini memberi tumpuan kepada kaedah mencari yang dapat mengesahkan dan mengiktiraf produk makanan dan mengesahkan status mereka samada Halal, Haram atau Mashbooh yang terus di akses kepada pangkalan data. Berdasarkan kepada keputusan ujian kebolegunaan dan penggunaan adalah menunjukkan bahawa, responden memberi maklumbalas yang baik serta memberi respons memuaskan untuk setiap modul yang terdapat dalam sistem ini. Oleh itu, ciri-ciri sistem ini diharapkan meringankan, membantu dan memberi faedah kepada pelancong yang melawat Malaysia untuk mengatasi isu mengenalpasti makanan Halal di Malaysia selama keberadaan mereka berkunjung kes ini.*

# CHAPTER 1

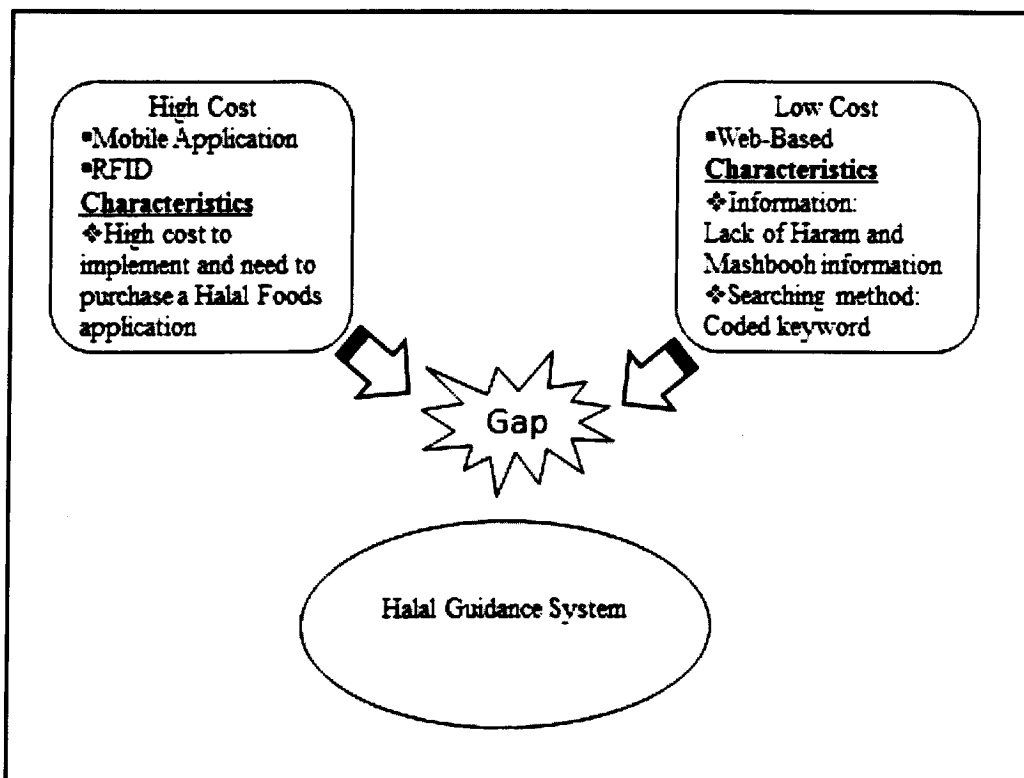
## INTRODUCTION

### 1.1 Halal Scenario in Malaysia

Consuming Halal products is a great concern to all Muslims. It is written in the Holy Quran that all Muslims are obligated to prepare and consume Halal products (Nooh et al., 2007). Halal is a Quranic term means allowed or permitted by Islamic laws. Thus, halal information is crucial for Muslims when dealing in their daily life. Jabatan Agama Kemajuan Islam Malaysia (JAKIM) is one of a party that provide Halal information in terms of products, restaurants and food items for guiding Muslims in Malaysia.

In order to validate the Halal status of their purchases, JAKIM has introduced a standard Halal logo. Although they has implemented and produced the Halal logo certificates as the Halal verifications to the request market trades agencies but still cases of the misused of the Halal logo imitations have led to consumer confusion (Norman et al., 2009). Besides, JAKIM is also an Islamic organization based on Malaysia that manages and grants Halal status for manufactured products and food premises. Hence, Halal is also considered in other area such as, cosmetics product. For the cosmetics and personal care products that require halal certification, the products must comply with the Malaysian Standard MS 2200-2008 requirements. According to the standard, cosmetic products must be safe and non-hazardous to consumers (Husain et al., 2012).

