

**LOCATE U Web Services implemented using OPEN SOURCE**

By

Noorul Wahidah binti Che Mat

Dissertation submitted in partial fulfillment of  
the requirement for the  
Bachelor of Technology (Hons)  
(Information Communication Technology)

DECEMBER

2006

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# **CERTIFICATION OF APPROVAL**

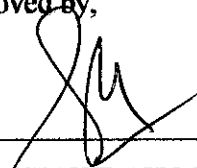
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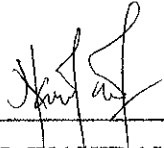
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DECEMBER 06

## **CERTIFICATION OF ORIGINALITY**

This is to certify that I am responsible for the work submitted in the project, that the originality work is my own expect as specified in the references and acknowledgements and that the original work contain herein have not been undertaken or done unspecified sources or persons.



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**NOORUL WAHIDAH BT CHE MAT**

## **ABSTRACT**

Theoretically, the study is concerning about the development of a web service in order to accomplish and objective to provide a facility that will help people in searching for the location of bank or ATM machines (Perak only) and Mosque in Tronoh and Batu Gajah area. This web service build fully using an open source where by the author have decide to used JSP (Java Servlet Pages ) in order to deploy this web service. By browsing chapter by chapter of this report, the reader can understand what have been done in the development of web services. Besides, the author also touches some technical aspect about how it builds. Finally, the report will also encompass the issues behind the web services revolution. It wills cover the history and what make the web services the best option for this project.

## **ACKNOWLEDGEMENT**

I am indebted to many individuals who helping me in doing my research and development project. They are people of my respects who involve directly or indirectly throughout this project.

A bunch of thanks goes to Miss Shakirah and Mr Lukman for guiding me in doing the development and presentation of document for my final year project .I also would like to express my gratitude to friends as they have managed to help in during finished this report.

Last but not least, I would also like to express a special thank to my family members for their priceless support, encouragement, constant love, valuable advices, and their understanding of me.

Once again, thank you;

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## **ABBREVIATIONS**

<i>J2EE</i>	Java 2 Platform, Enterprise Edition Series
<i>UDDI</i>	Universal Description, Discovery and Integration
<i>WSDL</i>	Web Services Description Language
<i>SOAP</i>	Simple Object Access Protocol
<i>XML</i>	Extensible Markup Language
<i>ATM</i>	Automated teller machine

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 BACKGROUND OF STUDY**

As we all now, the globalization in technologies have introduced. Web services can help you create modular, platform-neutral software components, which can be endlessly recombined to create new business models. Look for Web services to displace monolithic, change-resistant applications.

By developing this Web services, the author can accelerated the information distribution where by in this case the author tried to implement the Web services for searching the locations of ATM Machines and Mosque. Even though, the author narrow down the scope but it can be manipulate and improve for bigger business flow. Besides, the technologies of Web services propagated very fast accordingly to the improvement done and open source distribution. In this case, the developer can be choosy to select which platform should be used. There is software that freely can be used for Web services development such as NetBeans, Eclipse and Bea WebLogic and available to be downloaded from internet.

In addition of the Web services environment, the author also implemented the wireless part where by the end user will give option either to browse from internet or get information via their mobile phone or PDA. The wireless application which consists of the used of Java 2 Platform, Micro Edition (J2ME) provides a robust, flexible environment for applications running on consumer devices, such as mobile phones, PDAs, and TV set-top boxes, as well as a broad range of embedded devices. Like its counterparts for the enterprise (J2EE), desktop (J2SE) and smart card (Java Card) environments, J2ME includes Java virtual machines and a set of standard Java APIs are

defined through the Java Community Process, by expert groups whose members include leading device manufacturers, software vendors, and service providers.

J2ME delivers the power and benefits of Java technology to consumer and embedded devices. It includes flexible user interfaces, a robust security model, a broad range of built-in network protocols, and extensive support for networked and offline applications that can be downloaded dynamically. Applications based on J2ME specifications are written once for a wide range of devices, yet exploit each device's native capabilities.

ATM Tracker Web Service which enables users gets the information about any bank or ATM that available around Malaysia by using their mobile phone and Web site. This ATM Tracker Web Services will provide a Web that act as a search engine to find the available Web pages of bank in Malaysia and helps the use to get information about ATM Machines and Bank locations.

By using a mobile phones, user will be able to use SMS Services by typing name of the ATM bank, location of Bank / ATM, they will also be able to do a search of the services provided by the bank either by the title category or location category to bring up a description of the location, more functionality could be added depending on the time and the difficulty of the project.

Besides, this ATM Tracker Web Service will enable user to use SMS Services that provided by entering some input via mobile hand phone or any Java Enabled Handles and the information will be shortly received by the user in their mobile phones. All the details about the bank/ ATM and the locations will be kept in databases.

## **1.2 PROBLEM STATEMENT**

### **1.2.1 Problem Identification**

In today's business scenario, people are scalable and reliable in using multi-user applications. This need has need to a shift from traditional method to a new technology method. In a distributed environment, applications might be created on different platforms by using different programming languages.

A Web service is a new technology that uses to create platform-independent applications. Web Services can be developed by using languages and platforms that remain to a standard set of technologies. Web Services is an application that exposes functionality coded in an application to a several application by invoking an application called *Web service client application*.

In addition, the application that hosts the Web services is called *Web Service provider application*. Project will concentrate in doing the research and development of Location Tracker Web Services. This Web services will solved the problem for people to find bank, ATM machines and mosque available in Tronoh and Batu Gajah.

Nowadays, people hard to find the location of the mosque, bank and ATM Machines when they are travel to others unfamiliar place. The only way is to find any sign board nearby the road and follow the sign. But, sometimes it won't help people because the limitation of instructions. Besides, the sign may not found. So the difficulties will come.

So the main thing the authors want to emphasize is to build a Web services that will provide more information about bank and ATM machines locations in ensuring the user will get the easy access of information. The user can access the information from mobile phones or using Web site provides.

This Web services will be developed to provide flexibility to the user. It will allow users to look up for location where ever they are by only use the mobile phone.

### **1.2.2 Significant of the Project**

Based on the problem identification arrives in above section, it is important to build ATM Trackers Web Services. It will provide the efficiency and effectiveness for everyone. Besides, it will also give better information spread in such a good manner.

As we know, bank and mosque is a facility that is very important to everyone. Location Tracker Web Services is also will help the travelers that have difficulties by only enter some input data to their mobile phone in order to find the location of bank and mosque. Therefore, the information is available to everyone.

## **1.3 OBJECTIVE & SCOPE OF STUDY**

### **1.3.1 Objectives**

- To provide an interface that is easy to use for the Web site. Besides, an easy application applied to application wireless services by only get some input from the user through their mobile phone.
- To provide a system that will produce efficiency. In ensuring that he system that will be develop will be most accurate as specify in requirement, the author should analyze the case study in details and came out with a brilliant idea. So that, the effective product will be produce.
- Besides, this system will help user in find out the location of ATM machine nearby as requested and user can get relevant information and services to mobile users without having other problem.

