Halal Food Detector for Muslims

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Abstract- **This paper shows that how will Muslims who are living in japan to know whether the food of the grocery and supermarkets are Halal or not by using an Android application which is made in this research. It is also proved that the system can actually work, given that the application is upgraded to achieve required accuracy and stability. It can also be said based on the questionnaire results, that there is a need for this type of system.**

I. Introduction

This project is for Muslims who are living in japan. It is related to recognizing Halal food and Haram food. Many Muslims who are living in japan must have faced a problem related to whether the food they are eating or the drink they drinking is Halal or not. I personally faced this problem since I came to japan until this moment because Haram food is involved in too many products here in japan.

Plus, the word "Pork"[1] for example have too many expressions or vocabulary in japan. Moreover, these words are written in Kanji (Japanese letters) which make it even more challenging for Muslims to read or understand what is written on the product.

In order to get over this problem, I developed a smartphone application Called "Halal Food Detector System". This application will help Muslims who are living in japan to recognize whether

The food is Halal or not. The application will be fully explained in the next sessions.

A. Halal Food

Halal is an Arabic word which simply means permitted or lawful. So when we are talking about halal food it means any food that is allowed to be eaten according to Islamic law that is stated in Holy Qur'an.

B. Haram food

Haram food is the opposite of the word "Halal Food". It is any food that contains Pork or alcohol [2].

This project will help the Muslims Families who are living in japan because some people don't know how to read the Japanese letters (Kanji). And even for those who can read Kanji they might face problems because there are approximately more than 100 words that are related to Haram food in Japanese.

II. Halal Food Detector System
A. Main Idea

The project is an Android application. The basic idea of this application is that it will be collaborated with an application called Barcode Scanner so that when we want to know whether the food is Halal or not we put the smartphone's camera on the Barcode of the food label and the barcode scanner application will read the barcode and will check in a database that is has many barcodes that are previously stored in a database (note that the database is stored in a server). If the food is Halal a notification will pop-up on the screen informing the user that the food you just scanned is Halal. And vice versa.

This project is divided into two separated applications:-
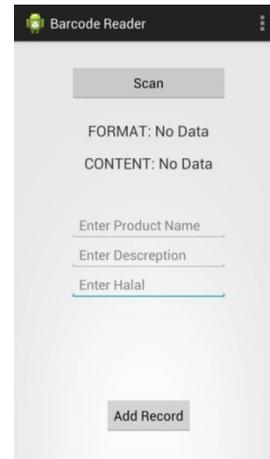
1 Developer's Application

Figure 1: The first screen from Developer's Application showing the Scan button, a text field for entering information about the products.

In this this application the Developer or the owner of this product will check for the products and see whether they contain Halal ingredients or not. After that he/she will insert the data in the application and press on Add Record button to insert a record in the data base.

The owner must enter the information correctly. These Information are product name, description (if there is any) and finally whether the food is Halal or Haram. Format and content are automatically inserted at the moment you press on Scan button and put the camera of the smartphone on
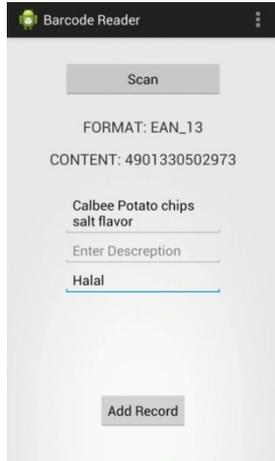
the barcode of the product.

Figure 2: Showing that the Developer has inserted the data and ready to press Add Record to insert the information in the database.