The main constraint discover is the method of checking the originality of Halal products takes longer time either through JAKIM's website or telephone call to JAKIM office. The existing website that provided from JAKIM, user must scroll the entire document to check the code and click list button again to see the complete description ("Halal Jakim", 2013). Moreover, JAKIM's website just concentrates on Halal product status only instead considering about the Haram and Mashbooh for certain foods and products. Halal is a Quranic term which means allowed or lawful. Halal foods and drinks are permitted for consumption by Allah-the Supreme Law Giver. Eating Halal is obligatory on every Muslim. Mashbooh is an Arabic term which means suspected and cover a grey area between Halal and Haram. If one does not know the Halal or Haram status of a particular food or drink, such a food or drink is doubtful. A practicing Muslims prevents himself from consuming doubtful things.



**Figure 1.1: Identified Gap in Halal Guidance System**

Based on Figure 1 above show three different approaches which is Mobile Application, Radio Frequency Identification (RFID) and web-based that has been categorised under high cost and low cost. From those categories, we define gap that will produce proposed approaches which is e-Halal Foods Guidance System. Mobile Application and RFID are approaches that categorised in high cost group because it is costly in terms of implement and buy the application. Only certain people who afford can use this Mobile Application and RFID approaches to make a checking for Halal system. The second approach which is under low cost category is web based system. The web based system is low cost which is affordable because it is free of charge and does not involve highly cost to use it. As long as there is internet connection, people can surf without any limit. However, the existing web based system lack of the information for Haram and Mashbooh. In addition, the searching method only in coded keyword which means, only keyword that already generate in database can be search. All those three approaches have used in building the Halal Foods Guidance System. Therefore, the gap defines between two categories which are high cost and low cost will be a benchmark to produce a Halal Guidance System for our system. This system will be built based on the lacking characteristics of 2 different approaches then define the better characteristics between them.



Therefore, a main goal of this system is to assist Muslims in identifying Halal status of the ingredients contains in the food product from the ingredient's code and keyword. Finally, we are hoping this system would be beneficial for Muslims in Malaysia by helping them to follow the right path of Halal status according to the Islamic laws.

## **1.2 Problem Statements**

Halal information specifically, ingredients contain in food products, could be found easily from Internet. However, the available information, which is based on different scholars in Islam, has given unclear thought for Muslims. This is due to:

- Lacking of functionality of current official Halal information from Malaysia local authority regarding with easily search through the existing website with the description on why it Halal, Haram and Mashbooh.
- Current search engine embedded in Halal Jakim website only focuses on specific keyword. No specific tools to provide the Halal information based on general keyword. According to JAKIM website, they do have provided a search engine that allows the user to check the code and keyword. However the keyword is only coded keyword generate. Thus, the searching method has led to a difficulty for user in searching the information in wide way.

## **1.3 Objectives**

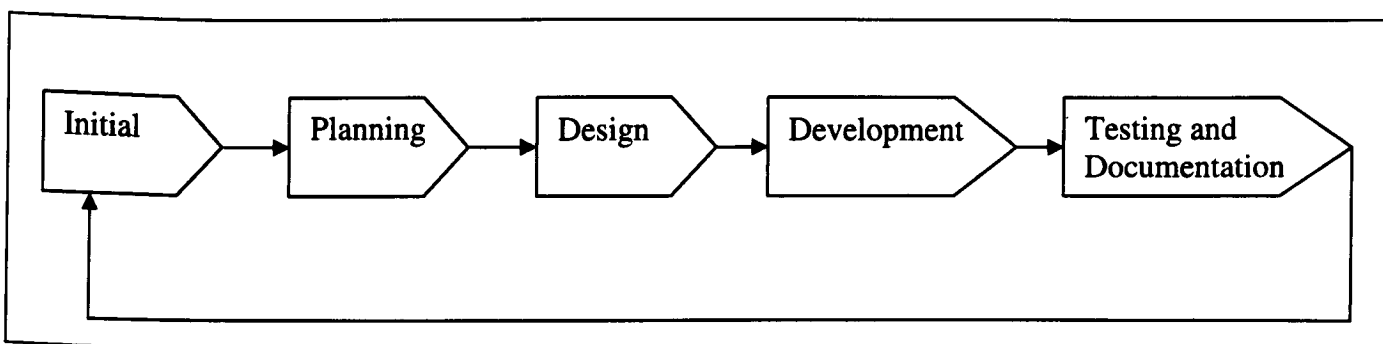
The objective of this system is to design and develop a web based system with can serve users with the confirmation of Halal, Haram and Mashbooh foods, using Halal, Haram and Mashbooh code and keywords. This system should be able:

- I.** To provide Halal, Haram and Mashbooh information of ingredients in food products based on Halal codes determined by Malaysia local authority.
- II.** To ease the user in searching Halal, Haram and Mashbooh status by codes or keywords instead of scrolling down all the listed information.