### **1.3.2 Scope of Study**

The author wants to study several topics that are related to the Web services and find some way in accelerates information distribution in context project scenario about the ATM machines and nearest bank.

#### **1.3.2.1 Creating an effective Web Services application**

In achieving an effective Web Services, there are some consideration takes into account when developing Web-Services. Some of the characteristic are accuracy, authority, currency, uniqueness, format of the Web and performance.

When developing a Web service that will inform other people about the bank or ATM machine location, the user will expect the resource must be accurate. The provided information on the Web services must be updated.

Currently there is no product that can easy been used by the user to get the information about the ATM and Bank in Malaysia. The implementation of this product will make ease of use to people.

#### **1.3.2.2 Web Services Framework and Protocols**

Before developing an effective the Web services, the author needs to have a better understanding about the Web service development and how will work via the net. The authors must have strength knowledge about the components and protocol will be used in working up the Web services. The author will study and emphasize understanding:

- XML
- SOAP
- UDDI
- WSDL
- Mobile Web Application

### **1.3.2.3 JSP and XML**

#### **Relationship between XML and JSP**

JSP and XML is a good combination where by, JSP is a character based output and XML is character based data. Thus, mixing them up will produce a natural match. XML is about the marking up the data but not moving the data around. In contrast JSP will allow the data to move data into and out of an XML data source. To use XML successfully it is important to know how to pull and push character data around within a JSP.

Common ways of using JSP and XML together are:

- The data is stored within an XML file. Using JSP, the data is imported and then converted to an HTML based page to be viewed by a user with a browser.
- The data is stored within a database. A Java process is built to read the data from the database to read a data from the database and convert it to an XML document. Once the data

### **1.3.2.4 Integrating JSP and Web Services**

To integrate a Web service and JSP project there are 2 deal components need to be considered which are how to integrate a Web Service into a JSP project and the details of actual design and building a new Web service to work within a site. When deal with JSP there are some piece on tools consideration need to be take into account. JSP programmer has six methods at their disposal with which to encapsulate their code:

1. Scriptlet in JSP Page
2. JavaBean object
3. Tag Library
4. Web Service
5. Servlet
6. Applet or client side code



The major challenges in developing JSP is o deal with 6 coding styles, Web services is merely a distributed function the JSP programming is assessing. Hence, at this point of view, the author think to implement the Web services using a combination of JavaBeans (the actual service, or the call to access remote services), servlets (Apache SOAP service server) and Java Programming.

#### **1.3.2.5 Tag libraries versus Web services**

From the study, tag libraries have some differences than Web services. Programmers can use tag libraries when the logic will be used internally within a JSP application and to package code across many JSP Web Application when each instances of the tag library only produces local results relative to the projects the tag resides within. The author use a Web services when the destination Web Applications are built in language other than JSP. This is the best reason to use Web Services.

# 1.4 RELEVANCY OF THE PROJECT

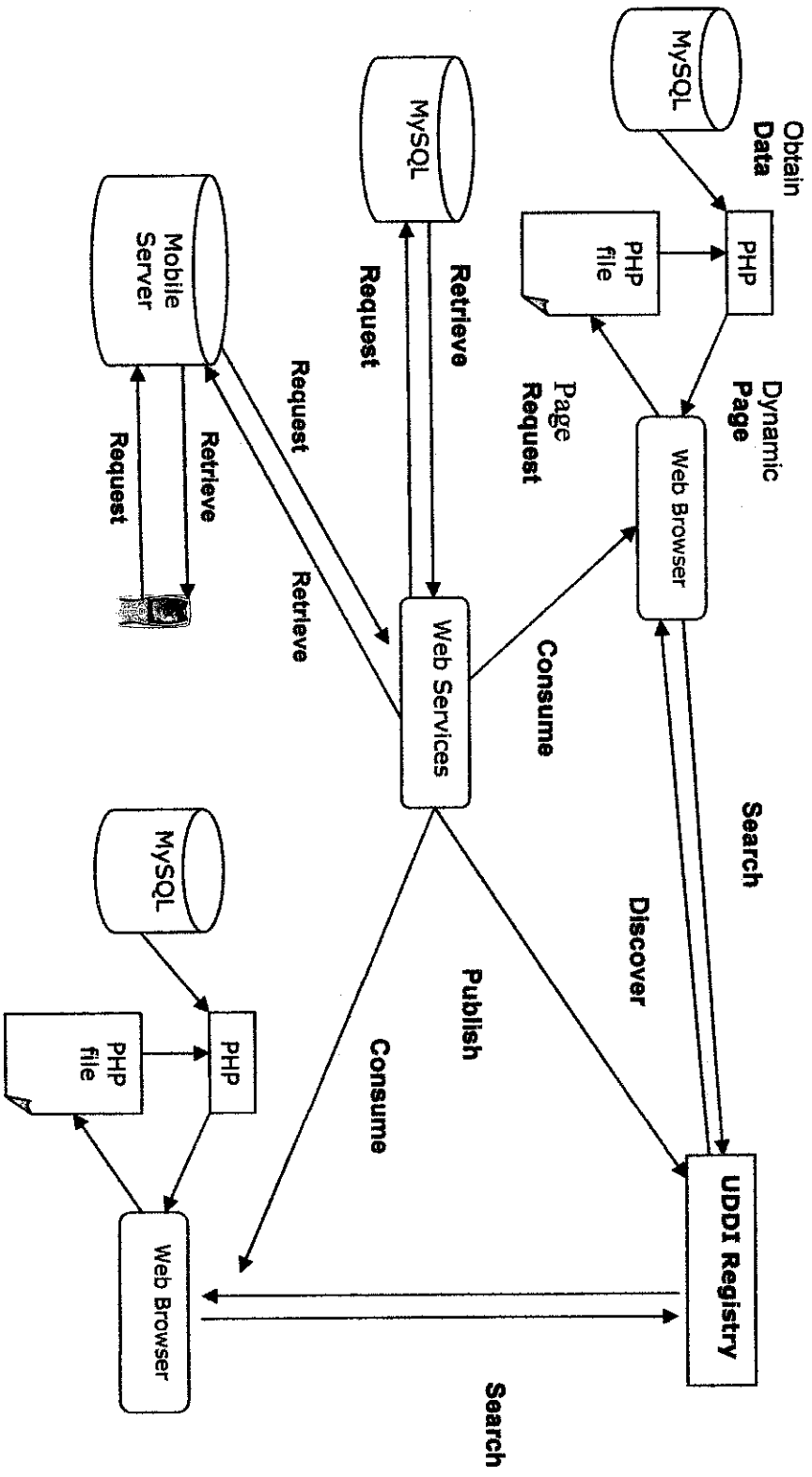


Figure 1.4 Web Services functionality

By referring to the figure 1, the Web services will need to publish the services on UDDI registry. From here, any Web browser that finding or searching information that from the UDDI and get feedback about the information of the Web services as the registry data and key word of Web services have been stored in UDDI.

