

# Implementation of Broadcasting System Using Bluetooth

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**Abstract-** Broadcasting system using Bluetooth is one of latest growing technology of Bluetooth in fields like marketing, publishing ads by transferring of data to more number of Bluetooth based mobiles at a time. This system runs on ARM Linux operating system and S3C 2440 processor achieves single point, multi point transmission and information update based on Bluetooth 2.0 specifications. This system uses Blue Z protocol stack and object exchange(OBEX) were utilized to complete multipoint transmission.

**Keywords –** Bluez Stack, Obex protocol.

## I. INTRODUCTION

The Bluetooth technology is one of most commonly available wireless communication is most of the mobiles . Several companies are currently developing Bluetooth broadcasting systems to use for marketing.

One of the major issue with the Bluetooth which might affect a broadcast, the most noticeable of them being the somewhat low transfer rate, an issue with device discovery not always working when a lot of users are doing device discovery at the same time. The fact that it only supports seven connections is also a limitation. Basically, while it is possible to use Bluetooth for broadcasting, it might be problematic to use it for targeting a large audience.

This project deals with Bluetooth broadcasting for delivering information for more general purposes with ENHANCED DATA RATES. In this project, Embedded Bluetooth Information Broadcast System (EBIBS) based on ARM9 microprocessor S3C2440 was designed and implemented. This system runs on ARM-Linux operation system and achieves single point transmission, multi-point transmission and information update based on Bluetooth 2.0 specifications. BlueZ protocol stacks and object exchange (OBEX) were utilized to complete Multi-point Transmission.

## II. PROPOSED SYSTEM

### 2.1 .Block Diagram–

In the proposed system we can transfer data to any number of Bluetooth based mobiles which are in communication range better than existing system because in that system after terminating the all the child process in piconet new child process get data, but in the proposed system after terminating one child process of piconet new ones allowed so it give best results.

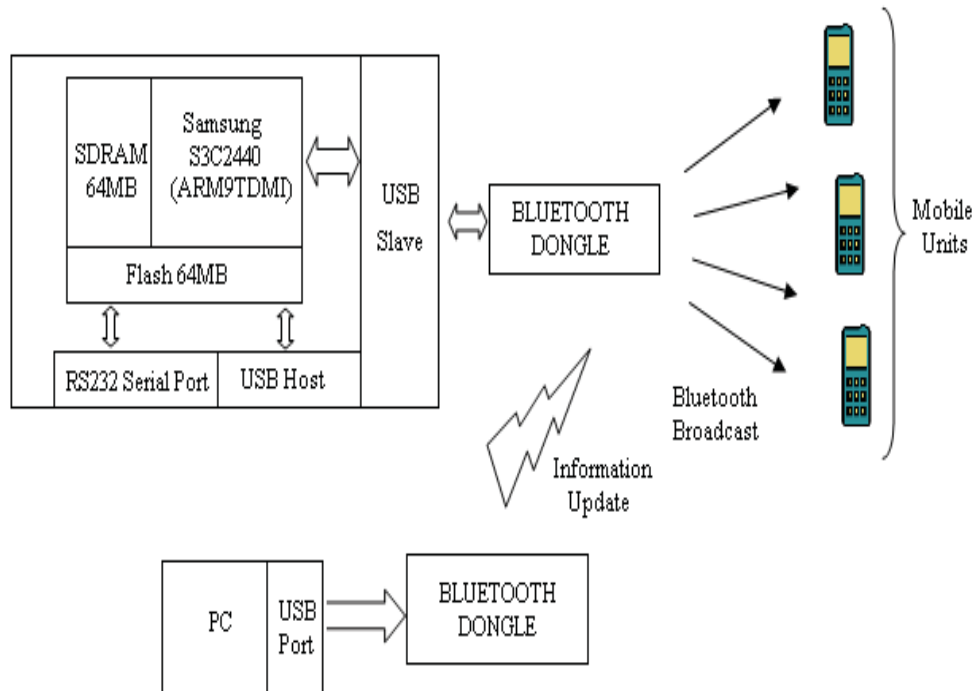


Figure 1. Bluetooth based Broadcasting system Block Diagram

2.2 .Implementation process–

The process is based on OBEX protocol and usesOPENOBEX function libraryachieves object push on some remote device. OPENOBEX function library completes session layer operation and corresponding object model description of OBEX protocol. Fig. shows complete process of object push.