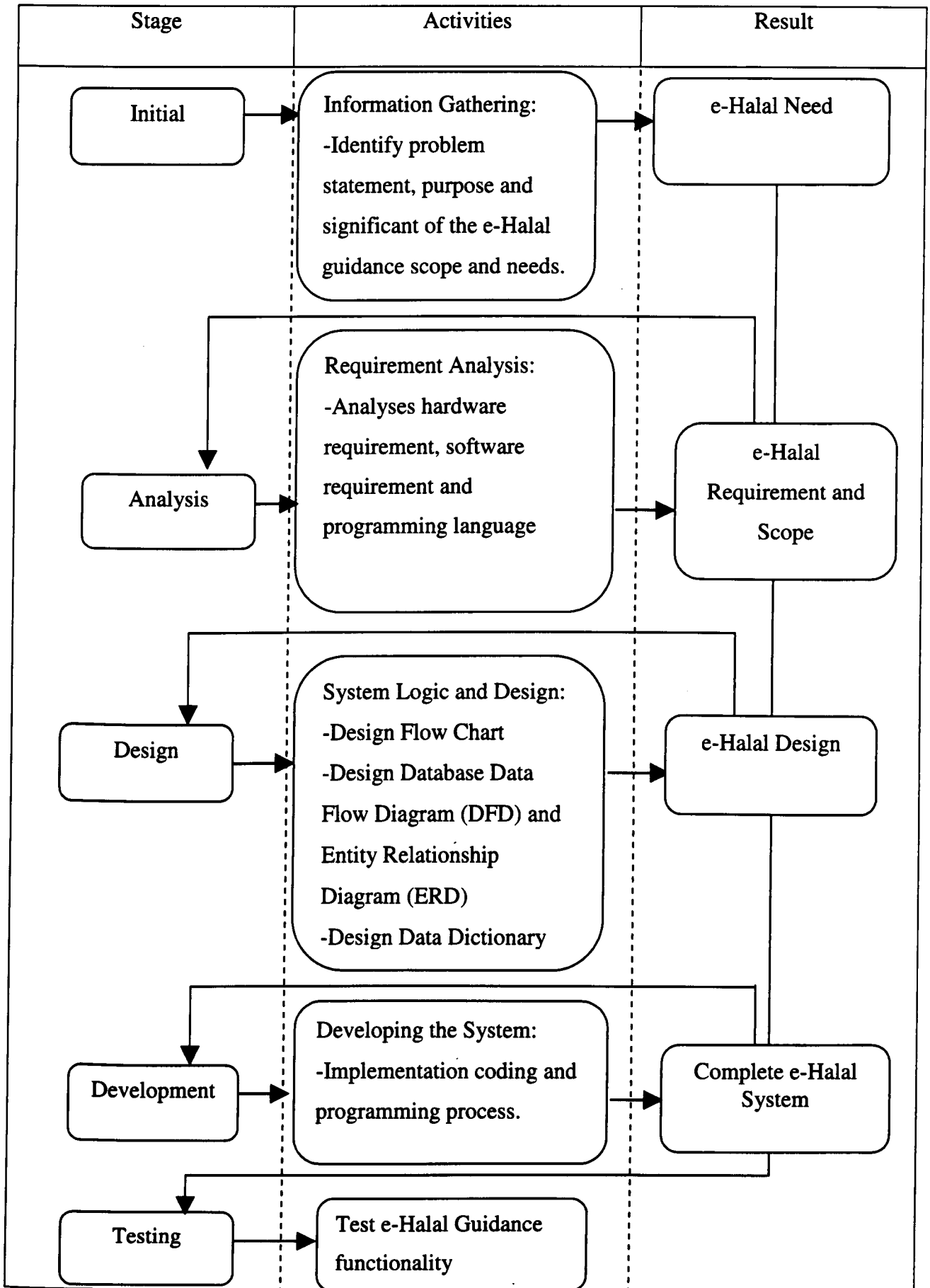
## 1.4 Methodology

Methodology is the most important part of the project. The main purpose of determining the project methodology is to guide the project developer in managing the whole process involved in this project as detailed planning and explanation are provided in this part. The methodology should be planned systematically to gain best result and at the same time to achieve the project goals. According to our project objectives, we intended to provide the Halal information of ingredients in food products based on Halal codes and keywords determined by the Malaysia local authority besides, to ease the user in searching the Halal codes without going through all the listed codes that provided then make user take time to find it. System Development Life Cycle (SDLC) is known as a methodology that is applied in the process of developing systems. It provides a consistent framework of tasks and deliverables needed to develop systems.

The SDLC methodology may be condensed to include only those activities appropriate for a particular project, whether the system is automated or manual, whether it is new system, or an enhancement to existing systems. The SDLC methodology tracks a project from an idea developed by the user, through a feasibility study, systems analysis and design, programming, pilot testing, implementation, and post-implementation analysis. Documentation developed during the project development is used in the future when the system is reassessed for its continuation, modification, or deletion. For this project we proposed to use the Waterfall Model to fulfil the objectives. Waterfall Model is one of the systems development life cycle (SDLC) model. Waterfall development has distinct goals for each phase of development. Once a phase of development is completed, the development proceeds to the next phase and there is no turning back. Figure 1.2 will show the Waterfall Phase. Figure 1.3 will show the Waterfall Model Procedure Description.



**Figure 1.2: Waterfall phase**



**Figure 1.3: e-Halal Guidance System in Waterfall model**

As mentioned before, Waterfall Model is a guideline for developing systems that involves six main phases which are Initial Phase, Planning Phase, Design Phase, Development Phase and also Testing and Documentation Phase. Figures 3 above shown that the general proposed methodology that we used in build this e-Halal Foods Guidance System based on waterfall approaches.

There are three important things we concern for completing this system by using the waterfall approaches. The steps are including stages, activities for each stage and the out coming result after applied that activities. The first stage is initial stages that focusing on information gathering. It can be done by identify the problem statement, purpose significant of the Halal guidance, identify e-Halal scope and needs. The result will produce the need on e-Halal foods guidance. Second stages is planning stages, that