Web Services itself will provide information to a Web browser by request data from database and the database will function accordingly. As for mobile services, the Web services will retrieve request from mobile user and request data from database to send back the information to the user.

## **1.5 FEASIBILITY OF THE PROJECT**

In this section, the author will explain more on feasibility of the project. There are some attributes that need to be considering in this project.

### *1. Research*

In research part, the author will learn more about Web services. Besides, analyze and study about the case is important to get a clear view of the problem happen. In this phase, the author emphasizes on find a best framework for development. User also will stress on the open sources implemented components such as XML, SOAP, WSDL and UDDI.

### *2. Development*

After analyzing the method for developing a Web services by considering the best framework, the author came out with idea that will be applied in the development phase. The first stage of development stages is to more understand about the scenario that needs to be implemented. The author will analyze the user of the system, requirement and specification, hardware and tools in ensuring the process will be smoother.

### 3. *Implementation*

In this phase, the author came into real implementation. From user requirement and system requirement that have been analyzed. The author will develop a Web services.

### 4. *Maintenance*

Maintenance will fix any bugs and error that occurs in the system. Besides, the author will also considering about the logic error that not specifically same with the requirement of the system.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 WEB SERVICES**

##### **2.1.1 Overview of Web Services**

From an article of EdNa Online, definition of a Web services is, "*are self-contained business functions that operate over the Internet.*"[1]. Now days, people are turned into Web services as it is important to business-to-business and business-to consumer. In today's business scenario, people are willing to have scalable and reliable multi user applications. This led to new environment and approaches where people are turn into distributed application rather have a desktop application.

Web services, a new improvement whereby the developer can create an independent platform application. Web services also can be easily run in other platform either on UNIX, Linux or Window or in any software program such as VB.Net and etc.

Web services are important to business because they enable systems in different companies to interact with each other, more easily than before. With businesses needing closer cooperation between suppliers and customers, engaging in more joint ventures and short-term marketing alliances, pursuing opportunities in new lines of business, and facing the prospect of more mergers and acquisitions, companies need the capability to link up their systems quickly with other companies. Thus Web services give companies the capability do more business electronically, with more potential business partners, in more and different ways than before, and at reasonable cost [9].

It is important to consider the technologies that are available on market to make sure which technologies is will give appropriate used in developing a Web services. Besides the author need to analyze frameworks and choose the best develop framework Web service. The framework will give a which have a full content management and in low cost of development.

### **2.1.2 Creating a Web Service**

From the literature, it guides the author about how to develop a Web services. From this guideline, the author understands how it works. The first step in creating a Web service is to design and code its endpoint interface, in which the author as a developer need to declare the methods that a Web service remote client may invoke on the service. After that, we need to develop the implementation of the service endpoint interface.

The next point emphasize by the author is to code out the `config` file. But then, from the author experience using NetBeans it will automatically created in the folder when we are developing a Web. This file tells `wscmpile` to create a WSDL file with the following information:

- The service name.
- The WSDL namespace.
- The classes for the service are in the `math` package under the `build` directory.
- The service endpoint interface.

Now, at this stages the author need to generate some files. From reviewing the articles, stated that the author should used `wscmpile` to generate `mapping.xml` files based on the `config.xml` file and by running the command code. But, the author used NetBeans and it created automatically for the user. Basically from that, it also will generate WSDL file for the user. Then the author can easily deployed and package the Web service [2].

### 2.1.3 Developing Web Services using J2EE

From this article, the author exposed to the how to develop the Web service using Java tool (J2EE). Web services are now one of the many service delivery channels of J2EE platform; Web services are now one of the many service delivery channels of the J2EE platform; existing J2EE components can be easily exposed as Web services. Many benefits of the J2EE platform are available for Web services, including portability, scalability, reliability, and no single-vendor locks-in. For example, J2EE containers provide transaction support, database connections, life cycle management, and other services that are scalable and require no code from application developers [2].

### 2.1.4 Managing a Web Services

There are many consideration must take into account when developing Web services. The interface of Web Services will incorporated Web services with other Web application and etc.

Web services are self contained, modular application that are described, found and called via set of standards based on Extensible Markup Language (XML). These standards are being formalized chiefly by the World Wide Web Consortium (W3C) [4].

The interface of a Web Services is described in an XML format called the Web Services Description Language (WSDL). A WSDL file contains description of one or more interfaces and binding information for one or more Web services. A *service* is actually a collection of ports. A *port* is a combination of a *portType*, which describe the interfaces of the port and a *binding*, which describes the mechanics of invoking the port [3].

UDDI (Universal Description, Discovery and Integration) is use to incorporate Web services with Web application. In order to let customer or user know about Web services itself, the company / authors need to register the Web Services in UDDI registry. The UDDI registry are to publish and inquiry information.

According to the UDDI specification, two actions can be performed on a UDDI registry: publishing and inquiry. There are APIs (Application Programming Interfaces) provided to accommodate these actions. There are in the form of messages going to or coming from a UDDI registry, messages that are human readable text (a concept called SOAP messaging). As human readable text is supported in all platforms and in all programming languages, there is no problem language; there is no problem in all programming languages [4].

Now, the SOAP matter came across. Consider a scenario in which the users need to access an application that is on a remote computer. As known, the remote computer may be run in different environments. To enable user to access an application on a remote computer, so, the need of a flexible, simple, light and descriptive protocol is important.

In the Web services cases, we need a protocol that will enable exchange data between applications in a distributed application. So that, the Web services are easily been access in any platform and using any programming language. As known, when we talk about Web services UDDI, WSDL and SOAP is a set of components that integrated together.

Once a Web services has been discover on UDDI registry, and a binding is establish based on information in registry, the interaction between the calling application and the Web Services can begin. The interaction is the most important subject to consider in Web services application.

The invocation of a services involved sending an XML message to the service and receiving an XML message in return. The XML interaction is governed by other open standard called Simple Object Access Protocol (SOAP). SOAP defines the interfaces of the services being invoked. The header is an envelope that contains a XML messages body in which the parameters are passed. SOAP supports both a remote procedure call and a general XML document passing paradigm. SOAP messages must be carried on a communication layers, which most often in Hypertext Text Transport Protocol (HTTP) [3].



### **2.1.5 Benefit of interoperability in Web Services.**

There are several benefits from adopting a Web services model. They author looks into one by one benefit when the Web services been adopted. The Web services will allow the organization to access information and services from other organization and use them to create the own services.

