**Project Report On**

“BLUETOOTH HOTSPOT”

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**Certificate**

## This is to certify that project entitled

## “BLUETOOTH HOTSPOT”

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Of this institute has successfully completed the project.

As per prescribed by M.S.B.T.E., Mumbai During the academic year 2011-12.We have found it working satisfactorily & progressive and that has been assessed by us. We are satisfied that the same is up to the standard essayed for the level of the course & the said work may be presented to examiner.

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### Prof. F. A. Khan

(Principal)

**ACKNOWLEDGEMENT**

We take this opportunity of submitting this dissertation to express our deep regard towards those who offered their invaluable assistance and guidance in the hour of needs.

The Success of any project is never limited to the individual undertaking the project. There are some personalities involved whose role is very vital for successful completion of a project.

***After completion of our project “BLUETOOTH HOTSPOT”***

We look back in retrospect to the people who have helped us in our work. Without their invaluable help and guidance, the completion of this project would have been a difficult task.

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**1. INTRODUCTION**

**1.1 PROJECT DEFINITION**

Bluetooth hotspot is a technology which allows Bluetooth enabled mobiles (clients) to access the internet. With this technology mobile phones need not have a GPRS connection in it. The technology also manages the clients entering, leaving and connecting to the Bluetooth Server. It manages the web page request of each client connected to the Bluetooth Server. This one is free for Bluetooth enabled mobile users and the speed is much better than what GPRS ever offered.

**1.2 OBJECTIVE**

The objective of this project is to evaluate the market for Bluetooth technology asa hotspot access technology. It identifies the need for Bluetooth hotspots in order to exploit the proliferation of wireless devices and the development of wireless applications that can benefit everyone in the society. It also describes a design and implementation strategy for a Bluetooth hotspot deployment. In terms of social conception, Bluetooth hotspots have the ability to bridge the digital divide between people who do or do not have access to the technology. It is not necessary to purchase a PC**,** a laptop or a PDA which are often used for business and work related purposes, for occasionally checking email and browsing the Internet. There are some consumers who are not a frequent user of the Internet due to the nature oftheir work, lifestyle or income. This group of people is Katter off investing in a Bluetooth enabled mobile phone to access the Internet.

**1.3 BRIEF DESCRIPTION OF THE PROJECT**

**System Concept**

A hotspot is a public location such as an airport, shopping mall or conference centre that has readily accessible wireless Bluetooth network. Bluetooth is A specification for **‘***a small form-factor, low-cost radio solution'* providing links between mobile computers, mobile phones and other portable handheld devices, and connectivity to the Internet. It will enable users to connect a wide range of computing and telecommunications devices easily and simply, without the need to buy, carry, or connect cables.

**System Overview**

The following diagram gives a very extensive idea about the system proposed. This system essentially covers most of the issues related to setting up a basic network. Bluetooth Service Login Authentication.



**Figure1. Basic structure of the hotspot network**

As shown in Figure 1, there are two major components of the entire system. The first component is the Bluetooth hotspot network which consists ofmany machines in a client server configuration. The Bluetooth network is essentially a collection of many Bluetooth devices like mobile phones. A "Bluetooth Server” connects the entire network to the Internet acting as a gateway to the “clients”.

The second part of the network is the Bluetooth service manager. This is mainly the software used to manage the users of that particular system. This system takes care about the login and authentication. The customer enters his/her user details to gain access to the service. Then the authentication process validates the users. User details are stored in a database with access details.

Bluetooth dongles are used as an access point for the clients and the servers. Windows XP has been proved to give the best support for Bluetooth. ThusWindows XP would be the best possible candidate forthe server environment. The dongle is installed with drivers which enable it to perform various network functions including Internet access.

**Implementation -**The structure of the Bluetooth network is described as follows.



**Figure*2.* Architecture of the hotspot network**

Figure *2*shows that the Bluetooth clients are connected to the hotspot server.