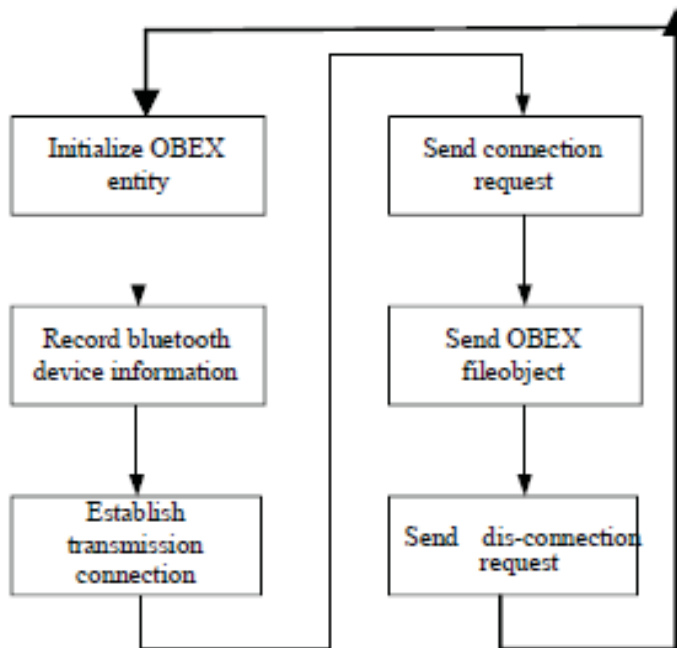


Figure 2. System implementation Diagram

### 2.3.packages–

#### Bluez

Bluez is the Bluetooth stack for linux. Its goal is to make an implementation of the Bluetooth wireless standards specifications for Linux. As of 2006, the BluZ stack supports all core Bluetooth protocols and layers. It was initially developed by Qualcomm, and is available for Linux kernel versions 2.4.6 and up.

In addition to the basic stack, the bluez-utils and bluez-firmware packages contain low level utilities such as dfutool which can interrogate the Bluetooth adapter chipset to determine whether its firmware can be upgraded. hidd is the Bluetooth human interface device (HID) daemon.

Bluetooth is defined as a layer protocol architecture consisting of core protocols, cable replacement protocols, telephony control protocols, and adopted protocols. Mandatory protocols for all Bluetooth stacks are: LMP, L2CAP and SDP. In addition, devices that communicate with Bluetooth almost universally can use these protocols: HCI and RFCOMM.

The Bluez package is an important to develop an broadcasting system on linux platform. Because bluez provides all needed base to operate on bluetooth in linux Os. steps to install an bluez based package is given below.

1. ./configure --prefix =/usr
2. Make
3. Sudo Make install.

#### Obex

The object model addresses the question of how objects are represented by OBEX. The model must deal with both the object being transferred and information about the object. It does this by putting the pieces together in a sequence of headers. A header is an entity that describes some aspect of the object, such as name, length, descriptive text, or the object body itself.

#### OBEX Headers:

Headers have the general form:

<HI, the header ID>

<HV, the header value>

HI, the header ID, is an unsigned one-byte quantity that identifies what the header contains and how it is formatted. HV consists of one or more bytes in the format and meaning specified by HI. All headers are optional - depending on the type of device and the nature of the transaction, you may use all of the headers, some, or none at all. IDs make headers parseable and order independent, and allow unrecognized headers to be skipped easily. Unrecognized headers should be skipped by the receiving device.

(1) OBEX-INIT() function is used to initiate OBEX entity, including initiate transform type, socket description, maximum size of send packet and maximum size of receive packet and then return a entity handle.

(2) Store target Bluetooth device address, object push service channel number and information file name to corresponding local variables.

(3) Call BtOBEX\_TransportConnect() function establish transmission connection. The function firstly initiate transmission attributes of local and remote OBEX entities and then call socket () system function to create local socket. The bind () function is used to bind socket and process and connect () function is used to connect local device socket and remote socket. Finally return connect () system call. If the return value is 0, it indicates the connection is successful.

(4) Broadcast system send connect request to remote device. It firstly call OBEX-ObjectNew () function to create a send request object and then call OBEX-Client () to write request into local device, and then send it out. At this moment, broadcast system calls OBEX-HandleInput () function to wait for response signal of remote device. The function call select () and register socket between broadcast system and remote device so that system can listen to events on the socket. After remote device responds, the function will read and process received data, otherwise the

function will block. If returned event variable is OBEX\_RSP\_SUCCESS, it says that remote device respond successfully.

(5) Send file object to remote device. Firstly, build\_object\_from\_file () function is used to create file object. The function will access related file information about file content, size and send the object out. Then it waits for response from remote device. The response indicates successful file transmission.

(6) Send disconnect request to remote device. As same to send connect request, after remote device successfully respond, it disconnects.