Besides, it also will reduce the cost and complexity of developing a new online service by making components services available to reuse. For example, the company wants to advertise their product can be access by everyone on net using a Web services. Consequences, the company itself will increase profit .In other way, the customer also can have choice to choose the right product.

In addition, Web services will ensure the latest information can be assessed from an organization in 24 hours a day. The data and information also will more update. It also allows one-stop services to be created for the users that are composed components services from different organizations. For example, searching for, licensing and obtaining learning resources

## **2.2 THE ADVANTAGES OF WEB SERVICES**

What makes the Web services much better than others Internet technology? For that reason, the advantages of the Web services had also have been considered before proceeding with the project. Relatively if the positive side is more than the negative side, the method is proven to be good to be used for assisting in project development, As for the Web services, the situation is more likely the same. The advantages that discussed here is within the context of implementation of Web services for the knowledge sharing purpose.

### **2.2.1 Web Service is standard based**

According to Bloomberg and Schmelzer, Web services are oriented towards connecting systems of diverse types. Since the actual implementation can be vague, the standards are extremely important and the integration requires interoperability and interoperability requires the use of standards. As the Web services are based on open and freely available standards, this had encouraged many different vendors and organization to participate in the development and implementation of Web services technology. Thus, this will easier the task of upgrading and improving the Web services from time to time due to exist of pool of resources to be indulge in.

### **2.2.2 Web Services reduces Integration Cost**

In the enterprise environment, the cost of integrating all the system can take of the majority of the project's budget. Point-to-point integration which consist essentially of hardwiring two systems together, can lead to exceptionally high total cost of ownership. This had result Enterprise Application Integration (EAI) tools where every system plugs into a common infrastructure; and the bus handles the translations necessary allowing the system communication.

However, still the solutions are notoriously expensive, which causing great demand for a less expensive approach to integration and Web services is one of the approaches. As the

each of the Web service' characteristic contribute to their advantages in any integration project, this reliance on open standard had managed to reduce the cost of the required software and enables integration products from different vendors to interoperate.

## **2.3 WIRELESS MOBILE**

At this early stage, the project will basically look into the research of the utilization of J2ME system simulation. A thorough literature review would be done through reference books, internet and journals to further understand in order to determine the development procedure and to learn the basic process that is used to develop the project.

### **2.3.1 Mobile phone as the latest trends**

Mobile phone can be defined as the latest trends in this time. Analyst group AMR Interactive has predicted that future mobile phone technologies will focus on fixed-to-mobile substitutions, simple data content, RFID integration and an increasing role of phone cameras [5].

Speaking at MediaConnect's Kickstart 2004 conference, principal analyst Jason Juma-Ross identified key areas for the future of mobile phone technology. According to Juma-Ross, the local industry is healthy, with an estimated worth of \$10 billion, citing increased competition and better incentives to switch to mobile phone packages as strong motivators for the uptake [5].

### **2.3.1 Mobile phones are portable**

Al-Baker (2004) makes a point by saying: "with access at your fingertips anywhere you go, you can do many things and not be entirely dependent of your PC to manage your activities. It gives you the conveniences of carrying only your hand phone or PDA, not your bulky laptop."- It is strongly point out that mobile technology can replace the function of a PC to one's life addition to the advantage of small in size and its mobility.

### **2.3.1 Java 2 Platform, Micro Edition (J2ME) as mobile platform**

Java 2 Platform, Micro Edition (J2ME), is a set of technologies and specifications targeted at consumer and embedded devices, such as mobile phones, personal digital assistants (PDA's), printers, and TV set-top boxes. It is by far the most advanced and successful mobile platform available today. The Java 2 Platform, Micro Edition (J2ME) provides a robust, flexible environment for applications running on consumer devices, such as mobile phones, PDAs, and TV set-top boxes, as well as a broad range of embedded devices. Like its counterparts for the enterprise (J2EE), desktop (J2SE) and smart card (Java Card) environments, J2ME includes Java virtual machines and a set of standard Java APIs defined through the Java Community Process, by expert groups whose members include leading device manufacturers, software vendors, and service providers.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 PROCEDURE IDENTIFICATION**

##### **3.1.1 Problem Definition and Analysis**

The waterfall model is popular version of the system development life cycle model for software engineering. Often considered the classic approach to the system development life cycle, the waterfall model describes a development method that is linear and sequential. The phases that will involved in developing the project using the waterfall model.

1. Requirement analysis.

In this phase the requirement from the user take place to identify the user requirement for the system. After the requirement and need have been arising, the outcome will be as the system specification

2. System and software design

The design of the system is to establish the overall system architecture whether in the hardware or software manner. It also identifying and describing the software system

3. Implementation and unit testing

The software design is implemented as a set of programs and development equipment while unit testing will verify that the implementation meets its specification as the system requirement.

#### 4. Integration and system testing

The program or system that has been developed are integrated and tested as a complete system to verify whether the software requirements have been meet.

#### 5. Operation and maintenance

In the life cycle phase, the system is installed and then has been used for practical and real used. The maintenance part will involves correcting the errors that occurs in this phase and also which are not exposed in the earlier stage. This will improve the implementation of the system development and enhance the system as new requirements are needed.

The Web services architecture based comprises a variety of configurations, profiles, and optional packages that implementers and developers can choose from, and combine to construct a complete Java runtime environment (J2ME) that closely fits the requirements of a particular range of devices and a target market, and the need. Each combination is optimized for the memory, processing power, and I/O capabilities of a related category of devices.

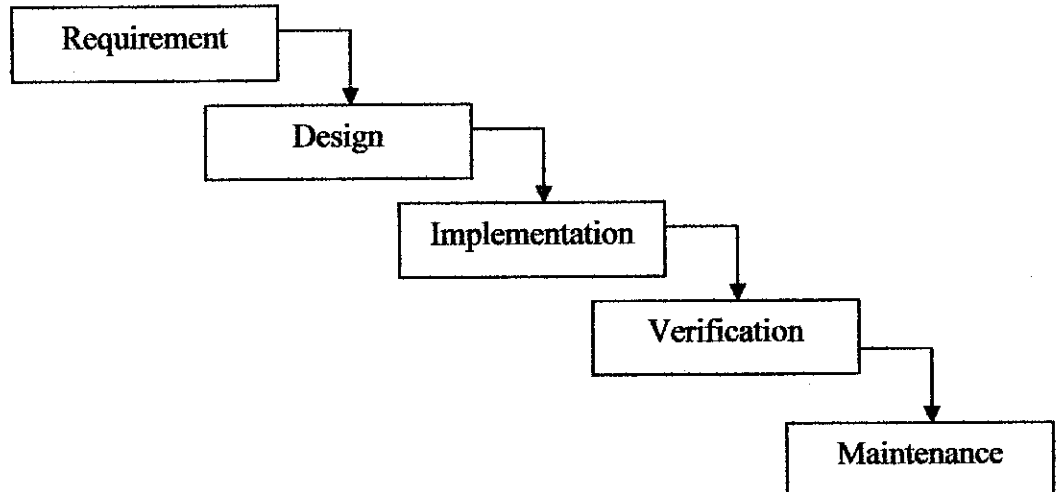
## 3.2 PROCEDURE DESCRIPTION

### 3.21 Waterfall Model

The **waterfall model** is a software development model (a process for the creation of software) in which development is seen as flowing steadily downwards (like a waterfall) through the phases of requirements analysis, design, implementation, testing (validation), integration, and maintenance.