Before the clients can be connected to the server, they have to be paired with the Bluetooth Server. Pairing is an important part in a Bluetooth setup. When the client requests to be connected to the server, the server asks for a passkey. When the client and the server enter the same passkey then the devices are paired together and can perform network functions. Fora hotspot network, a common passkey could he maintained forthe day. The patrons can be provided this passkey over the counter. This passkey can be changed on a daily basis. Authentication is probably the most important part of the system. Therefore we prefer a manual control on the devices present in the hotspot in the form of hotspot manager.

The server has to be setup to enable Internet Connection and redirect the web pages to mobiles. The server recognizes the client‘s request for Internet access and sends the request to the Internet Server. It gets the web page in the format accessible in mobiles from the Internet Server and sends it to the requesting client and thus enables the client to access Internet.

A centralized database will maintain the details of all users along with date and time of login registered to the system. Once the user enters the hotspot, a simple “Passkey” facility will enable the user to access the Internet.

**1.4 SCOPE OF THE PROJECT**

Asthe number of Bluetooth products increases each year, it is important to develop applications and services to take full advantage of their potential and capabilities. A broadband hotspot is one application where Bluetooth has a value in providing Internet access to mobile users. Consumers owning a Bluetooth enabled mobile phone can easily access a Bluetooth hotspot to browse the Internet without having to carry a PDA or a laptop.

Today, the majority of people are in possession of a mobile phone. The number of mobile phone users is increasing each year. Mobile phone creates more possibilities for social networking. The deployment of Bluetooth hotspots will widen access to broadband services using mobile phones not only to professionals and mobile workers but more importantly, to other segments of consumers who want to go on-line for non-business related and sociable purposes, and to consumers who do not own PCs.

**2. HARDWARE AND SOFTWARE REQUIREMENTS**

Bluetooth Hotspot System is designed to run on client-server architectures.

**2.1 SOFTWARE REQUIREMENTS**

**2.1.1 Server Side:**

1. **Operating System**

We are using Windows XP operating system

With Windows XP service pack 2, for many Bluetooth USB dongles no drivers are required. You just plug-in the Bluetooth USB dongle and Windows XP with Service Pack 2 detects it and in short time you can use it - pair with devices, connect to their services, connect your Windows Mobile devices over Bluetooth over ActiveSync, etc

Windows XP also has a facility to generate a passkey automatically for the connection between the mobile phone and your computer. You can use this passkey or enter one of your own. Passkeys can have up to 16 characters. The passkey must be entered within 30 seconds, or authentication may not succeed.

1. **Bluetooth API**

Blue Cove is a Java library for Bluetooth (JSR-82 implementation) that currently interfaces with the Mac OS X, WIDCOMM, Blue Soleil and Microsoft Bluetooth stack found in Windows XP SP2 or Windows Vista and WIDCOMM and Microsoft Bluetooth stack on Windows Mobile.

Blue Cove provides JSR-82 Java interface for following Bluetooth Profiles:

* SDAP - Service Discovery Application Profile
* RFCOMM - Serial Cable Emulation Protocol
* L2CAP - Logical Link Control and Adaptation Protocol
* OBEX - Generic Object Exchange Profile (GOEP) profile on top of RFCOMM and TCP

1. **Java Development Kit** This is used to design and execute the Java Server Programs. We have used JDK1.5.0\_17 for this purpose

**2.2 HARDWARE REQUIREMENTS**

**2.2.1 Server Side:**

**a) Bluetooth Dongle**

Bluetooth Dongle is required to convert non-Bluetooth PC to Bluetooth enabled one. It is accompanied by software required for its installation. We have use “BlueSoleil” software.

**Specifications:**

- Version 2.0

- Range 10m

- Interface: Compliant with USB 2.0 & 1.1

**-** Data Transmission Rate: 3Mbps

**b) Processor**

Pentium4/Celeron 2.0 GHz

**c) RAM**

Minimum: 512 MB (Recommended 1 GB)

**2.1.2 Client Side:**

**a) Bluetooth enabled mobile phone with JVM and JSR82 support**.

JSR82 is Java Specification for Bluetooth. Since the client has to send web page URL throughBluetooth, the client device must have JSR82 support along with a Java Virtual Machine (JVM) which is required to execute any J2ME program on the device.

