Government Polytechnic Solapur

MICROPROJECT

Mobile Application Development (22617)

PROJECT TOPIC – *Bluechat*

2021-2022

CERTIFICATE

Maharashtra State Board Of Technical Education, Mumbai

GOVERNMENT POLYTECHNICS, SOLAPUR

Subject: Mobile Application Development(22617)

Topic :- Bluechat

Submitted by:

Roll No.	Name
52	Sufiyan Sajid Shaikh

Of third semester of diploma in Computer in Technology of institute **Government Polytechnic, Solapur (0015)** have completed the micro project work satisfactorily under the guidance of **Ms. S.S. Dhawre** in the academic year 2021-2022 as prescribed in the I-Scheme curriculum

Project guide H.O.D Principal

Acknowledgement

We wish to express our profound and sincere gratitude to our guide **Ms. S.S. Dhawre** who guided us in the structure of micro project as well as some main points in that micro project also they cleared our all doubts about micro project .We are Indebted to his constant encouragement, co-operation and help .It was his enthusiastic support that helped us in overcoming various obstacles in the project.

We would also like to express our thankfulness to our beloved Principal as well as HOD and other faculty members of our second-year department for extending their support and motivation

Finally, we completed our micro project that regarding to our syllabus as well as department, once more thanks for all Group members**, Principal, HOD** and other Faculty Members who helped us in the micro project completion.

Thanks!!

PART A – Micro-Project Proposal

Bluechat

1.0 Brief Introduction

In this micro-project I developed a android application in which you can chat with anyone using Bluetooth

2.0 Aim of the Micro-Project (in about 1 to 2 Sentences)

Aim of this micro-project is to develop a Mobile Application using it 2 people can chat by connecting mobile using Bluetooth.

3.0 Intended Course Outcomes

a. Interpreted features of Android operating system.
b. Configure android environment and development tools.
c. Develop rich user interfaces by using layout and controls.
d. Use User Interface components for android application development.

4.0 Literature Review

We searched information for the suggested topic by our industry guide. Collected the data required for the project. We did some experiments to make different models easier to understand.

5.0 Proposed Methodology

1. First searched for the suggested micro-project.
2. Collected information for the suggested topic.
3. Started for the micro-project.
4. Completed micro-project.
5. Showed to respected teacher.
6. Teacher regarded of some changes.
7. Done the changes into the project as told by teacher.

6.0 Resources Required.

S. No.	Name of Resource/material	Specifications	Qty	Remarks
1	Laptop / PC	Windows 10	2	-
2	Internet	Website	1	-
3	Printer	HP inkjet 120 plus	1	
4				

7.0 Action Plan (Sequence and time required for major activities for 8 Weeks)

S. No.	Details of activity	Planned Start date	Planned Finish date
1	Searched for topic of micro-project	20/03/2022	24/03/2022
2	Topic searched:- 1. PDF viewer 2. bluechat	24/03/2022	30/03/2022
3	Discussed with teacher about the topic	30/03/2022	1/03/2022
4	Teacher approved for bluechat	1/04/2022	1/04/2022
5	Created prototype of our project	3/04/2022	04/04/2022
6	Started for developing the activities	15/04/2022	20/04/2022
7	Created activities	15/04/2022	20/04/2022
8	Linked each of the pages to each other also to index page	15/04/2022	20/04/2022
9	Completed the total application	20/04/2022	22/04/2022
10	Showed Application to teacher and she suggested some corrections	24/04/2022	24/04/2022
11	We made the suggested correction	25/04/2022	28/04/2022
12	Teacher approved the application	30/04/2022	1/05/2022

Abstract

In this micro project I developed an Android application named bluechat. Using this application 2 people can chat with each other using Bluetooth. This application allows user to Host a chat room. This room can be joined by Connecting to that device using Bluetooth from application. After connecting User can send and receive text messages.

In this application I have used Bluetooth to establish connection between devices. It uses inbuild Bluetooth Adapter to communicate to other devices. User can host a connection or Request to for connection to a device. That device can a paired device or a new Bluetooth device.

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PART B – Micro-Project Report

Title of Micro-Project:

Bluechat

1.0 Rationale

In this micro project I developed an Android application named bluechat. Using this application 2 people can chat with each other using Bluetooth. This application allows user to Host a chat room. This room can be joined by Connecting to that device using Bluetooth from application. After connecting User can send and receive text messages.

2.0 Course Outcomes Addressed

a. Interpreted features of Android operating system.
b. Configure android environment and development tools.
c. Develop rich user interfaces by using layout and controls.
d. Use User Interface components for android application development.