In original waterfall model, the following phases are followed perfectly in order:

- I. Requirements specification
- II. Design
- III. Construction (Implementation or coding )
- IV. Integration
- V. Testing and debugging
- VI. Installation
- VII. Maintenance



**Figure 3.2 Waterfall Model**

To follow the waterfall model, one proceeds from one phase to the next in a purely sequential manner. The first process of developing the project is with a simple planning of requirement of the system. By doing the planning of the project it allows the author



the chance to define any problem. In this phase, the project sources are also sorted out to the initial scope of the project. In this phase, the project sources are also sorted out to the initial scope of the project to ease the author of where to find the right information regarding the outline definition of the project.

For example, requirement for LOCATE U Web Services allows the author to clearly define the set of requirement and system requirement itself before can proceed to the implementation. When and only when the requirements are fully completed, one proceeds to design. The software should be a plan for implementing the requirements given. After the design is fully completed, an implementation of that design is made by coders.

Towards the later stages of this implementation phase, disparate software components produced by different teams are integrated (For example, one pages of the Web must be linked to other pages. These components must be integrated together to produce the whole system)

After the implementation and integration phases are complete, the software product is tested and debugged; any fault introduced in earlier phases is removed here. Then the software product is installed, and later maintained to introduce new functionality and remove bugs.

Thus the waterfall model maintains that one should move to a phase only when it's proceeding phase is completed and perfected. Phases of development in the waterfall model are thus discrete, and there is no jumping back and forth or overlap between them.

### **3.3 TOOLS REQUIRED**

There are two main categories that are needed in order to build and run the system. Those categories are the; the hardware and the software. These tools are also required to simulate the application of the system to give the user the idea of how the system operates.

#### **3.3.1 Hardware Requirements**

The hardware requirements for the implementation of the ATM Tracker Web-Service are as follows:

One PC or Workstation is really the only hardware requirement for the implementation of the project, with an NIC, sufficient memory and disk space, as multiple users should be connecting to the service.

Details Specification:

- Processor : Intel Pentium R (4) , 1.80 GHz
- Memory : 526 MB of DDRAM
- Display : SIS 650
- Display mode : 1024 × 786 (16 bit)(60Hz)
- Network : SIS 900- Based PCI Fast Ethernet Adapter
- Input : Keyboard , Mouse and mobile phone
- Hard disk requirement: minimum 20GB

## **XML**

Extensible Markup Language is a markup language that is used to store data in structured format. All Web services require a standard format for transfer of data. In the most cases, this standard refer to XML

### Advantages of XML

- XML have been used as a standard markup language for the exchange of data over a network. This because XML allows describing content in a text based format that the two applications can understand easily.
- XML can make searching for information easy on internet. At present, search engines on the entire on the Internet return huge amount of data because search engines either search for the entire text in HTML page or the search terms in the keyword called *metadata*.
- XML allows creating custom tags. The tags that you create using XML can be base on the requirements of documents; therefore they can be used as a vocabulary of tags for describing the details of object.

## **Database**

MySQL will be the database of choice, MySQL is an open source RDBMS (relational database management system), multi-user, and multi-threaded SQL database server. SQL is a standardized language that makes it easy to store, update and access user information on the Web service.

### **MySQL Control Center**

### **Navicat Premium**

Navicat™ is a powerful MySQL database administration and development tool that are not only sophisticated enough for professional developers, but also easy to learn for new users. With a nice GUI, Navicat lets you quickly and easily create, organize access and share information in a secure and easy way.

Navicat supports multiple connections. Programmers can use Navicat to manage local or remote MySQL server. Remote MySQL server can be running on Linux, Unix, Mac OS X or Windows platform.

### **MySQL Administrator**

MySQL Administrator is a program for performing administrative operations, such as configuring, monitoring and starting and stopping a MySQL server, managing users and connections, performing backups, and a number of other administrative tasks.

### **Application Development**

#### **Macromedia Dreamweaver MX**

Macromedia Dreamweaver MX is used to design the interfaces, writing the codes and add some function and make it available on the net. Before designing the Web services the author need to build a Web application, set up Web server, creating a root folder for the application. Macromedia is application software that easy to use for implemented some Web files.

#### **Edit Plus**

EditPlus is an Internet-ready 32-bit text editor, HTML editor and programmer's editor for Windows. While it can serve as a good replacement for Notepad, it also offers many powerful features for Web page authors and programmers. Besides, Notepad can be use to debug Java files before the author transfer it in Eclipse.

#### **NetBeans 5.0**

**NetBeans** refers to both a platform for the development of Java desktop applications, and an integrated development environment (IDE) developed using the NetBeans Platform.

