Broadcasting Using Bluetooth Server

M. Dharani

PG SCHOLAR, DEPARTMENT OF CSE

ANGEL COLLEGE OF ENGINEERING AND TECHNOLOGY,TIRUPUR.

ABSTRACT:

Bluetooth is a wireless communication technology to build small networks of devices. It was designed as a cable replacement technology. Its widespread adoption, especially in mobile devices, new uses are possible today. For instance, one can broadcast messages to nomadic users based on their location. In this paper we perform an experimental evaluation of whether we can overcome some of the drawbacks of blue tooth and create a Blue fine server that is useful for different application areas.Bluefine server is designed using JAVA net beans with ORACLE 10g as database that is designed basically for the transmission of data, advertisement in the transport facilities like bus, train and airway modes of transport. Overcome some of the drawbacks of blue tooth and create a blue fine server that is useful for different application areas.Bluefine server is designed using JAVA net beans with ORACLE 10g as database that is designed basically for the transmission of data, advertisement in the transport facilities like bus, train and airway modes of transport.

1. INTRODUCTION:

In the recent years, most people have become surrounded by a variety of consumer electronic devices. Bluetooth (BT) is a low power and relatively high band-width wireless technology for connecting various electronic devices. The BT technology makes it possible to establish personal area networks (PANs) between devices without much effort spent on configuration and setting up the network. The range of such networks is typically from a few meters up to 100 meters depending on the BT capabilities of the devices used. Although, the BT technology is normally used to exchange data between two devices, it can also be used for other purposes.

As anyone who has used computers surely knows, things can easily get messy around the computer. Wires and cables are tangled together all over the desktop, or if you are lucky, hidden under and behind it. The number of peripheral units for the computer is increasing, with keyboards, mice, printers, microphone headsets, scanners, digital cameras and MP3 players, to mention some. And with each new unit, the number of wires also increases even more, since each device usually requires at least both their own power cable and a cable to the computer.

Lately, several prototypes and products to provide BT broadcasting (blue casting) have appeared. Such systems typically consist of a BT server that broadcasts data to nearby devices. The most common usage of blue casting is currently in promotion of products by broadcasting content to nearby BT enabled mobile phones. This kind of broad-casting can also be called proximity-based broadcasting or simply blue casting. One example on how blue casting has been used is the company Filter UK that placed blue casting servers in the vicinity of a billboard at a railway station. The billboard informed that if you BT enabled your mobile phone, you could receive music, pictures and information about a rock band[3]. Blue casting provides a new way of offering information and data. This paper investigates for what purposes blue casting can be used and the problems related to blue casting. Further, we describe some practical solutions to the problems. The discussions and solutions described in this paper are based on experiences from developing and using our own blue-casting system Baloo.

Bluetooth (BT) has become a standard for personal area networks connecting mobile devices including mobile phones, PDAs, laptop computers, headsets, keyboards and other devices. The most usual usage of BT networks is to connect one device to another device. However, the BT technology can also be used in other ways. This paper describes experiences from developing and exploring a BT broadcasting system with the focus on investigating the usefulness and practical issues related to BT broadcasting. In particular, the paper looks at what kind of application areas BT broadcasting can be used for and how privacy can be established in such environments. We also consider some collaborative services that can be provided through BT broadcasting. The answers for this question have been found by the combination of study of other systems. These research questions will be answered using the results from the research and development
done in this project, and the answers will be used to form a conclusion. Investigation can be summarized into four research questions:

RQ1:Is BT suited for broadcasting?

RQ2: What kind of information can be broadcasted Using BT?

RQ3: Can blue casting be provided in a way that not Compromise users' privacy, and

RQ4: What usage area(s) is blue casting best suited for?

2. LITERATURE SURVEY:

There are many available Existing projects blue broadcasting devices in market. This part of the report will look at existing projects using Bluetooth broadcasting in some form, and compare the choices each project has chosen for their solutions. There are quite a few Projects on this topic, so we will keep information about each project brief.