**2.3 BLUETOOTH TECHNOLOGY OVERVIEW**

**The Basic Components of a Bluetooth Application**

The basic components of any Bluetooth application consist of the following items:

* Stack initialization
* Device management
* Device discovery
* Service discovery
* Service registration
* Communication

**Stack Initialization**

Now before you can do anything, your stack needs to be initialized. Remember, a Bluetooth stack has direct access to the underlying Bluetooth device. Stack initialization can consist of a number of things, but its main purpose is to get the Bluetooth device ready to start wireless communication. Stack initialization sequences can vary, and it's heavily dependent upon the underlying OS and Bluetooth radio. In some cases no code is needed at all to initialize your stack. In other cases, you'll need to write a bit of code to get your stack initialized because you need to specify baud rates for your RS-232 interface.

**Device Management**

Local Device, Remote Device, and Device Class are the classes in the Java Bluetooth specification that form the Generic Access Profile and allow you to perform device management. These classes allow you to query some statistical information about your own Bluetooth device (Local Device) and also some information on the devices in the area (Remote Device). The Device Class object gives you information about the official class of device (CoD) as defined in the Bluetooth specification.

**Device Discovery**

Your Bluetooth device has no idea of what other Bluetooth devices are in the area. Perhaps there are laptops, desktops, printers, mobile phones, or PDAs in the area. Who knows? The possibilities are endless. In order to find out, your Bluetooth device will use the device discovery classes that are provided in the Java Bluetooth API to

See what's out there. Which Bluetooth devices should use device discovery? Well, if you are planning to use a peer-to-peer application in Bluetooth, like two PDAs in a chat session, then either device would use device discovery to find the other device. If you are planning to use a client-server type application, like printing from a lap-top to a printer, then the client is most likely to perform device discovery. It doesn't make sense for the printer to constantly look for devices that want to print something.

Now, let's take a look at the two classes needed in order for your Bluetooth device to discover remote Bluetooth devices in the area: Discovery Agent and Discovery Listener.

**Service Discovery**

After you have located devices in the area, it would be really nice to see what services those devices offer. Of course, you can always inspect the Device Class object, but that may only reveal half the picture. Let's say that you want to print a text file. Obviously, if the Device Class indicates that the major device class of the Remote Device is a printer, then you're all set. But what if the major device class is a computer? Would it come to mind that you can also print to a computer that is acting as a print server? The service discovery-related classes in the Java Bluetooth specification implement the Service Discovery Application Profile. The Service Discovery Application Profile, in turn, uses the Service Discovery Protocol (SDP) layer in your Bluetooth stack to find services on remote Bluetooth devices.DiscoveryAgent, Discovery Listener, Service Record, Data Element, and UUID. You'll also interact (indirectly) with the SDDB whenever you want to discover services on a remote Bluetooth device.

**Service Registration**

Before a Bluetooth client device can use service discovery on a Bluetooth server device, the server needs to register its services internally. That process is called *service registration*. This section discusses what's involved in service registration for a Bluetooth device, and we'll also give you a rundown of the classes needed to accomplish this.

**Note:** In a peer-to-peer application, like a file transfer or chat application, be sure to remember that any device can act as the client or the server, so you'll need to incorporate that functionality into your code in order to handle both scenarios of service discovery and service registration.

Here's a scenario of what's involved in getting your service registered and stored in the SDDB:Call Connector. Open() and cast the resulting connection to a stream Connection Notifier object. Connector.open() creates a new Service Record and sets some attributes.

1. Use the LocalDevice object and the StreamConnectionNotifier to obtain the ServiceRecord that was created by the system.

2. Add or modify the attributes in the ServiceRecord (optional).

3. Use the StreamConnectionNotifier to call acceptAndOpen () and wait for Bluetooth clients to discover this service and connect.

4. The system creates a service record in the SDDB. Wait until a client connects. When the server is ready to exit, call close () on the StreamConnectionNotifier.