required requirement analysis activities by analyse hardware and software requirement and programming language. This activity also, required the discussion with supervisor and the result will produce e-Halal requirement and scope. Then, third stages are design. In this design stages, the activities such as define system logic and design must done. The design that should be in for designing this system are, flow chart, data flow diagram from context diagram to level 1, entity and relationship diagram and data dictionary. From those activities of design, it produces the result for e-Halal foods guidance design framework. The fourth stage which is development stages, that requires developing the system activities for implementation coding and programming process. This stages will accomplish the complete e-Halal Foods Guidance System. Last stage is testing stages that have to test the functionality of e-Halal Foods Guidance System.

## **1.5 Project Scope**

There are 2 main users in this system:

### **1. Tourists**

#### **i. Public User**

In this website, it is focus more to the public users that do not have smartphone or tablets. It is because; people who able to have smartphone can download free application to make a checking on Halal food. The closest example is if the tourist as a student does not have a budget to buy an expensive gadget.

#### **ii. Registered User**

User can also register as a member if they need to join the forum. In the forum, the user can gain more information and to discuss about more current issue regarding with Halal information.

### **2. Admin**

This website will be managed by admin who will update on edit, delete and add new information regarding Halal, Haram and Mashbooh information status.

## **1.6 Significant of Project**

There is relevant information from the Internet, but the information given is limited with different based on Islamic scholars. For instance, different scholars have their own thoughts on Halal status for alcohol percentage contains in the food products. In addition, the scenario above has led us to propose e-Halal Foods Guidance System for Muslims in Malaysia. The proposed system uses a searching method based on code or keywords from user input. The required input is a code of one ingredient, e.g. E471, or keyword(s) extracts from the text.

## **1.7 Project Schedule**

*Refer to Appendix A*

## **1.8 Expected Outcome**

In Malaysia's Halal industry, web portals and mobile applications are often the best options for delivering information to consumers in order to validate Halal status. Regular checks are also carried out by the authorities to ensure that the products are safe. However, the development of illicit applications and techniques by unscrupulous people, such as faking logos and certifications has led to confusion and hesitation on the part of consumers. For this reason, this e-Halal Foods Guidance System has been suggested to be the validation system especially for Muslim user.