3.0 Literature Review

Bluetooth is a short-range wireless technology standard that is used for exchanging data between fixed and mobile devices over short distances using UHF radio waves in the ISM bands, from 2.402 GHz to 2.48 GHz, and building personal area networks (PANs).[1] It is mainly used as an alternative to wire connections, to exchange files between nearby portable devices and connect cell phones and music players with wireless headphones. In the most widely used mode, transmission power is limited to 2.5 milliwatts, giving it a very short range of up to 10 metres (33 ft).

Universally Unique Identifiers, or UUIDS, are 128 bit numbers, composed of 16 octets and represented as 32 base-16 characters, that can be used to identify information across a computer system. This specification was originally created by Microsoft and standardized by both the IETF and ITU

On the client side, use a single BluetoothSocket to both initiate an outgoing connection and to manage the connection. The most common type of Bluetooth socket is RFCOMM, which is the type supported by the Android APIs. RFCOMM is a connection-oriented, streaming transport over Bluetooth.

4.0 Actual Methodology Followed

1. Create New project in Android Studio
2. Imported required images in drawable folder
3. Created activities for Requesting and Hosting
4. Write necessary code in Activates
5. Created Intents to go to next Activity
6. Added BLUETOOTH permissions in AndroidManifest.xml
7. Created User Interface
8. Build Application
9. Tested Application

5.0 Resources Required

S. No.	Name of Resource/material	Specifications	Qty	Remarks
1	*Android Studio*	2019	1	
2	*Bluetooth device*	Any	1	
3	*Android Device*	API level 21 or higher	1	
4	*Laptop/pc with Internet connection*	Windows 10/minimum 2Mbps speed	1	

6.0 Output of Micro-project

6.1 Source code : -

Android_manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.bluechat">

    <uses-permission android:name="android.permission.BLUETOOTH" />
    <uses-permission android:name="android.permission.BLUETOOTH_ADMIN" />
    <uses-permission android:name="android.permission.BLUETOOTH_ADVERTISE" />
    <uses-permission android:name="android.permission.BLUETOOTH_CONNECT" />
    <uses-permission android:name="android.permission.BLUETOOTH_SCAN" />
    <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher"
        android:supportsRtl="true"
        android:theme="@style/Theme.Bluechat">
        <activity android:name=".Chat"/>
        <activity android:name=".HostConnection" />
        <activity android:name=".searchDevice" />
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
```

```
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">

<ImageButton
    android:id="@+id/send"
    android:layout_width="92dp"
    android:layout_height="89dp"
    android:tooltipText="Request"
    android:background="@color/green"
    android:src="@drawable/link_coloured"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.216"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.386" />


<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Request"
    android:textSize="25sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.213"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/send"
    app:layout_constraintVertical_bias="0.058" />

<ImageButton
    android:id="@+id/recieve"
    android:layout_width="92dp"
    android:layout_height="89dp"
    android:background="@color/green"
    android:src="@drawable/host_icon"

    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.575"
    app:layout_constraintStart_toEndOf="@+id/send"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.385" />

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
```

```
        android:text="Host"
        android:textSize="25sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.759"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/recieve"
        app:layout_constraintVertical_bias="0.06" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Developed By : github.com/SEGRR"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.bluechat;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;
import android.Manifest;
import android.bluetooth.BluetoothAdapter;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageButton;
import android.widget.Toast;
import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {
    ImageButton send,receive;
    BluetoothAdapter bt;
    ArrayList<String> arrayList;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        send = findViewById(R.id.send);
        bt = BluetoothAdapter.getDefaultAdapter();

        arrayList = new ArrayList<>();
```

```
        receive = findViewById(R.id.recieve);

        send.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

                if(bt == null)
                {
                    Toast.makeText(MainActivity.this, "THIS DEVICE DOES NOT SUPPORT
BLUETOOTH", Toast.LENGTH_LONG).show();
                }else {
                    if(!bt.isEnabled()){
                        Intent intent = new Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);

                        accesspermission();

                    }

                    Intent intent = new Intent(MainActivity.this,searchDevice.class);
                    bt.enable();
                    startActivity(intent);

                }

            }
        });


        receive.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent = new Intent(MainActivity.this,HostConnection.class);
                bt.enable();
                startActivity(intent);
            }
        });
    }

    public void accesspermission(){

        if(ContextCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION)                                    !=
PackageManager.PERMISSION_GRANTED){
            ActivityCompat.requestPermissions(this,new
String[]{Manifest.permission.ACCESS_FINE_LOCATION},1);
        }
        if(ContextCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION)                                  !=
PackageManager.PERMISSION_GRANTED){
```