2.1**Filter UK – Blue Casting [4]**   Blue Casting is developed by Filter UK, and is described as "The Proximity Marketing System". The system bases itself on adding small Bluetooth station boxes on for example advertising posters. When mobile devices with Bluetooth enabled are in range, the device information is sent to a central server, which decides what contents to send, and sends it to the device via the Bluetooth station. The website also states that a transaction history will be stored for each device. The transaction history, together with other rules like what time of day it is, or how many users have already received the broadcasts, can be used to adjust the information sent to each device.

2.2 LondonDev – Broad Tooth [5]

Broad Tooth is a Bluetooth Broadcasting system developed by LondonDev Limited. There is not much information about the project yet, and their website only has one page, which lists the features of their system. The Broad Tooth system is described as a marketing solution able to send "multiple advertisements and messages to passing phones and review the success of the broadcast in real time". The website states that their software will be run on a laptop with Bluetooth support.

2.3Midletsoft – Jelling spot [6]

Jelling spot is a Java Bluetooth   broadcasting application developed by the Midletsoft Corporation. This product is already released and usable (a free Fully working beta version can be downloaded from their website), but requires the users to install a client application on their handheld device to be able to connect to the broadcast stations. They have a selection of client software for a wide range of different mobile phone models on their download page

2.4Blue Blitz –Magic Beamer [7]

Blue Blitz has made a solution called Magic Beamer, which supports four services:

1. Broadcasting messages and media

2. Sending information and media by request (the users send messages to the Bluetooth station to request content)

3. Receiving messages and media and forward these via e-mail

4. Allowing users to connect to the Bluetooth station and use an Internet connection through it

They also sell broadcasting stations that use their broadcasting software. These stations can be set up and then deployed without having to be connected to a

Computer. Their software can be run on a computer with Bluetooth.

The software comes on a bootable CD and acts as a simple operating system, so the computer has to be booted with the CD in order to run the software.

There are many system that Bluetooth Broadcast available in market. Some among them are studied for reference.

3. BLUEINFINE BLUECASTING SERVER:

Even though there are several blue cast systems available[8], we wanted to develop our own system to fully explore the Possibilities in blue casting. Our blue casting system is designed for the transmission of data in the transport areas like bus, train etc.
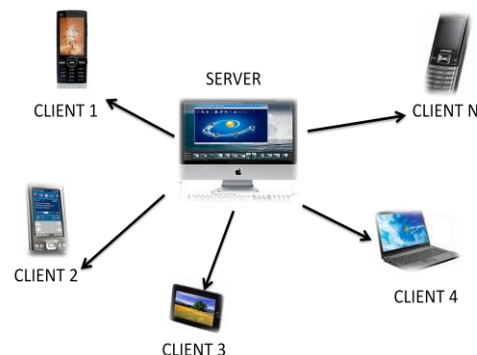

Figure.1 architecture of blue cast system

The above figure 1 explains the architecture of blue cast system. The way the data s can be transmitted from the server to the multiple clients in network.

The figure2 shows the procedure of data that can be transmitted in the system. It explains about the interface procedure that is to be transmitted in the blue casting system. The basic interface configuration

of the device is designed using the java net beans. And the design has been displayed in the figure3.

There are three threads used in this blue casting system. As listed below does the functions as described

> Remote discovery thread

> Scheduler thread

> Servicing device thread is used for database.

Remote discovery thread: search the Bluetooth enabled devices which are in server range and store those details in Database.

Scheduler thread: schedule the server jobs.