## **CHAPTER 4**

### **RESULT AND DISCUSSION**

#### **4.0 INTRODUCTION**

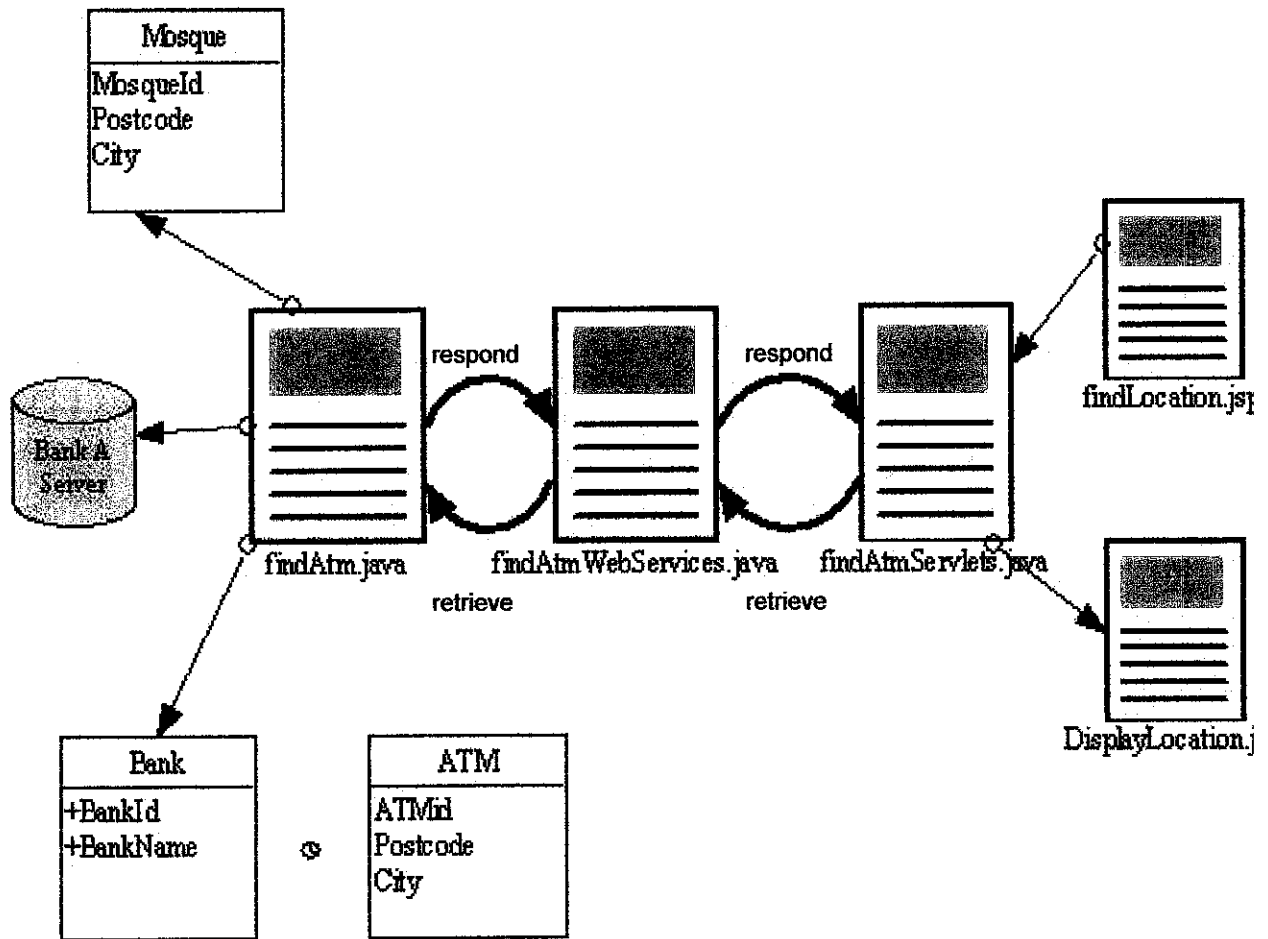
In this section, there are two main parts which is result and findings. The results and findings are prepared in such a way that is discussed by each of the methodology phases. This section will discuss the project in various points of view.

#### **4.1 RESULT**

##### **4.1.1 Research objectives**

By reading journal, whitepaper and books, the author has been exposed to several methods in developing the Web services. There are many ways to deploy the Web services. Besides, there are also many platforms those opportunities to author to deploy the Web services. The author can study directly from the tutorial available in the internet. Forums those are related to Web services also very helpful and resourceful for a beginner.

This collection of information is analyzed to get the platform to be used to achieve objectives for this project. As encourage by now days IT people, the author decided in using the open source for the programming scripting. Even though, the Java services quite lagging but for profit the authors tried to manipulate this project in the Java.



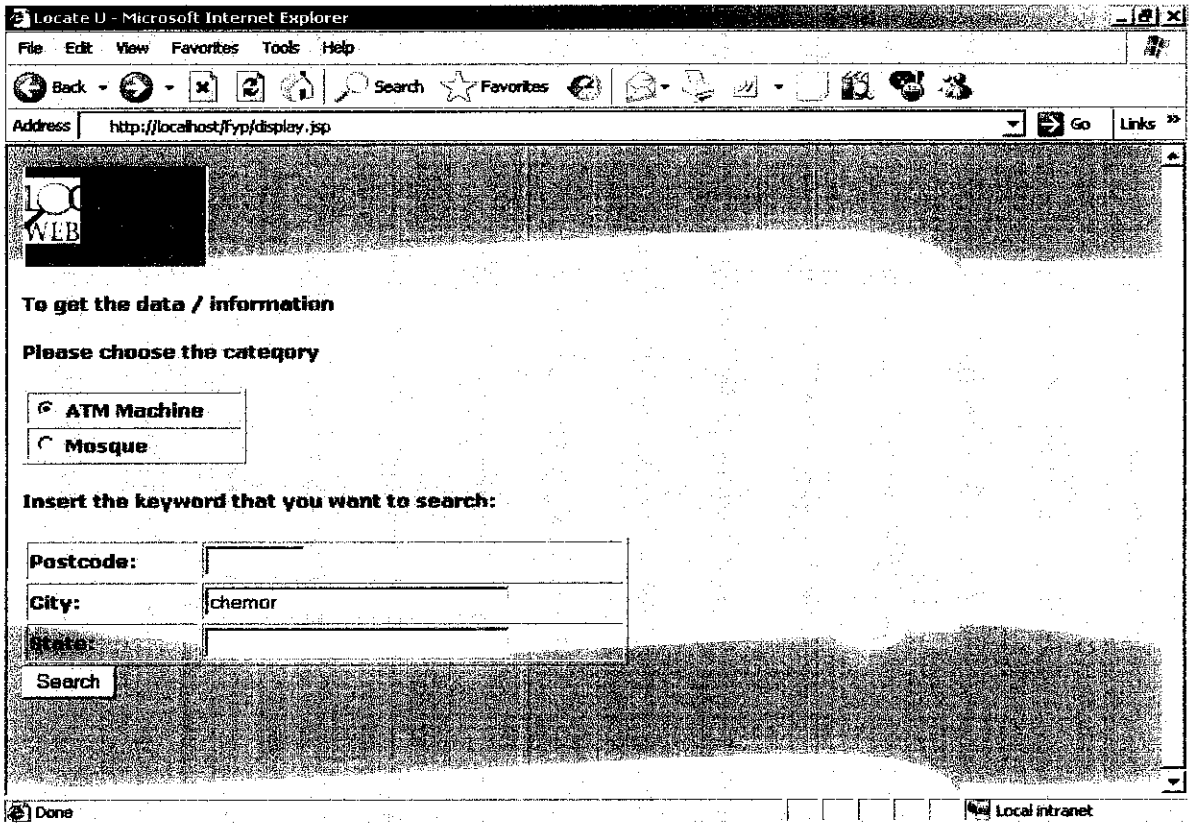
**Figure 4.1.1: Flow of Locate U Web Services**

The diagram above describe about how Locate U Web Services operates. User will see the front end of this Web services whereby `findLocation.jsp` and `DisplayLocation.jsp`. For the first step, the end user will enter the details that they want about the location. Servlet will process and pass the information to Web services to ask for services. `findAtm.java` will query data and pass to the Web services. All the data will be displayed in `DisplayLocation.jsp`.