5. The system removes the service record from the SDDB.

**Communication**

Bluetooth is a communication protocol. The official Java Bluetooth API gives you three ways to send and receive data.

Bluetooth specification gives you three protocols to send and receive data:

* RFCOMM (for stream data)
* L2CAP (for packet data)
* OBEX (for object data)

**3. ANALYSIS**

**3.1 INTRODUCTION**

When we plan to do in any project we need to have a reason to do it. We need to answer questions like

1. Why we need to build this?

2. What is the system right now?

3. What it lacks?

4. What approach should we use?

5. Is it the correct way, is it feasible?

We do all this in the analysis phase of our project building. It is in the analysis phase we learn about the system its plus point, its drawbacks, our approach to build the

* 1. **EXISTING SYSTEM**

**3.2.1 Wi-Fi**

Most widely used wireless technology today, is **Wi-Fi**. Wi-Fi hotspots are deployed in shopping malls, cafes, public libraries etc. It gives internet access to Wi-Fi enabled laptops or to Wi-Fi enabled mobile phones for free or at a low cost to the ones in that hotspot area.

A wireless network uses [radio waves](http://electronics.howstuffworks.com/radio.htm), just like [cell phones](http://electronics.howstuffworks.com/cell-phone.htm), [televisions](http://electronics.howstuffworks.com/tv.htm) and radios do. In fact, communication across a wireless network is a lot like two-way radio communication. Here's what happens:

1) A computer's wireless adapter translates data into a radio signal and transmits it using an antenna.

2) A wireless [router](http://computer.howstuffworks.com/router.htm) receives the signal and decodes it. It sends the information to the Internet using a physical, wired [Ethernet](http://computer.howstuffworks.com/ethernet.htm) connection.

The process also works in reverse, with the router receiving information from the Internet, translating it into a radio signal and sending it to the computer's wireless adapter.

The radios used for Wi-Fi communication are very similar to the radios used for walkie-talkies, cell phones and other devices. They can transmit and receive radio waves, and they can convert [1s and 0s](http://computer.howstuffworks.com/bytes.htm) into radio waves and convert the radio waves back into 1s and 0s.

**3.2.2 GNU box**

Further there is at technology for Bluetooth enabled devices too. Some of the tech savvy people might have heard that we are able to connect our mobile to access internet connection on PC by simply downloading software, which is available for free. This software is the **GNU Box**.

Yes its true one of the best application but little tricky. Basically GNU Box lets your pc share your internet connection with your phone over Bluetooth making you have free internet on your phone this is a bit tricky and it takes a while to get it right but you'll be satisfied with the results just follow the tut and you'll do just fine.

All that the GNU Box does is modify the communications database settings. You need it because the user interface (Settings|Connection|Access points) doesn't allow you to specify the right settings. No software is needed to run in the background for this to work.

**3.3 DRAWBACK OF EXISTING SYSTEM**

The current system is comparatively slower and requires costlier tools to be installed and maintained.

**3.4 PROPOSED SYSTEM**

Bluetooth hotspot is software developed to allow internet access to multiple Bluetooth devices present in the Hotspot area. The main objective of the project is to develop low cost technology that is affordable and useful to common man. Hence no costly hardware is used. The sole hardware required for the project is a Bluetooth dongle.

What is Bluetooth Dongle?



The Bluetooth USB dongle allows data transfer between multitudes of devices. Transfer information from your PC or Laptop to Car Kits, Mobile Phones, PDAs, GPS Receivers and much more. You can now join the VOIP revolution and combine with a Bluetooth Headset to enable voice calls on the internet with SKYPE. In short the Bluetooth dongle converts non-Bluetooth PC to Bluetooth enabled one.

The Bluetooth Dongle attached to the hotspot server is used as router in this case. Thus server is set up as an access point through which the Bluetooth clients can access internet.

**3.5 FEASIBILITY STUDY**

Whenever a project is initiated, it is necessary to check whether the new system is **feasible** to develop or install. The main objective is to determine whether the development of the project has a reasonable chance of success.

