WIRELESS COMMUNICATION NETWORKS

APPLICATION REPORT

FATIH SULTAN MEHMET VAKIF UNIVERSITY

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1) used Platform :

- Android studio
- java language

2) **about the project:**

- Our project is about implementing a simple application for peer-to-peer communication using WiFi and Bluetooth. we have to use two Android mobile devices that support Wi-Fi hotspot, Wi-Fi Direct and Bluetooth.

3) project content:

a) Bluetooth application:
After the devices are connected to Bluetooth, users of the application can exchange (send/receive) text messages between each other after doing these steps:

1- make the Bluetooth on by clicking on the button in the application
2- set your username
3- scan the available Bluetooth connections and lists them.
4- send a connection request to any available device.
5- the second device have to accept the request
6- starting texting (send and receive messages)

the classes that we used and explanation:

the main class: BluetoothConnectionService
the extend **class**: AcceptThread -> This thread runs while listening for incoming connections.
It behaves like a server-side client. It runs until a connection is accepted or until canceled.
the extend **class**: *ConnectThread -> This thread runs while attempting to make an outgoing connection with a device. It runs straight through; the connection either succeeds or fails.*
the extend **class**: *ConnectedThread -> Finally the ConnectedThread which is responsible for maintaining the BTConnection, Sending the data, and receiving incoming data through input/output streams respectively.*
the extend **class**: *DeviceListAdapter*

b) wifi application:

after the devices are connected to direct wifi, users of the application can exchange (send/receive) text messages between each other after doing these steps:

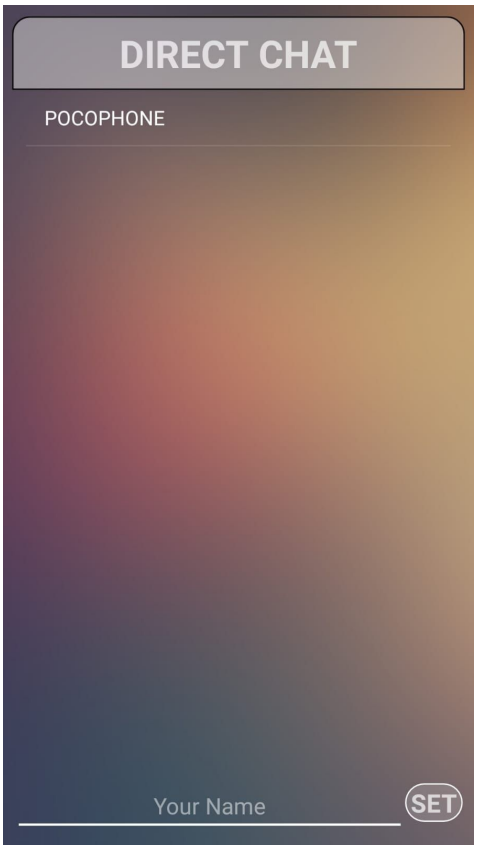
1- make the direct wifi on by clicking on the button in the application
2- set your username
3- scan the available devices and lists them.
4- send a connection request to any available device.
5- the second device have to accept the request
6- starting texting (send and receive messages)

the classes that we used and explanation:

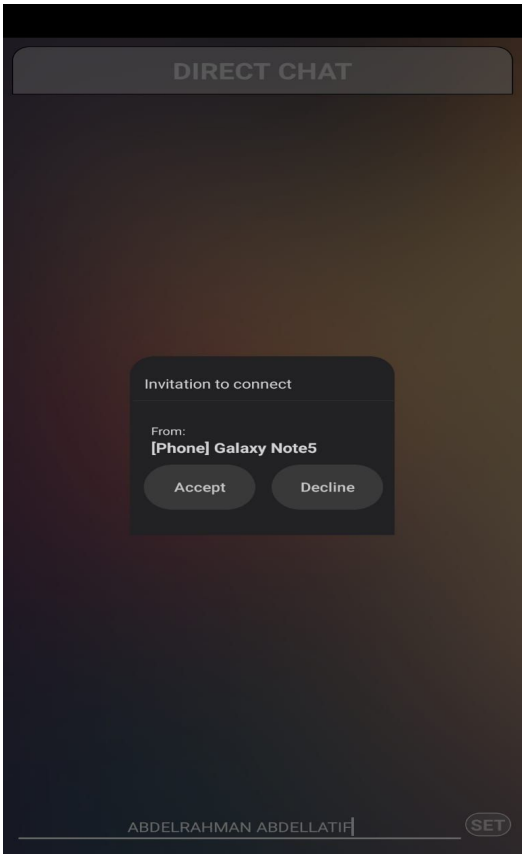
* the main class: **class** User -> that contain the function of sender and receiver
* the extend **class**:**class** WiFiDirectBroadcastReceiver -> Devices can broadcast the services that they provide, which helps other devices discover suitable peers more easily.
* the extend class : Servertask -> Provides constants that are used in the construction of tasks in a project.
* **class** msgNSide: for messages
* the extend class: class MessageServer