2   User's Application

In this application the users will look for the products they are searching for whether it is Halal or Haram by pressing the Scan button and aiming the camera on barcode of the product.
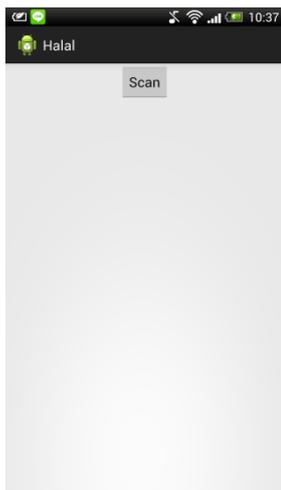

Figure 3: The first screen from the User application showing that a Scan button to press so the user can start searching for Halal food

After that a screen will be shown informing the user about the product and giving them details about if the food is Halal or not.
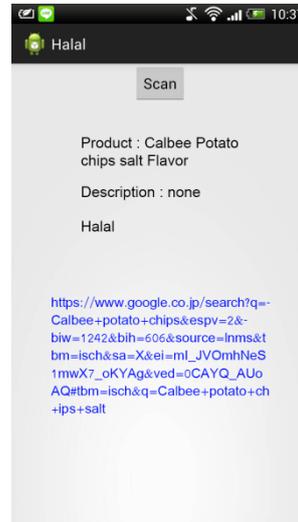

Figure 4: showing the result after scanning the product's barcode.

B. Halal Food Detector System in Detail

The application's working process starts from Developer's application. In Developer's application when the developer insert the information about the product and press the Add Record button, the application will send an insertion request so the record can be stored in the database that is in a web hosting server by Java programming language. After that, the insertion request will insert the record in the database by the programming language PHP.

When the user tries to retrieve information about the product, the

application will send a retrieve request to the database by Java. After that, the request will be sent to the database by PHP. At the end, the database will send the information to the application and the result will be shown to the user.
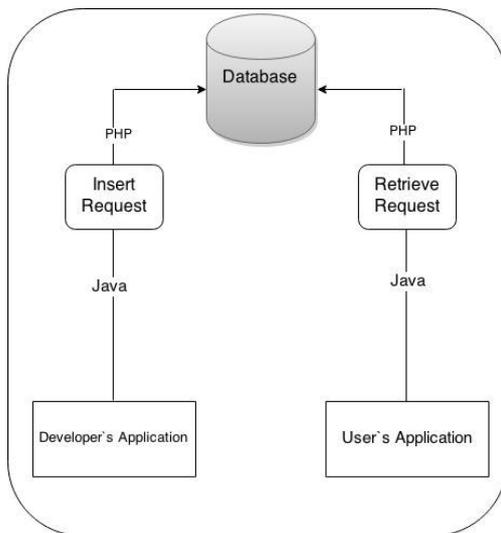

Figure 5: A diagram that explains the functionality of this application starting from the Developer's Application and ending to User's Application.

III. Database

The Database will be saved in a web hosting server so the size of the application gets smaller. Database will be used in order To store the barcode data. 5 Columns will be stored in the database. These columns are Product name (will contain the name of the product). Product Description (contains a description for the product). Barcode Content and Barcode Format (will be retrieved automatically after the scanning

process).Is Halal (to show whether the food is halal or not.

IV. Barcode Scanner

The Barcode Scanner is an Android application from the open source project ZXing that allows a user to scan 1-D or 2-D "graphical barcodes" with the camera on their devices. The application turns the scan into the original data that is represented by the barcode. When the developer press on the Scan button to insert the data the application will automatically open the Barcode Scanner application so the developer can enter the information for the scanned product.

When the user presses on the Scan button to check whether the product is Halal or not, the Barcode Scanner application will be automatically opened to check for the barcode of the product.
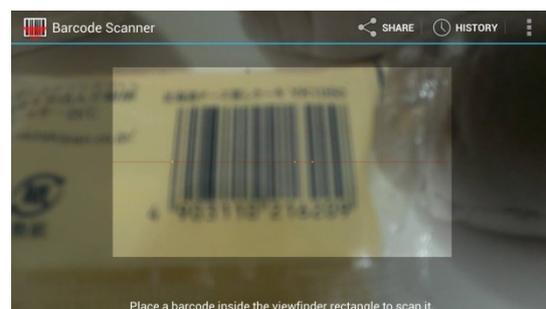

Figure 6: Barcode scanner by ZXING library

V. Requirements

I used some software in order to make this application completed. Those software are:-

1 - Eclipse

In computer programming, Eclipse is an integrated development environment (IDE). It contains a base workspace and an extensible plug-in system for customizing the environment. Written mostly in Java, Eclipse can be used to develop applications.