```
        ActivityCompat.requestPermissions(this,new
String[]{Manifest.permission.ACCESS_COARSE_LOCATION},2);
      }
      if(ContextCompat.checkSelfPermission(this,  Manifest.permission.BLUETOOTH_ADMIN)  !=
PackageManager.PERMISSION_GRANTED){
        ActivityCompat.requestPermissions(this,new
String[]{Manifest.permission.BLUETOOTH_ADMIN},3);
      }




  }
}
```

Activity_search_devices.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".searchDevice">


  <TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Available Devices"
    android:textSize="25sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.49"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.049" />

  <TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Searching for Nearby Devices"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
```

```
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.28"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.937" />

    <ListView
        android:id="@+id/devices_list"
        android:layout_width="377dp"
        android:layout_height="513dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.4"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.444" />

    <ProgressBar
        android:id="@+id/progressBar2"
        style="?android:attr/progressBarStyle"
        android:layout_width="39dp"
        android:layout_height="48dp"
        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.439"
        app:layout_constraintStart_toEndOf="@+id/textView2"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.951" />


</androidx.constraintlayout.widget.ConstraintLayout>
```

SearchDevices.java

```
package com.example.bluechat;

import androidx.appcompat.app.AppCompatActivity;

import android.bluetooth.BluetoothAdapter;
import android.bluetooth.BluetoothDevice;
import android.bluetooth.BluetoothSocket;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
```

```
import android.util.Log;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;

import java.io.IOException;
import java.util.ArrayList;
import java.util.Set;
import java.util.UUID;

public class searchDevice extends AppCompatActivity {

    BluetoothAdapter bt;
    ArrayList<BluetoothDevice> availableDevices;
    ArrayAdapter<String> device_list;
    ArrayList<String> arrayList;
    BroadcastReceiver receiver;
    ListView lv;
    BluetoothSocket mmSocket;
    UUID uuid;
    String connected_device;
    Handler handler;
    public static BluetoothSocket bluetoothSocket;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_search_device);

        uuid = UUID.fromString("a2932642-bd7e-11ec-9d64-0242ac120002");

        availableDevices = new ArrayList<>();

        arrayList = new ArrayList<>();
        lv = findViewById(R.id.devices_list);
        bt = BluetoothAdapter.getDefaultAdapter();
        handler = new Handler();
        Set<BluetoothDevice> pairedDevices = bt.getBondedDevices();

        if(!bt.isEnabled())
            bt.enable();


        if(pairedDevices.size() > 0) {
            for (BluetoothDevice device : pairedDevices) {
                availableDevices.add(device);
                arrayList.add(device.getName());
            }
```

```
    }
    device_list = new ArrayAdapter<String>(searchDevice.this,android.R.layout.simple_list_item_1,arrayList);
    lv.setAdapter(device_list);

    receiver = new BroadcastReceiver() {
      public void onReceive(Context context, Intent intent) {
        String action = intent.getAction();
        if (BluetoothDevice.ACTION_FOUND.equals(action)) {
          BluetoothDevice device = intent.getParcelableExtra(BluetoothDevice.EXTRA_DEVICE);
          availableDevices.add(device);
          arrayList.add(device.getName());
          //Log.i("Bluetooth Devices : ",device.getName());
          device_list.notifyDataSetChanged();
        }


      }
    };

    lv.setOnItemClickListener(new AdapterView.OnItemClickListener() {
      @Override
      public void onItemClick(AdapterView<?> adapterView, View view, int i, long l) {
        // Toast.makeText(searchDevice.this, ""+i, Toast.LENGTH_SHORT).show();

        BluetoothDevice selectedDevice =  availableDevices.get(i);
        connected_device = selectedDevice.getName();
        Toast.makeText(searchDevice.this, "Connecting To "+selectedDevice.getName(), Toast.LENGTH_SHORT).show();
        BluetoothSocket tmp = null;

        try {
          // Get a BluetoothSocket to connect with the given BluetoothDevice.
          // MY_UUID is the app's UUID string, also used in the server code.
          tmp = selectedDevice.createRfcommSocketToServiceRecord(uuid);
        } catch (IOException e) {
          Log.e("ERROR", "Socket's create() method failed", e);
        }

        mmSocket = tmp;

        Thread  connectToDevice = new Thread(new Runnable() {
          @Override
          public void run() {
            // bt.cancelDiscovery();
            try {

              mmSocket.connect();
```

```
                    if(mmSocket.isConnected()){
                        manageMyConnectedSocket(mmSocket);
                    }
                } catch (IOException connectException) {
                    try {
                        mmSocket.close();
                    } catch (IOException closeException) {
                        Log.e("ERROR", "Could not close the client socket", closeException);
                        Toast.makeText(searchDevice.this, "Cannot connect to This device", Toast.LENGTH_SHORT).show();
                    }
                }
            }
        });

        connectToDevice.start();
    }
});


}

public  void manageMyConnectedSocket(BluetoothSocket mmSocket){

    bluetoothSocket = mmSocket;
    Intent intent = new Intent(getApplicationContext(),Chat.class);
    intent.putExtra("connected_device",connected_device);
    startActivity(intent);
}



public void onDestroy(){
    super.onDestroy();
    unregisterReceiver(receiver);
}

}
```