* he extend class:**class** DBHelper **extends** SQLiteOpenHelper-> database that save the user information
* the extend class: **class** CustomAdapterArrayAdapter
* the extend class: **class** ClientClass
* the extend class: **class** ChatMessage-> how does the messages seem.

figure 1 :
wifi direct

1) Search & find the mobile
it needs to connect with it



2) invitation to connect



3) chatting

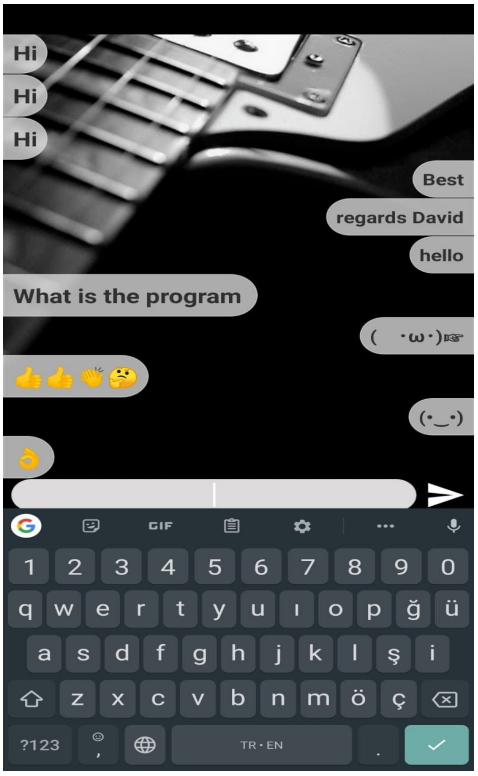
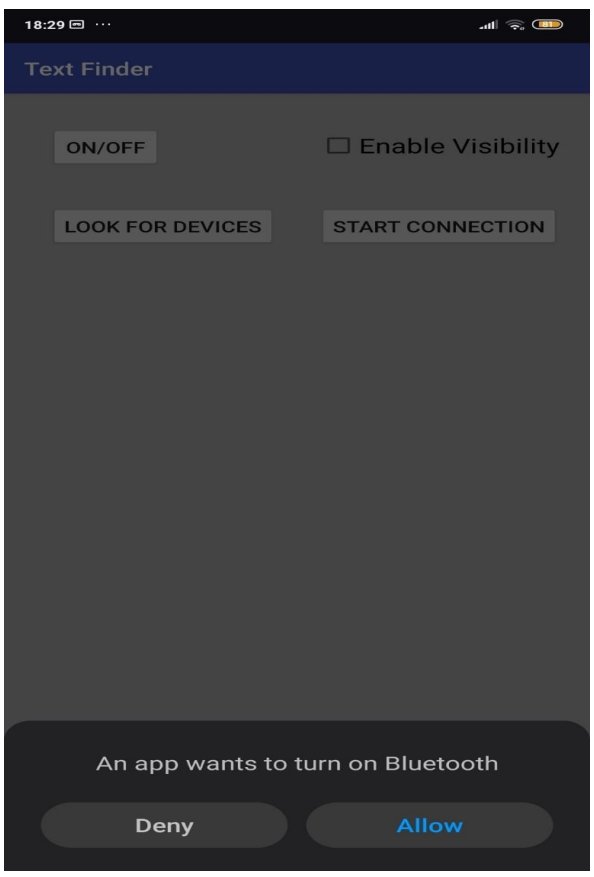
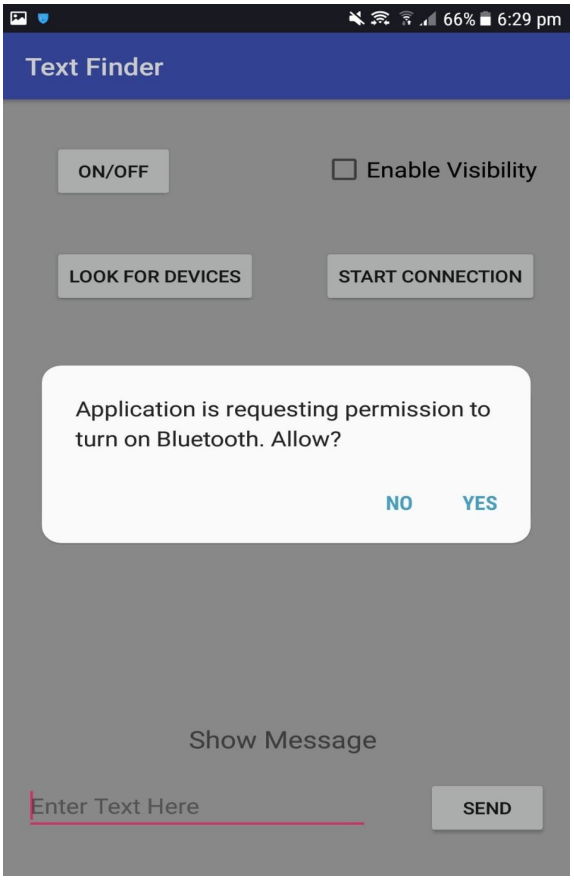