Servicing device thread: Each thread maintains the service of each local device.
Any type of data can be transmitted through the blue cast server to any Bluetooth enabled device. We can send MMS (Multimedia message), SMS (short messages), images, videos etc.But in this server we are sending only text message to make the communication efficient.
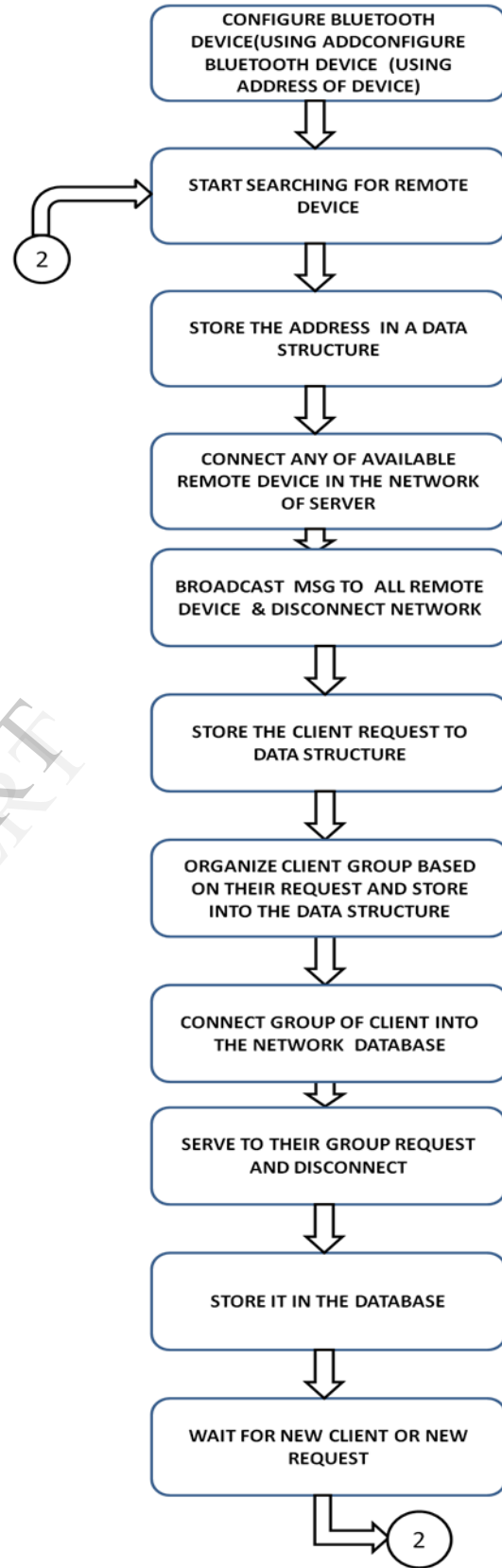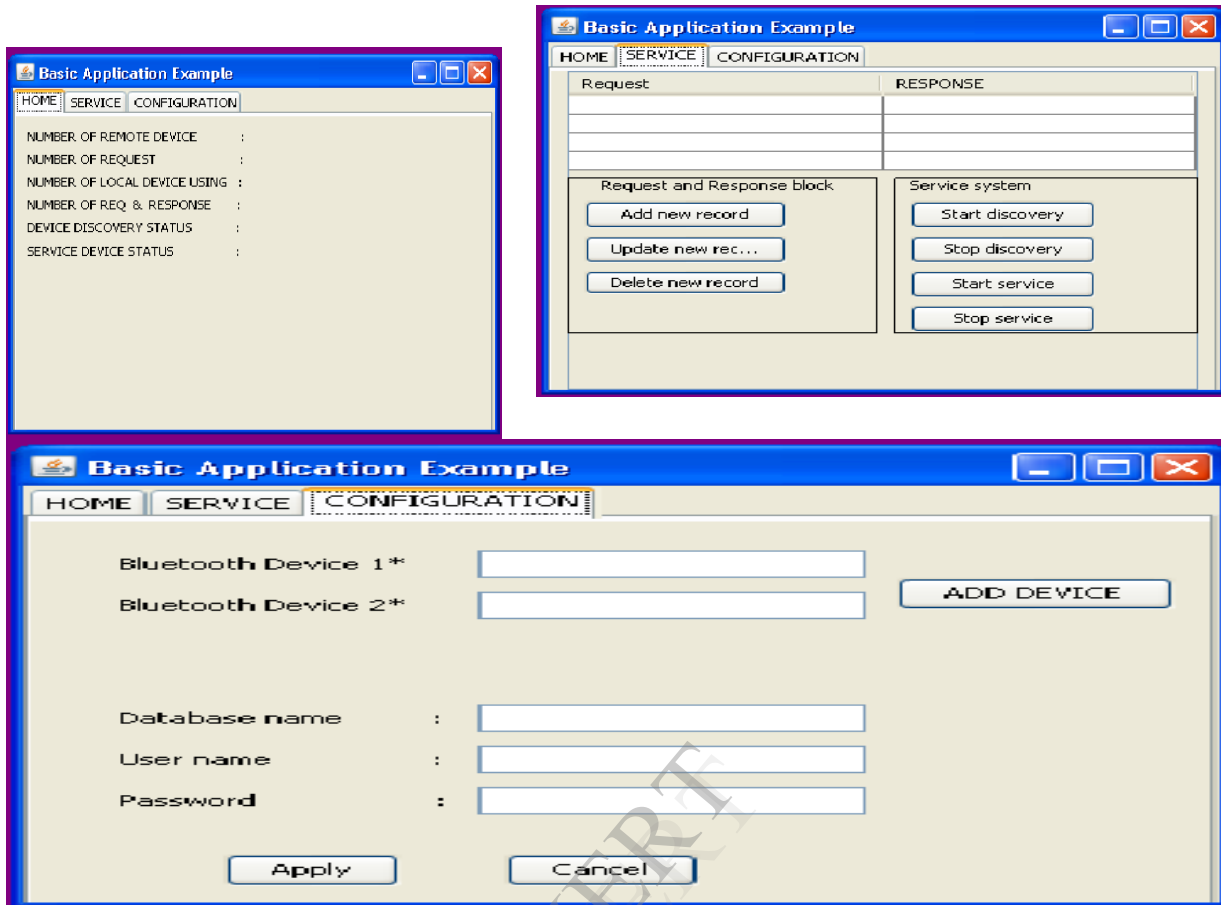

