Android Based Pharmaceutical Product Information System

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Abstract: An illegal imitation of medicine is a serious issue. It involves with the health of human. Objective of proposed work is to design a mobile application system for checking status of medicine approval. This application is developed using android technology. Before the products (either traditional medicine or modern medicine) are being distributed in the market, they should be registered with Ministry of Health Authority in order to ensure the customer's safety. The registration is useful to detect that the medicine is safe to be used. We can find the safety of medicine through website, barcode scanner, and quick response (QR) code scanner. However, the proposed method is based on text-search or (OCR) on Android platform. Proposed system will expected to detect the status of pharmaceutical products means whether the medicines are fake or not by using search query. Besides showing the status of the medicine, it also includes some other information like products name, holder, manufacturer and the dangerous elements contain in the medicine. All these information is stored in the mobile database.

Keywords: Android application, Neural Network, Pharmaceutical databases, Shared applications, Text-Search Systems.

I. INTRODUCTION

Counterfeit medicine are the fake medicines. They could have the right active ingredient but at the wrong dose. Bogus drugs are illegal and may be harmful to human's health. Main objective of proposed work is to develop an android based application which is used to identify the status of the medicine means whether the medicine is genuine or not using text-search on android platform.

Now a days, people realize on how important it is to live in a healthy lifestyle. Apart from that, they would consume any medicine that recommended by others in order to gain a good health, yet they did not aware about the contents of the medicine, whether it is safe to use or not. There are lot of products in the market that contain dangerous elements which may harm human body. In reaching their business goals, the supplier are not aware about harmful ingredients contained in their products, that might be counterfeit medicine; the products contain dangerous ingredients that may harm the consumer health and will lead to dead.

For example in China in 2002, Hu Zushuang who has to endure his continuous disease takes albumin. Unfortunately, Hu Zushuang was dead on the next day because the ingredients found in the bottle is counterfeit albumin that consist of unknown liquid which can be a poison to human bloodstream [1].

About 100 children in Haiti, Nigeria, Bangladesh, India and Argentina have been reported as the victims of the counterfeit Paracetamol syrup that cause to death. The consequences of this problem will also affecting the economy. For example in Switzerland, there is about 15 million Euro cost in trading counterfeit medicine [2][3]. This problem can be prevented if the consumers concern about the ingredients of the medicine. Therefore, this system is developed to help people in identifying the status of the products. This mobile application system has been created on Android based platform. Consumer can search by using textsearch method. Users are just required to key in the registration number of the medicine that has been attached on the packages of the medicine. Status of the products will be notified on the screen, just a few seconds later. The data has been taken from National Pharmaceutical Control Bureau Ministry of Health Malaysia.

II.   LITRATURE SURVEY

The method used in apothecary is a system that use mobile phone equipped with camera. This system registers those who involved in medicine trading to ensure that the drug is genuine. Those registrations must be reported to central server. Short Message Service (SMS) is chosen to communicate with central server. When the medicine is packed the ID tags of the seller is attach to it. When the consumers want to buy the medicine, the ID tags need to be scanned to make sure that the package ID tag matched with the ID tag of the seller.

The organization from Ghana that is mPedigree also uses mobile phone to identify status of the medicine. They applied method that uses a serial number that attach to the pack of the medicine by the medicine manufacturer. The serial numbers consists of eight numeric characters. To check for the verification of the medicine, consumer can sent the serial number via free Short Message Service (SMS) to the server.

The server will respond quickly whether the medicine is counterfeit or not [5]. Since the usage of smart phone has been in trend nowadays, smart phone is use to check the compatibility of the drug [6]. This system is developed on Android OS. The drug is checked for the compatibility through three types of examination that are Simple Interaction Examination (SIE), Multi-Drug Interaction Examination (MIE) and Further Interaction Examination (FIE) by insert the name of the drugs. SIE required two type of drug for the input and it will result one output. Users need to insert the names of the drug, and the system will check for the compatibility of these two drugs. MIE will check the compatibility for three or more types of drugs. FIE will give the result based on the category of the compatibility from the most compatible to the most dangerous.

The main widgets that are use are ListView, TextView, ImageButton and spinner. ListView and Spinner is use for the user to choose the name of the drug from the list. User just needs to enter the initial letter of the drug name, and the ListView will display all drugs with the same initial letter. Turkish track and trace system called Ilac Takip Sistemi (ITS) used data matrix to scan the identification number of the product to be traced via web service. Identification number of each product must be identified before they are distributed in the market in order for the product to be track. Product without identification number is labelled as counterfeit even if they produced by a licensed manufacturer. With the identification number, current location of each product can be traced [7].