## 4.2 DESIGN OUTLINE

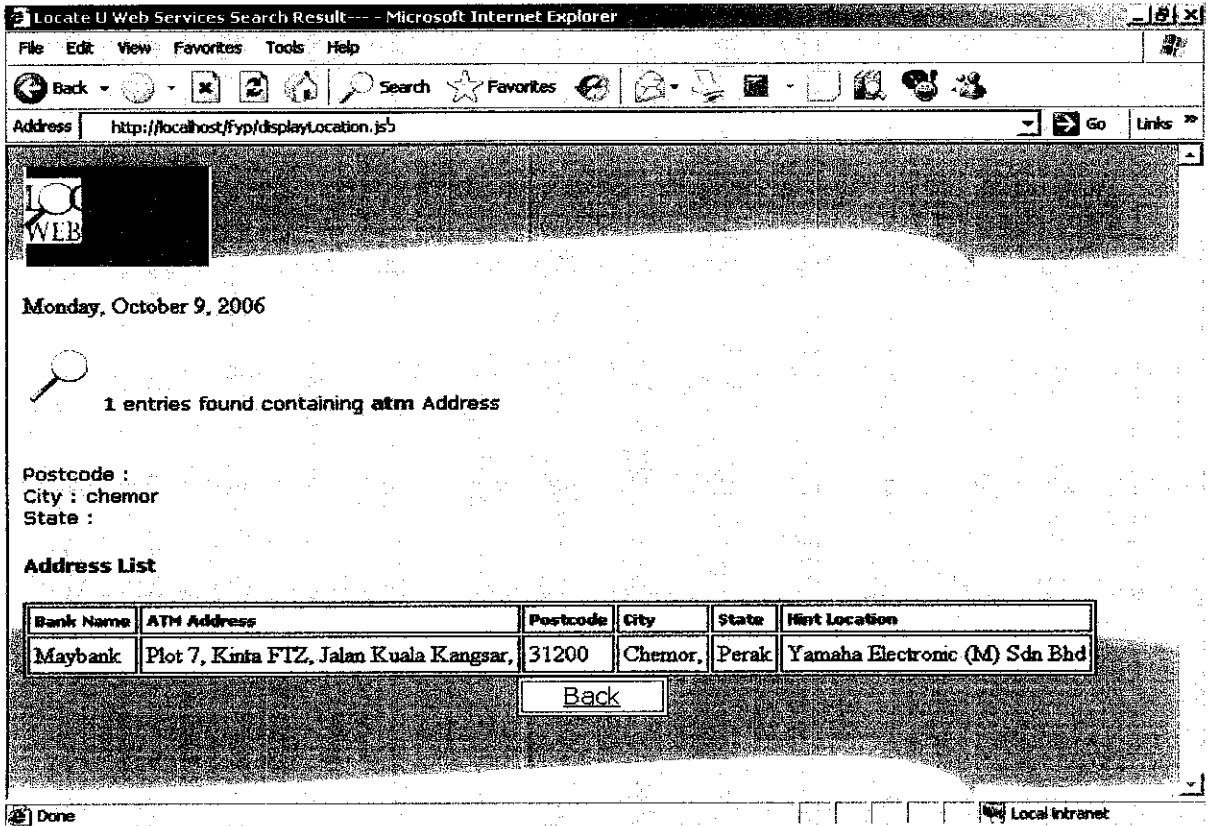
### 4.2.1 Design Outline

#### 4.2.1.1 Design outline/screen capture for LOCATE U Web Services



**Figure 4.2.1.1: Main interface**

This the main pages for the LOCATE U Web Service that shown the text field that should be enter by the end user in order to get the information.



**Figure 4.2.1.2: Display Page**

This page will display the information that requires from the end user. So, from the inputs that have been inserted by the user, the location will be displayed in this page.

## 4.2.1.2 WSDL Files for LOCATE U WEB SERVICES

### 4.2.1.2.1 Atm.wsdl



**Figure 4.2.1.2.1 : Atm.wsdl structure**

This figure represents the WSDL files structure whereby this file will connect or linked the others bindings files together. The AtmService will implement Atm function which is `getList()`. The `getList()` will get list of data from the `AtmClass.java`.



AtmClass.java will implemented some files to grab the data from server and after that will passes the data to AtmServices as getListResponse () in order to operate well. The details coding of WSDL files is in the Appendix 4.2.1.2.1.

## **4.3 DISCUSSION**

### **4.3.1 Database Management**

#### **4.3.1.1 Navicat Premium**

Navicat Premium is a very precise tool to interact with MySQL server. The author have tried the trial version of Navicat Premium as alternative to create the database and tables to build easily with using the SQL command. Navicat Premium have the GUI that will be easily to understand. Since the author familiar with the Microsoft Access, it have been simplified the job because the environment is the same with Microsoft Access.

#### **4.3.1.2 MySQL Administrator**

MySQL Administrator also a GUI application to interact with SQL server. It is a powerful visual administration console that enables the author to easily administer MySQL environment. It also gains better visibility into how databases are operating. MySQL Administrator now integrates database management and maintenance into a single, seamless environment, with a clear and intuitive graphical user interface. By using MySQL Administrator the author

- Achieve higher database availability through improved management
- Reduce errors through visual database administration
- Lower database administration costs through improved productivity
- Deliver a more secure environment through easier privilege management

MySQL Administrator enables developers and DBAs to easily perform all the command line operations visually including configuring servers, administering users, and dynamically monitoring database health. Other common administrative tasks such as monitoring replication status, backup and restore, and viewing logs can also be performed through the MySQL Administrator graphical console [14].

### **4.3.1 Application Development**

There are several considerations to be taken of, before developing the Web services. It comes from many aspects such as the users, level of user interfaces, element to be included and the user requirement needed to be checked on as wrong planning will make these resources unusable and wasted. Basically, I have been used some of the application tools to built in this project.

#### **4.3.1.1 Macromedia Dreamweaver**

Macromedia Dreamweaver MX is used to design the interfaces, writing the codes, adding the functions and make it online. Before designing the Web services, the author some JSP files as Web client. By using this tool, it simplifies the developer job to manage the elements in a good manner.

#### **4.3.1.2 Lombok**

Lombok, the popular open source J2EE development tool created by iteration over two years ago has been completely redesigned and rebranded based on the Eclipse Web Tools Platform (WTP).

Lombok project includes the following tools from WTP: source editors for HTML, Javascript, CSS, JSP, SQL, XML, DTD, XSD, and WSDL; graphical editors for XSD and WSDL; J2EE project natures, builders, and models and a J2EE navigator; a Web service wizard and explorer, and WS-I Test Tools; and database access and query tools and models [13].