There were three types of Feasibility Study carried out during the field study of the project. They were related as follows:

* Economic Feasibility
* Technical Feasibility
* Behavioral Feasibility

**Economic Feasibility:** In the economic feasibility, the project was considered and cost estimation was done that is how much cost will be appropriately required for overall development of the project and will the project be actually implemented and will the clients find the software to be useful enough to implement for their personal use or for the organizational use.

**COST ESTIMATION**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Expense Description** | **Value** |
| 1 | Number of the programmers | 6 |
| 2 | Number of hours per programmers | 30 |
| 3 | Coding cost per hour | Rs.30 |
| 4 | Remuneration per programmer | 30\*30= Rs.900 |
| 5 | Total Remuneration of the project | 900\*6 = Rs.5400 |
| 6 | Documentation Cost | Rs.300 |
| 7 | Internet charges and other expenses | Rs.300 |
| **TOTAL** | | **Rs.6000** |

* **EFFORT ESTIMATION:**

Although relatively few analysis and specification metrics have appeared in the literature, it is possible to adapt metrics that are often used for project estimation. **The function point metric (FP)** can be used effectively as a means for measuring the functionality delivered by the system. The FP can be used for following:

1. Estimating the cost or effort required to design code and test the software.
2. Predicting the number of errors that will be encountered during testing.
3. Forecasting the number of components and/or the number of projected source lines in the implemented system.

**Technical Feasibility:** In the technical feasibility, the project was checked and the software and the hardware requirements of the project was pre calculated. In checking the project for the technical feasibility, we considered that will the project require high end hardware or a normally configured personal computer will run the software. Even, it is considered that if the software can work with the minimum amount of the software requirements that is an extra software product for running the project will be needed or not.

**Behavioral Feasibility**: In this feasibility study, the project was checked and assumed that if the software is actually developed, will the interface provide user friendly enough for a non-computer educated client to work with the software. Will the clients in the organization accept this software?

**4. REQUIREMENT SPECIFICATION**

**4.1 INTRODUCTION**

Requirements specification helps in understanding the design and implementation issues for the technical staff of both the system procedure and the system developer. Requirements analysis is a software engineering task that bridges the gap between system level software allocation and software design.

**4.1.1 Purpose:**

We are building this Bluetooth Hotspot system to enable free access of internet to the Bluetooth devices like mobile phones in the Hotspot area. This technology will allow users to send a URL request to the Hotspot Server. The Hotspot Internet Server then returns the web page back to the client device. This received content is in raw form and needs to be further processed for getting proper display of webpage. This processing is done by HTML parser. The proposed system will be user friendly and will not require any specialized knowledge for operation. The Bluetooth Hotspot System with easy and convenient interface will help its users to easily surf through the web pages. The application will have the front end of JAVA for server and J2ME for client .

**4.1.2 Scope:**

Asthe number of Bluetooth products increases each year, it is important to develop applications and services to take full advantage of their potential and capabilities. A broadband hotspot is one application where Bluetooth has a value in providing Internet access to mobile users. Consumers owning a Bluetooth enabled mobile phone can easily access a Bluetooth hotspot to browse the Internet without having to carry a PDA or a laptop.

Today, the majority of people are in possession of a mobile phone. The number of mobile phone users is increasing each year. Mobile phone creates more possibilities for social networking. The deployment of Bluetooth hotspots will widen access to broadband services using mobile phones not only to professionals and mobile workers but more importantly, to other segments of consumers who want to go on-line for non-business related and sociable purposes, and to consumers who do not own PCs.

**4.2 GENERAL DESCRIPTION**

This section will look into the description of the project in terms of coding format. The functions involved user characteristics and constraints that exist with them.

**4.2.1** **Product Function Overview:**

The product being the output is the server software that will work on a machine having connection to internet server and must have minimal configuration with java installed over it. The entire project is being built up with java as front end towards Server Side ,J2ME for Client. Bluetooth device with JSR82 support is required.