Activity_host_connection.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
```

```
    tools:context=".HostConnection">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Waiting For Connection"
        android:textSize="30sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_chat.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".Chat">


    <ScrollView
        android:layout_width="409dp"
        android:layout_height="192dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.051"
        tools:layout_editor_absoluteX="-2dp">

        <TextView
            android:id="@+id/displaymsg"
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:textSize="20dp" />

    </ScrollView>

    <EditText
        android:hint="Enter message"
        android:id="@+id/msg"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.654"
        tools:layout_editor_absoluteX="1dp" />

    <Button
        android:id="@+id/sendbtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Send"
        android:textSize="23dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.128"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.836" />

    <Button

        android:id="@+id/closeConnectionbtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Close connection"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.928"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.834" />


</androidx.constraintlayout.widget.ConstraintLayout>
```

Chat.java

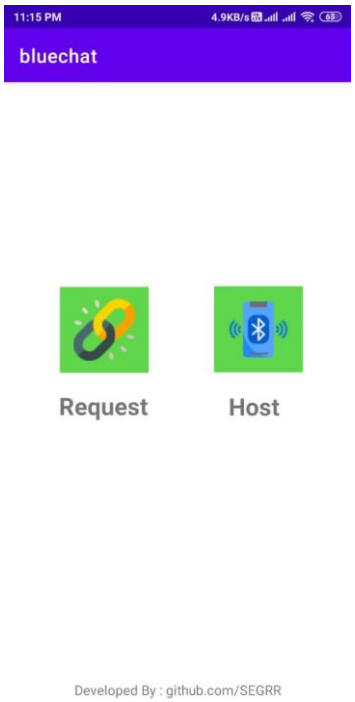
```
package com.example.bluechat;

import androidx.appcompat.app.AppCompatActivity;

import android.bluetooth.BluetoothSocket;
import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
```

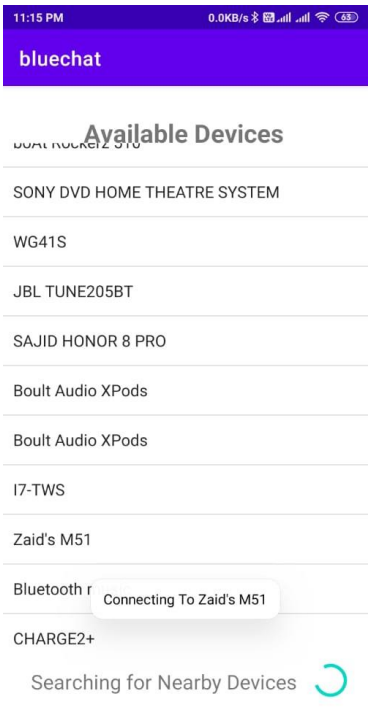
```
import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.io.IOException;

public class Chat extends AppCompatActivity {

    Button send,closeConnection;
    TextView msgbox;
    EditText msginput;
    DataInputStream input;
    DataOutputStream output;
    Handler handler,inputHandler;
    String deviceName;
    public static BluetoothSocket bs;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_chat);