### **4.3.1.3 Eclipse**

The Eclipse Foundation is a not-for-profit member-supported corporation that hosts community based open projects. Eclipse creates royalty-free technology and a universal platform for development tools integration, modeling, and testing and functionally-rich application construction. Eclipse based offerings give developers freedom of choice in a multi-language, multi-platform, multi-vendor supported environment. Eclipse delivers a dynamic plug-in based framework that makes it easier to create and integrate technology, saving time and money. By collaborating and sharing core integration technology, technology providers can concentrate and focus on areas of expertise and differentiation. The Eclipse Platform is written in the Java language and comes with extensive plug-in construction toolkits and examples. It has already been deployed on a range of development workstations including Linux, QNX, Mac OS X and Windows-based systems. Full details of the Eclipse Foundation and white papers documenting the design of the Eclipse Platform are available at [www.eclipse.org](http://www.eclipse.org) [5].

## **CHAPTER 5**

### **CONCLUSION & RECOMMENDATIONS**

#### **5.1 CONCLUSION**

##### **5.1.1 Conclusion on the project objective**

This system objective is actually to provide the end user with an efficient way to help users find the location for Web services. By using these Web services, the distribution of information will be more faster and accurate. It also will help the end user to reduce time and work constraints by helping them use the services that are available from their own phone and Web site.

Web services also had been a good way to distribute the data. It also can be improved as the time goes by and can be interpreted in many platforms. In addition, it will be useful to many people. The use of these Web services also gives the introduction to move on in the globalization world where there will be a borderless world.

The government is heavily promoting the importance of IT by making great strides in education and training. So, this Web service also will help to promote the importance of IT.

##### **5.1.2 Conclusion on the research objectives**

Based on experience, literature review and research, there is a major need for the Web services. It is fully agreed that this system can assist the end user to find location and get

the information faster rather than manually find the location. The system should be compatible with the devices so that it can run properly.

### **5.1.3 Overall Conclusion**

Mobile phones application and Web services system provides a great opportunity to be the solution of the problems faced by the user in this current situation as stated in this report due to its mobility, easy access, latest trends of the student, staff and people in this era, and its rapid technology innovations.

This project focused on how development of Web services and it used. Besides it also emphasize on mobile system that can be used as alternative medium for Locate U Web Services in distributing their information.

## **5.2 RECOMMENDATION**

Embedding all the features for managing the LOCATE U Web Services in the Web based and via a mobile phone that manages to retrieve in a manner that the result can be archived, reviewed, checked in an application is a solid idea. But yet, it is still a new topic. The project has never been research and developed before. Therefore, the project can be expanded in to various way, depends on the interest of the person that wanted to take the product a step further than today. With advancing Web and mobile technology that is so rapid and more thorough research on the opportunity released by the innovation, maybe the product can solve other problem concerning both benefits for people outsider. The product can achieve many things in the future.

The suggestions have been extracted from the ideas from many people that the author has met. The suggestions have been divided into two sub-sections. Enhancement, which are features those already in the application but needed adjustment to increase its performance factor. Another one is addition, which is features not included in the

application/system but when the features are in, the author will assure that it will work just nice. After all, it is only a prototype. This sub-section is for the eager minds of tomorrow.

### **5.2.1 Enhancement**

The application should have more detailed information and archiving that include transactions that will be provide by the ATM Machines and may be should be included the transaction by a bank.

This Web services also can be expand to be in larger scope such as providing more services and not limited for ATM Machines and mosque location only.

Another important component in a Web Services is a security of the system. Security part in Web services should be implemented as the information will be a secured information and the system will not be hacked.

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# **APPENDICES**



### Appendix 4.2.1.2.1 Atm.wsdl

```
<?xml version="1.0" encoding="UTF-8" ?>
_ <wsdl:definitions targetNamespace="http://src.locateu.com"
_   xmlns:apachesoap="http://xml.apache.org/xml-soap"
_   xmlns:impl="http://src.locateu.com" xmlns:intf="http://src.locateu.com"
_   xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
_   xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
_   xmlns:xsd="http://www.w3.org/2001/XMLSchema">
_   _ <!--
_     WSDL created by Apache Axis version: 1.3
_     Built on Oct 05, 2005 (05:23:37 EDT)
_   -->
_   -->
_   <wsdl:types>
_   <schema elementFormDefault="qualified"
_     targetNamespace="http://src.locateu.com"
_     xmlns="http://www.w3.org/2001/XMLSchema">
_   <element name="getList">
_   <complexType>
_   <sequence>
_   <element name="atmId" type="xsd:string" />
_   <element name="bankId" type="xsd:string" />
_   <element name="atmAddress" type="xsd:string" />
_   <element name="postcode" type="xsd:string" />
_   <element name="city" type="xsd:string" />
_   <element name="state" type="xsd:string" />
_   <element name="hintLocation" type="xsd:string" />
_   </sequence>
_   </complexType>
_   </element>
_   <element name="getListResponse">
_   <complexType>
_   <sequence>
_   <element maxOccurs="unbounded" name="getListReturn" type="impl:AtmClass"
_     />
_   </sequence>
_   </complexType>
_   </element>
_   <complexType name="AtmClass">
_   <sequence>
_   <element name="atmAddress" nillable="true" type="xsd:string" />
_   <element name="atmId" nillable="true" type="xsd:string" />
_   <element name="bankId" nillable="true" type="xsd:string" />
_   <element name="city" nillable="true" type="xsd:string" />
_   <element name="hintLocation" nillable="true" type="xsd:string" />
_   <element name="postcode" nillable="true" type="xsd:string" />
_   <element name="state" nillable="true" type="xsd:string" />
_   </sequence>
_   </complexType>
```

```

</schema>
</wsdl:types>
= <wsdl:message name="getListResponse">
  <wsdl:part element="impl:getListResponse" name="parameters" />
  </wsdl:message>
= <wsdl:message name="getListRequest">
  <wsdl:part element="impl:getList" name="parameters" />
  </wsdl:message>
= <wsdl:portType name="Atm">
= <wsdl:operation name="getList">
  <wsdl:input message="impl:getListRequest" name="getListRequest" />
  <wsdl:output message="impl:getListResponse" name="getListResponse" />
  </wsdl:operation>
</wsdl:portType>
= <wsdl:binding name="AtmSoapBinding" type="impl:Atm">
  <wsdlsoap:binding style="document"
    transport="http://schemas.xmlsoap.org/soap/http" />
= <wsdl:operation name="getList">
  <wsdlsoap:operation soapAction="" />
= <wsdl:input name="getListRequest">
  <wsdlsoap:body use="literal" />
  </wsdl:input>
= <wsdl:output name="getListResponse">
  <wsdlsoap:body use="literal" />
  </wsdl:output>
</wsdl:operation>
</wsdl:binding>
= <wsdl:service name="AtmService">
= <wsdl:port binding="impl:AtmSoapBinding" name="Atm">
  <wsdlsoap:address location="http://localhost:8080/locateu/services/Atm" />
  </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

# locatewsdl

View the WSDL for the service. Click on an operation name to view its details.

[locate](#)

locate

Warnings

Findings

Endpoint

SOAP Action

Style

Mode

Documentation

Namespace

Transport

Documentation