2 - FileZilla

FileZilla Server is a server that supports FTP and FTP over SSL/TLS which provides SECURE encrypted connections to the server.

FileZilla supports SSL, the same level of encryption supported by your web browser, to protect your data.

VI. Evaluation

An evaluation was done by 10 Muslim Students (7 Saudis, 3 Malaysians). This test aims to prove that using an application to detect Halal food is more effective than the traditional way to look for Halal food (by looking at the food label).
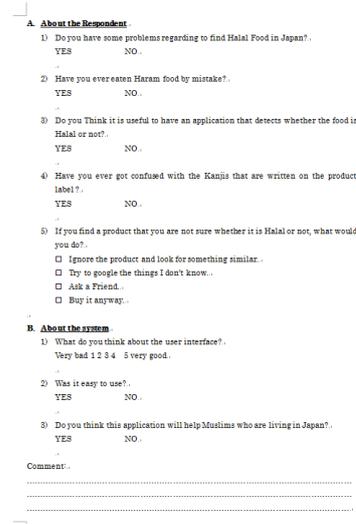

Figure 7: the survey that has been filled by the 10 Muslim students.

VII. Result

I will be presenting the result of the questions that are related to the System (not the questions about Halal Food).

- **What do you think about the user interface?**

  The average of the subject's choices was 4 which mean it's a good and simple.
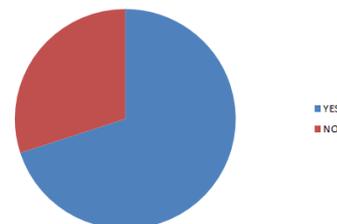
- **Was it easy to use?**

Figure 8: representing the answers of the 10 subjects.

● **Do you think this application will help Muslims who are living in Japan?**

8 of 10 subjects think that this application will be helpful for Muslims who are living in japan.
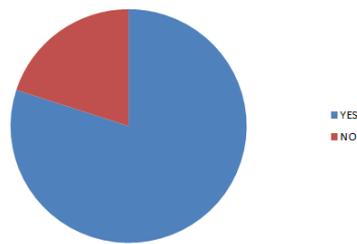

Figure 9: representing the answers of the 10 subjects.

Comments:

There were 6 comments 4 of them were very supportive and motivated me to work harder and harder in this application.

Also, there were 2 comments that I like to write it and answer it down below.

Question 1:

● I like your application very much but it would be greater if it is generalized!! For example, putting things that are related to Islam in one single application that would be really helpful!!

Answer 1:

Well, this application aims for solving a particular problem which is finding Halal food in japan. There are many applications that are really helpful for Muslims who are living in japan though.

Question 2:

● How about putting the restaurants which sell Halal food in your application? thank you

Answer 2:

As I mentioned in the answer of the first comment. This application aims for solving a specific problem which is Finding Halal food. The mechanics are different. My application is to find Halal product which are in the super market or groceries by searching by Barcodes.

VIII. Conclusion

With this paper, it is proved that the system can actually work, given that the application is upgraded to achieve required accuracy and stability. It can also be said based on the questionnaire results, that there is a need for this type of system.

IX. Future Plans

There is a short term plan and a long term plan. The short term plan is to make this application on IOS (iPhone, iPod touch and iPad). The long term plan is to generalize the application and put new features that will be useful for Muslims all over the world. Also, will make the same project in other languages and other countries like US and Canada.

X. References

[1]   Haram food and definition:
      http://mideastfood.about.com/od/glos
      sary/g/haram.htm [Online]. [Accessed
      18 8 2014]

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      List:
      http://sicc-kagoshima.org/category/J
      PNese%E3%83%8F%E3%83%A9%E
      3%83%BC%E3%83%AB%E9%A3%9
      F%E5%93%81%E3%83%AA%E3%82
      %B9%E3%83%88.htm [Online].
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      /column/2281969/rapid-smartphone-
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      _is_halal.html [Online]. [Accessed 25
      8 2014]

[6]   Making the survey
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