Therefore, the expected outcome for this system is to be a web based system that will provide a search engine to search on Halal status of ingredients in food products by categorical featuring that means user can search weather by keyword or Halal code. The features of this system would ease, help and benefit Muslim to overcome the issue on Halal recognition foods in the market. As well, it also can accommodate user to check not only for Halal food description, but also for Haram and Mashbooh.

## **1.9 Thesis Summary**

This section will briefly explain each chapter in this thesis.

In Chapter 1, generally explain regarding the halal scenarios in Malaysia, the problem statements, objective and project outcome for e-Halal Foods Guidance System. Besides, the project schedule also had been plan in this chapter and the expected outcome for the system.

In Chapter 2, it is the phase on doing the literature review that involves collecting related paper work for approaches regarding e-Halal Foods Guidance System. From that paperwork, we summarize the important key or part that need to accomplish our mission to build the proposed system.

Then, for Chapter 3 it is the part we need to done requirement analysis and find the suitable methodologies for completing this system. In this chapter also, want us to design the flow of the system from who will used, how it will be used and what used the e-Halal Foods Guidance System for.

In Chapter 4, will mainly explain task regarding the implementation where the system shall complete build based on the methodology proposed, the interface based on user interface design and built in regarding the project schedule.

In Chapter 5, will cover up the testing for the complete system that might shows the testing method been used and the analysis of those testing after conduct the testing. The testing result will also show.

In Chapter 6, basically explains the summary and future work that can be done for this system. The chapter will explain the result that has been obtained throughout creating the system. It also mentions any future work that can be done for this system that will enhance the usage of this system for the users to use.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Research Background

In this chapter, we will provide of previous work on related topics that provide the necessary background for the Halal Guidance System. The literature review concentrates on each important element of this project. The literature begins with the discussion on the related Halal system topic, which serves to set the context of this project.

In general, we were collecting all of the related resources of Halal system as flow based on Figure 2.1 below. Therefore, we find their pros and cons to reinforce the reason to build this project. In addition, after collect and capture the strengths and weaknesses of the existing system, we can make it as references when build the e-Halal Foods Guidance System.

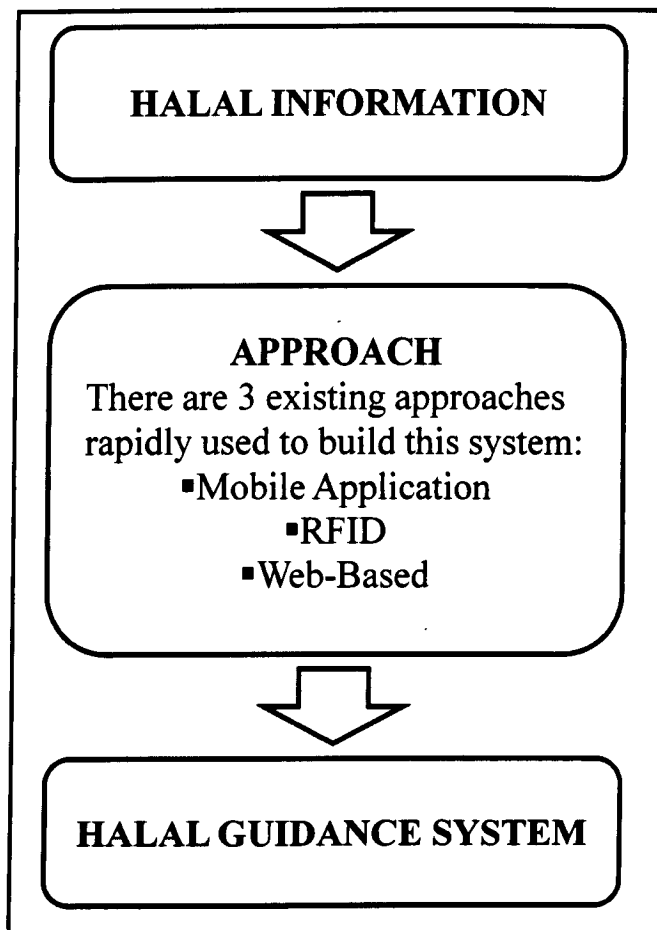


Figure 2.1: The Analysis of approaches in Halal Guidance System