Fig.2 FLOW DIAGRAM

Figure.3 configuring the blue cast server

Figure 3 shows the configuring of the blue cast server we created through java Net beans. The database design is also done using the ORACLE 10 g software. This blue cast server is designed in the manner that overcomes many disadvantages explained in the existing servers.

4. BLUECASTING EXPERIENCE:

This section investigates several issues related to blue casting.

4.1BLUESPAM

Bluespam is a potential problem related to blue casting. This problem can be illustrated through a small scenario

For e.g. two friends travelling in a bus that has Bluetooth server wishes to transmit data between them.

so when transmitting the data sending between them may interrupt due to the bluecast server sending its data continuously. it causes a major drawback.

This scenario describes a very important problem with BT broadcasting. If mobile users start to get bluecast they really do not want, blue casting will be only seen as a new spam infested communication channel (Bluespam). The problem is actually worse than for email spam. Even if email spam is annoying, the real emails will usually come through. For the situation described above, Bluespam can actually block all other BT communication - devaluating the usefulness and flexibility of BT. We have explored ways to avoid this problem, and identified some approaches that can be used to avoid Bluespam. Broadcast only to registered devices. A way of avoiding Bluespam is to only broad cast to mobile devices that have
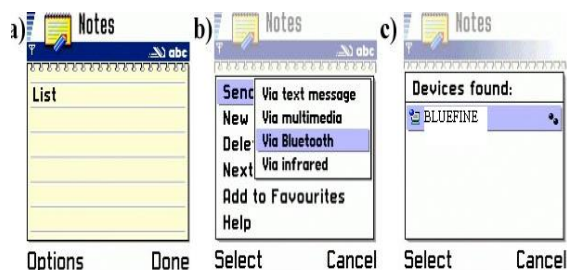

Fig.3 client side device detect

registered for this service. Such a registration can be carried out on a web-page or also directly from the mobile phone through a WAP page. This solution also carries the same problem as the solution above that some user would find this a technical challenge. This approach would also require that the mobile user will have to give his BT ID to a third party that can be a potential threat to user privacy. For some users this will not be a problem, but for others it would be out of the question to give away their BT ID.