Several methods have been introduced in order to indentify between the original medicine and counterfeit medicine. In [4], the method used is apothecary. It is a system that use mobile phone equipped with camera. This system registers those who involved in medicine trading to ensure that the drug is genuine. Those registrations must be reported to central server. Short Message Service (SMS) is chosen to communicate with central server. When the medicine is

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III.   SYSTEM ARCHITECTURE

- Our proposed solution involves an android application based solution.
- Consumer can search using two methods
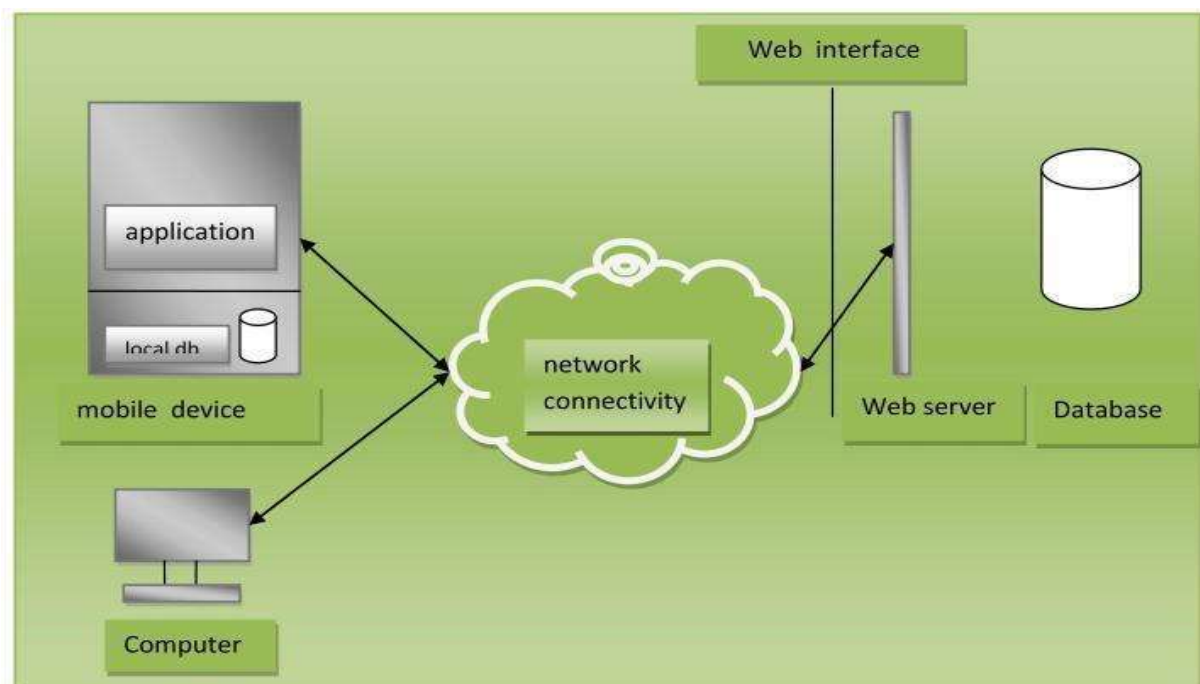1. Text search method
2. Graphical method

Fig.1 Block Diagram

This project contains two category of methodology which is software and processing method. Software part consist the description about the tools that can be used to develop an android application. Then, the processing method part will describe about how the data will be processed then to be analysed.

A. Software Tools

The proposed method in this project is to identify the medicine counterfeit via text-search on android platform. This application is developed in the java programming language using eclipse and Android Software Development Kit (SDK). Applications can be test using emulator, where emulator is a virtual mobile device that runs on the computer. With this emulator, physical device is not required in order to test an android application. Tools that can be used to develop an android application are Android Software Development Kit (SDK) and Eclipse.

1)   Android Software Development Kit (SDK)

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SDK tools consist of Android SDK Manager, Android Virtual Device (AVD) Manager and the emulator. AVD manager provide a graphical user interface that can manage Android virtual device, which is emulator. Android emulator imitates the feature of the real mobile device. However, it can only run an application and cannot be used for video and capturing picture. It is used only to test an application. It is a virtual mobile device that runs on the computer. [8][9][10].

2) *Eclipse*

Eclipse is open source for java development. It use a Google's Android development tools (ADT) plug in for developed android application to make the development more easy and quickly [9]. When eclipse first start, it will ask to create the workspace. The workspace is where all the folder of the application created in the eclipse will store in it [11].

B. *Processing Method*

To main application of the extract data to be analysed shown in Fig 1 below. From the beginning of the main application is to determine the software and tools that need to be used then setup the respective tools by installing it. Program will be developing to testing and debugging that application. This application has three menus. The first menu is for searching the medicine by registration number. The second menu is for the medicine description and the last menu is for contact information of National Pharmaceutical Control Bureau Ministry of Health Malaysia.

C. *Modules:*

1) Consumer Registration and Authentication From Server
2) Medicine Registration
3) Medicine Authentication and detailed information
4) Query Medicine From android application
5) Counterfeit medicine detection
6) Alert for Counterfeit medicine.
7) Reviews on medicines.

CONCLUSION

A fraudulent imitation of medicine is a serious issue since it involves with the health of human. Objective of this work is to design a mobile application system for checking status of medicine approval. By applying this method, it is easy to identify the status of the medicine whether it is genuine or otherwise since it is an application in the mobile phone and easy access. Therefore, it provides convenience for the consumer. Moreover, this application does not require internet connection. Consumer just need to key in the registration number, and just search for it. Information about the status of the medicine, product name and manufacturer will be retrieved from the database. However, its shortcoming is the users need to update the application once in two or three months to get the latest information about the medicine. For the future recommendation, we might use image capture to spot the difference between the original packages of the medicine with the fake packages.

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