**4.2.2 User Characteristics:**

While designing the system we have taken care that the user looks apparently in control and at ease.

There is no much load added to the user’s memory. The interface is consistent through out the system. We have taken maximum care so that the user if given wrong input will not face difficult situation. To run this system the user does not need to aware of the technology used both on the client as well as on the server side.

**General Constraints:**

The following are the general constraints over the system:

* The user needs to send the correct URL
* The user needs to allow his Bluetooth device to connect to the server.

**4.3 FUNCTIONAL REQUIREMENTS**

The system designed has certain functions present. These functions have certain requirements to execute as desired. They also have certain constraints. They take some specific input and give certain output. We will see them in the following points:

**Hotspot Internet Server**

**Input:** 1) URL or web page address from the client device

**Output:** 1) Web page Sent to Client device.

**Functions:** 1) Make connection with the Internet server

2) Send the URL and get the web content fron the Internet server

3) Forward the content to requesting client device.

**Client Request MIDlet**

**Input:** 1) URL from the client (user).

**Output:** 1) Redirection to HTML parser.

**Functions:** 1) Send URL to the Hotspot Internet server

2) Get web content from the Hotspot Internet server

3) Forward the content to HTML parser.

**HTML Parser**

**Input:** 1) Web Content

**Output:** 1) Web page with proper layout suitable for the Bluetooth device

**Functions:** 1) Calculate the size of display screen of the client Bluetooth device.

2) Check each HTML tag and convert the content next to it accordingly

3) Form proper layout and display the content the MIDlet.

**5 OBJECT ORIENTED DIAGRAMS**

**DATA FLOW DIAGRAM**

**(LEVEL 0)**

**CONTEXT LEVEL DIAGRAM**

Application Manager

Bluetooth Server

Internet Server

User

Send Message for pairing

Truncate connection of a device

Detect device & authenticate

Send client pgm

Queue requests for web pages

Accept URL

Send Web Page

Accept Web Page

Send URL

Send Passkey

4. Process URL

Allow Installation

Hotspot manager

Users

**LEVEL 1**

**BLUETOOTH HOTSPOT**

Bluetooth server

Bluetooth device

Internet server

**LEVEL 2**

**1. Activation**

**DETECTION & PAIRING**

Hotspot manager

Users

**LEVEL 2 PAIRING & DETECTION**

**DETECTION & PAIRING**

User information

BT server

BT server

Users

**LEVEL 2**

**3. Install**

**3. INSTALL**

Client program

sUser

BT server

Client program

Internet server

User information

**LEVEL 2**

**4. Process URL**

**4. PROCESS URL**

User information

**LEVEL 2**

**5. Truncate Connection**

User

Hotspot manager

BT server

Client program

BT server

**LEVEL 3**

**4.7 SEND WEBPAGE TO APPROPRIATE MOBILE**

User information

**6. DESIGN**

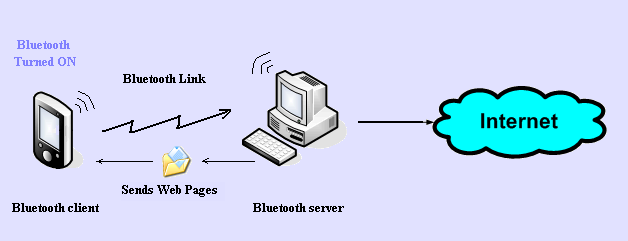
**6.1 INTRODUCTION:**

Design has been described as multi-step process in which representation of data and program structure, interface characteristics and procedural detail are synthesized from information requirements. Design is essentially the bridge between requirement specification and the final solution for satisfying the requirements.

**6.2 ARCHITECTURAL DESIGN:**

The architectural design phase identifies the multiple components and the interaction among them. It provides enough detail on the component to write and detail designs. During this phase, top level designs, all forms, report, data structures, program module and human interfaces based on the information contained in the System Specification document. It also identifies the design criteria and design constraints applicable.

Primary objective of the architectural design is to develop a modular program structure and represent the control relationship between modules. In addition, it melds program structure and data structure defining interfaces that enable data to flow throughout the program.