*Bluetooth Stack :*

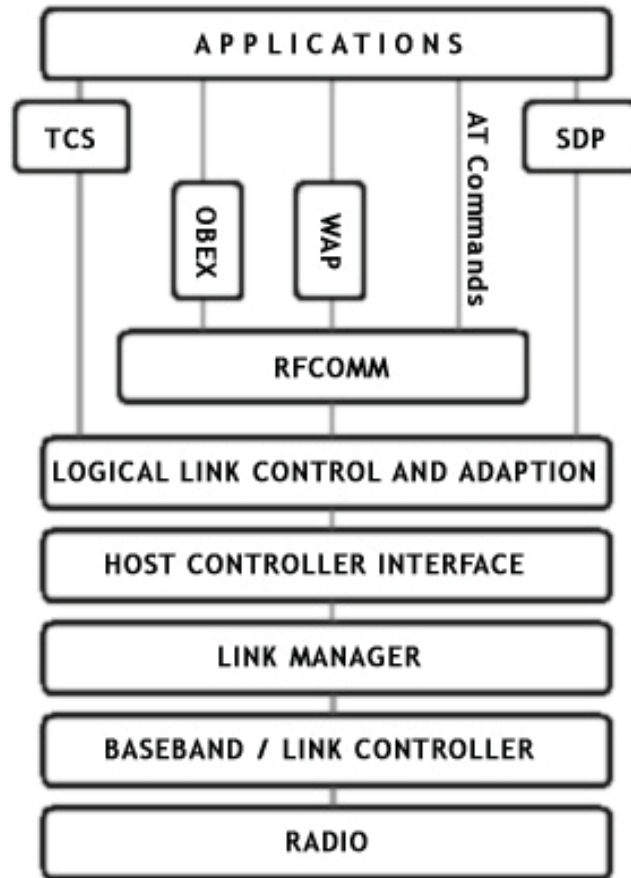
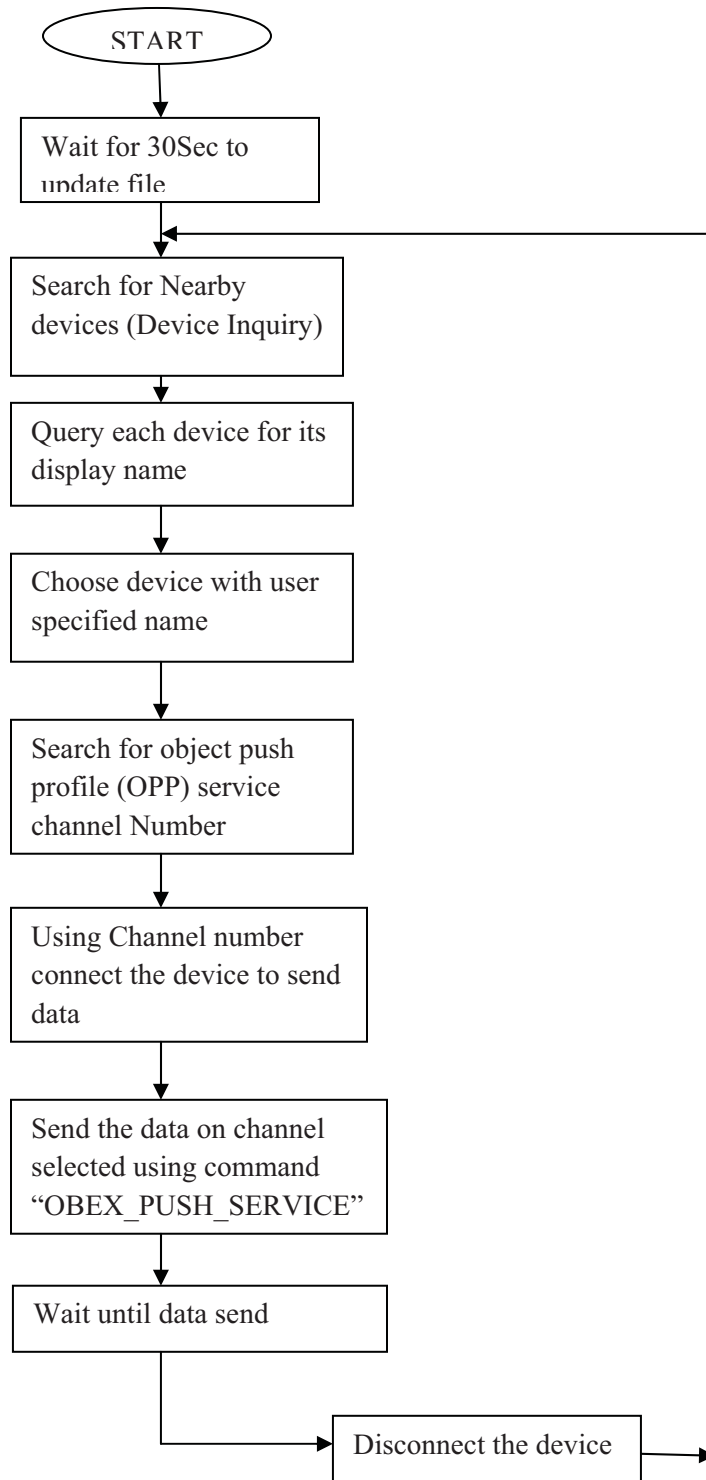


Figure3 .Bluetooth Stack

*III.flowchart–*



#### IV.CONCLUSION

The project “Implementation of Broadcasting System Using Bluetooth” has been successfully designed and tested. It implements BlueZ protocol stack and Open OBEX function library based on ARM-Linux with ARM hardware platform. The information broadcast and update function is achieved based on Bluetooth 2.0 protocol. The focus is on information multicast. It is low cost, high reliability, real-time and can be flexibly extended. It also has good portability and interactive features. The program can be applied to variety municipal and public place propaganda system combining with multimedia technologies. It can also be used form publish of commercial advertisements, private organizations for internal communications .In future we can increase the communication range of Bluetooth by antenna in Bluetooth dongle.

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