        Toast.makeText(this, "Connection complete", Toast.LENGTH_SHORT).show();

        send = findViewById(R.id.sendbtn);
        closeConnection = findViewById(R.id.closeConnectionbtn);
        msgbox = findViewById(R.id.displaymsg);
        msginput = findViewById(R.id.msg);
        deviceName = getIntent().getStringExtra("connected_device");
        if(HostConnection.bluetoothSocket == null)
            bs=  searchDevice.bluetoothSocket;
        else
            bs = HostConnection.bluetoothSocket;
        try {
            input = new DataInputStream(bs.getInputStream());
            output = new DataOutputStream(bs.getOutputStream());
            handler = new Handler();
            inputHandler = new Handler();

            send.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View view) {
                    String msg = msginput.getText().toString();

                    if(msg.length() < 1){
                        Toast.makeText(Chat.this, "Enter message first ", Toast.LENGTH_SHORT).show();

                    }else{
                        Toast.makeText(Chat.this, "Sending...", Toast.LENGTH_SHORT).show();
                        new Thread(new Runnable() {
```

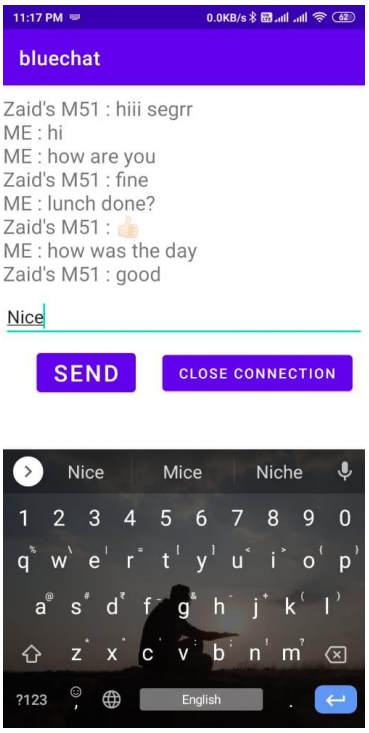
```
            @Override
            public void run() {
                try{
                    output.writeUTF(msg);

                }catch(Exception e) {
                    e.printStackTrace();
                }

                handler.post(new Runnable() {
                    @Override
                    public void run() {
                        String data = msgbox.getText().toString();
                        data += "\nME : "+msg;
                        msgbox.setText(data);
                        Toast.makeText(Chat.this, "Sent", Toast.LENGTH_SHORT).show();
                    }
                });

            }
        }).start();

    }
  }
});

closeConnection.setOnClickListener(new View.OnClickListener() {
  @Override
  public void onClick(View view) {
    Toast.makeText(Chat.this, "Closing Connection", Toast.LENGTH_SHORT).show();

    try{
      bs.close();
      Intent intent = new Intent(Chat.this,MainActivity.class);
      startActivity(intent);

    }catch (Exception e){
      e.printStackTrace();
    }
  }
});


new Thread(new Runnable() {
  @Override
  public void run() {

    while(bs.isConnected()){
```

```
                try{
                    String inputmsg = input.readUTF();

                    inputHandler.post(new Runnable() {
                        @Override
                        public void run() {
                            String data = msgbox.getText().toString();
                            data += "\n"+ deviceName +" : "+inputmsg;
                            msgbox.setText(data);
                        }
                    });
                }catch (Exception e){
                    e.printStackTrace();
                }
            }

        }
    }).start();

    } catch (IOException e) {
        Toast.makeText(this, "Cannot create streams", Toast.LENGTH_SHORT).show();
        e.printStackTrace();
    }
  }

}
```

6.2 Output of project







7.0 Skill Developed / learning out of this Micro-Project

I. learn to develop Android applications
II. Creating Activities
III. Access Bluetooth Adapter
IV. Creating Bluetooth communication socket

8.0 Applications of this Micro-Project

Application of this micro-project is a mini messenger Application. Which can be used to communicate using Bluetooth. This app can be used when you don't any details of receiver like phone number etc. It can be used in cases like small chat in a classroom, when you don't have internet to use other messaging application

9.0 Area of Future Improvement

I. Improvement in GUI
II. More functionalities
III. Optimization in algorithm
IV. Share opened PDF file on multiple devices

Conclusion

From this microproject I learnt do develop real life android applications. I understood all the basic concepts to develop android application. This project taught me how to retrieve files from device and display them. I developed good understanding of UI designing and creating application with many Activities.

References

Sr.no.	Reference	Link
1	BluetoothAdapter	https://developer.android.com/reference /android/bluetooth/BluetoothSocket
2	Bluetooth Permissions	https://developer.android.com/ guide/topics/connectivity/bluetooth/permissions
3	Android documentation	https://developer.android.com/training/data-storage/shared/documents-files
4	RegisterforActivityResult	https://developer.android.com/training/basics/intents/result