****

**6.2.1 Problem Specification:**

We are building this Bluetooth Hotspot system to enable free access of internet to the Bluetooth devices like mobile phones in the Hotspot area. This technology will allow users to send a URL request to the Hotspot Server. The Hotspot Internet Server then returns the web page back to the client device. This received content is in raw form and needs to be further processed for getting proper display of webpage. This processing is done by HTML parser. The proposed system will be user friendly and will not require any specialized knowledge for operation. The Bluetooth Hotspot System with easy and convenient interface will help its users to easily surf through the web pages. The application will have the front end of JAVA for server and J2ME for client and backend of MS-Access.

**6.3 FUNCTIONAL DESIGN:**

The procedure followed during implementation is as follows:

* + Server continuously opens for detecting new Bluetooth devices in Hotspot area.
  + Bluetooth client in hotspot turns on its Bluetooth Connection

Server detects connection and sends pairing request and also informs the manager about new device in the Hotspot

* + Hotspot manager enters passkey for pairing after examining the new client.
  + Server sends the client program to client device through Bluetooth
  + Client allows the installation of client program sent by the server.
  + A window to accept URL is opened after installation
  + Client types the URL of required webpage
  + The server notes the URL and the device that requested it
  + The URL is then sent to Internet server.
  + The web page is fetched and returned to Bluetooth Server

The server checks database to get the name of requesting device for currently processed

The web page is then sent to the Bluetooth Device

The server checks database to get the name of requesting device for currently processed URL

* + The web page is then sent to the Bluetooth Device
  + The client program opens the web page for client to read
  + The client can now request for another web page or close the client program application.

**6.4 USER INTERFACE:**

The Interface design focuses on three areas of concern:

* The design of interface between software components.
* The design of interfaces between the software and other non-human producers and consumer’s soft information.
* The design of interface between a human and a computer.

The user interface design creates an effective communication between a human and a computer.

The system has following forms for user interface:

* Hotspot Manager
* Hotspot Internet Server
* Client Request MIDlet (Client Side)

**7. CODING AND TESTING**

**7.1 CODING:**

The goal of the coding and programming phase is to translate the design of the system produced during the design phase into code in a given programming language which can be executed and which performs specified by the design. The coding phase affects both testing and maintenance profoundly. The goal during this phase is to simplify the job of the tester and the maintainer.

The coding of our project is done in JAVA and in J2ME. Java is a well defined language. The user can only view the frame output but the coding remains hidden. Java is a simple, platform independent, robust, multithreaded, high performance coding language. Also java is well known and easy language. The Record Store is creates using J2ME . Thus using these standard technologies we have built our project.

**7.2 TESTING:**

Testing is a set of activities that can be planned in advance and conducted systematically. Any testing strategy must incorporate test planning, test case design, test execution and resultant data collection and evaluation. A software testing strategy should be flexible enough to promote a customized testing approach. Testing is an individualistic process and number of test varies as the development approaches.

**7.2.1 Test Plan:**

**7.2.1.1 Test Unit:**

We have basically three modules two test:

* Searching Bluetooth Devices
* Sending Request from Client to Server.
* Searching and Sending Webpage to the client.

**8. CONCLUSION**

**8.1 CONCLUSION:**

The penetration rate of mobile phone user is higher than other handheld devices such as PDAs and laptops. Due to the fact that it is affordable and small, every segment of society including teenagers, professionals and elderly people has a mobile phone for social networking, businesses or work related purposes and also emergency cases. The realization of the importance of extending the availability and accessibility of information, mobile phone manufacturers are exploiting the development of wireless technology to include Bluetooth in particular, in most of their mobile phone models. Asa result, the functionalities and capabilities of a mobile phone have extended, not just to make and receive calls but also to surfthe Internet, check email, download software or application, play games and listen to music. Bluetooth hotspot is one of the potential services to be offered to mobile phone users. It will make surfing Internet free of cost in Bluetooth Hotspot enabled area. So one does not have to depend on the costly GPRS system provided by the telecom companies. Also the power consumption is much low as compared to Wi-Fi Hotspot.