4.2FILE TYPE THAT CAN BE TRANSMITTED:

By using Blue fine server we can transmit any type of data to the client device. The four different types of devices we looked at were mobile phones running Symbian OS (e.g. Nokia and Sony Ericsson), Palm OS PDAs, Windows Mobile PDAs and Windows XP laptop computers. The file types that are usually supported in commercial blue casting systems are text files, images, animations, audio, video, Java applications, vCard (business card files) and vCal (calendar event files). The tests we performed showed that the limitations of file formats are restricted only by the capabilities of the receiving devices. The tests also showed that the different types of mobile devices handled receiving files in different ways. A Symbian OS mobile phone can receive any file type into the inbox, but few files types apart from text, calendar information, pictures, audio and video can be shown on the device. If an unsupported file is received, this file can be transferred to a computer that has the software to support the file format. For file types that are supported by the OS, the user can launch the application by opening the file in the Inbox directly.

We transfer the data or video or song or any type of data the user requesting while travelling can be received. The user waiting for train in railway station or bus stand or airport can receive some useful data s such as train timing, bus timing or any special arrangements of transport facilities are transmitted based on user request to client from server.

5. CONCLUSION:

A blue cast server that is much efficient is created and the demerits explained in the existing server systems are overcome. The answers for the four research questions were also found.

RQ1: Is Bluetooth suited for broadcasting?

Bluetooth" stated that a Bluetooth device can send to seven other devices at the same time, and that the maximum speed is 723.1 kilobit per second, or roughly 90 kilobyte per second, about the same speed as the slower broadband Internet connections today. The speed would go down when more users are downloading at the

same time, obviously. With seven users at the same time, the speed would go down to roughly 12-13 kilobyte per second, but that is the maximum speed. Interference and other influence might lower the speed even further, leaving roughly the speed of dial up Internet connections. For practical reasons, sending large files over Bluetooth should therefore probably be limited to situations where it is not assumed to be many users at the same time.

RQ2: What kind of information can be sent with a Bluetooth broadcast?

The Bluetooth technology by itself does not really have any limitations on the data that can be sent, except for the fact that Bluetooth transfers are somewhat slow, making it unpractical to transfer large files over Bluetooth.

RQ3: Can Bluetooth broadcasting be done in a way which does not compromise users' Privacy?

This has three advantages related to user privacy:

1. It will not send requests to users without them asking for it first.

2. It does not need to log user details to avoid sending the same info again, making it

Possible to set up a broadcast which does not log any user details at all.

3. The users do not even need to set their devices to "Discoverable". When the users send the command for requesting information, their Bluetooth ID will also be sent, and this Bluetooth ID is sufficient for the broadcasting station to send the reply.

RQ4: What usage area(s) would Bluetooth broadcasting be best for?

When starting this project, there were mainly three usage areas that were considered for Bluetooth broadcasting:

1. File sharing, like sharing documents in a workspace like a university or company, or sharing multimedia files like video clips or photo albums with friends in a club or school society.

2. Sending compact information to (often anonymous) visitors of a place like a hospital or a company.

3. Send information to large groups of people in special happenings like fairs, festivals and similar events.

5. REFERENCES:

[1]Bluetooth SIG: The Official Bluetooth Membership Site - http://www.bluetooth.org

[2] Bluetooth Core Specification Version 1.1, Bluetooth SIG (1999)

[3] Bluetooth Proximity Marketing, http://www.bluetomorrow. Com/content/section/392/513.

[4]Filter UK. Blue Casting from Filter. http://www.bluecasting.com, 2006.

[5] LondonDev Business Solution. Broad Tooth Homepage - the Bluetooth broadcasting system. http://www.broadtooth.com, 2006.

[6] Midletsoft. Jellingspot.com - Aren't you Jelling spot enabled? http://www.jellingspot.com, 2006.

[7] Blue Blitz. Blue Blitz Mobile Marketing - Proximity Marketing. http://www.blueblitz.com, 2006.

[8]Is Bluetooth Broadcasting Practical and Useful?
Alf Inge Wang and Johan Ho
Dept. of Computer and Information Science
Norwegian University of Science and Technology
N-7491 Trondheim, Norway
alfw@idi.ntnu.noho@idi.ntnu.no