**8.2 FUTURE ENHANCEMENT:**

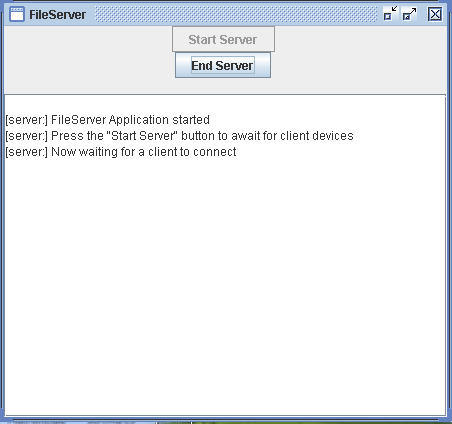
The Bluetooth Hotspot can be extended in terms of area under hotspot by deploying multiple access points in the form of server.

The hotspot servers at a greater distance (in Kms) can be connected through internet and the clients of both the hotspots can communicate with each other free of cost. This gives additional feature to Bluetooth devices which generally cannot communicate with other devices at a long distance (in Kilometers) due to the short range of the Bluetooth.

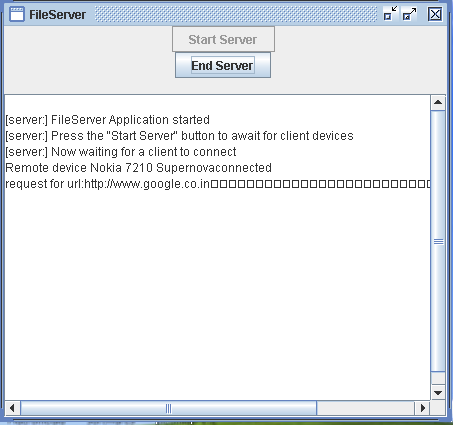
The current system does not support JavaScript and emailing. This can be introduced to make this technology a full fledged product.

**Annexure A**

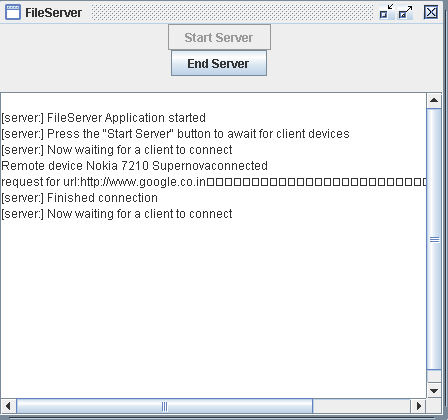
1) Hotspot Internet Server is continuously waiting for web page requests



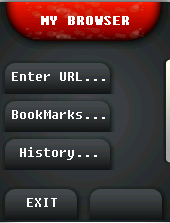
2) A Client Device requests for a web page



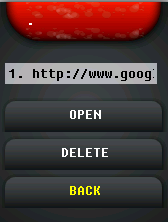
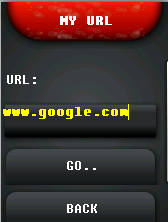
3) Web page is sent. Connection is closed and client is waiting for another request.



4) Browser On Mobile side



1. After Selecting Enter URL, Bookmarks and History respectively.



**Annexure B**

**BOOKS:**

1. C.S.R. Prabhu, A. Prathap Reddi “**BLUETOOTH TECHNOLOGY” and its Application with Java and J2ME**.

2. Bruce Hopkins, Ranjith Antony “**BLUETOOTH FOR JAVA**”

3. Jazilah Jamaluddin, Ratish Nair, Reuben Edwards, and Paul Coulton “**Widening Access to Broadband Hotspots Employing Bluetooth”, IEEE 2004.**

**WEBSITES:**

1. [http://www.bluetooth.com](%20http://www.bluetooth.com)

2. <http://forum/nokia.com>

3. <http://www.ieee.com>

4. <http://www.jsr82.com>

5. <http://www.bluecove.com>