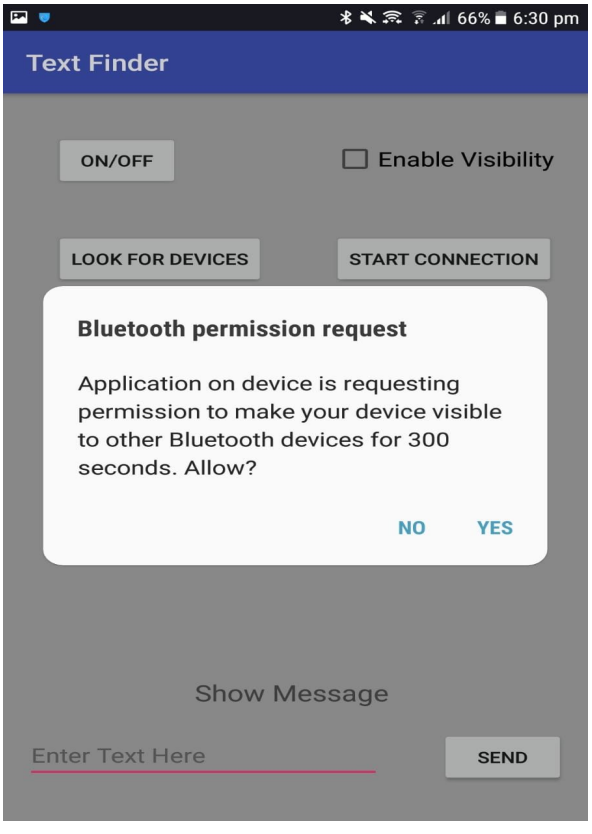
figure 1 :
Bluetooth

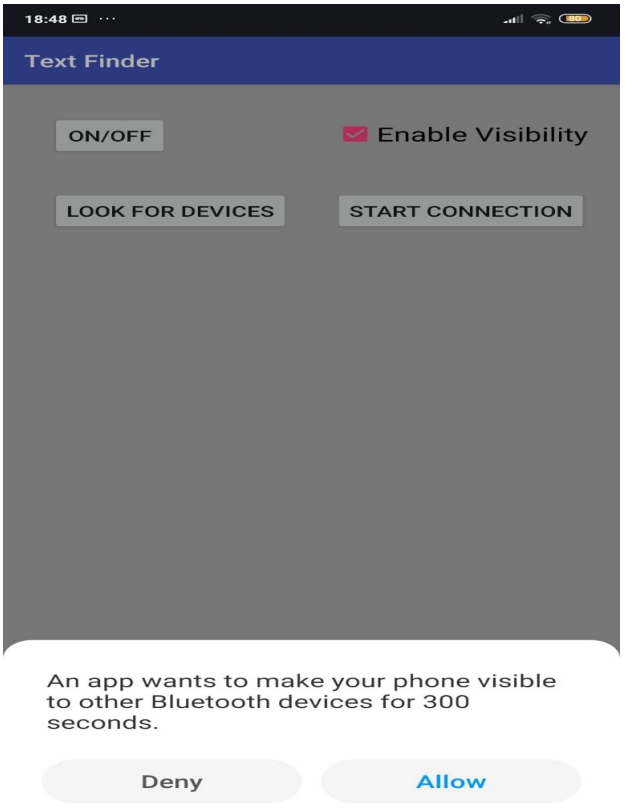
true on Bluetooth for tow mobile



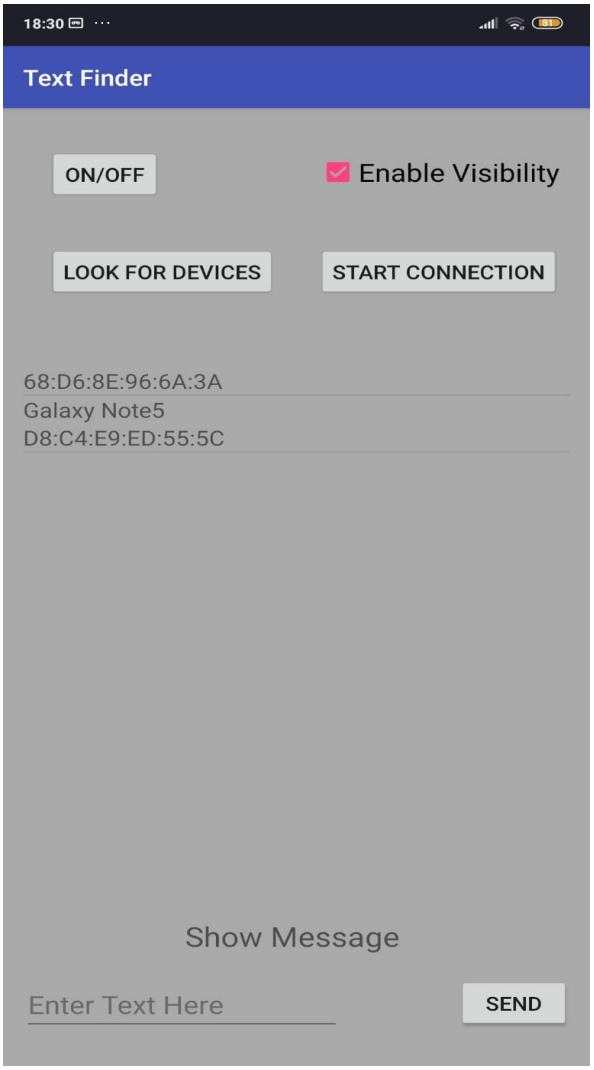


Enable Visibility

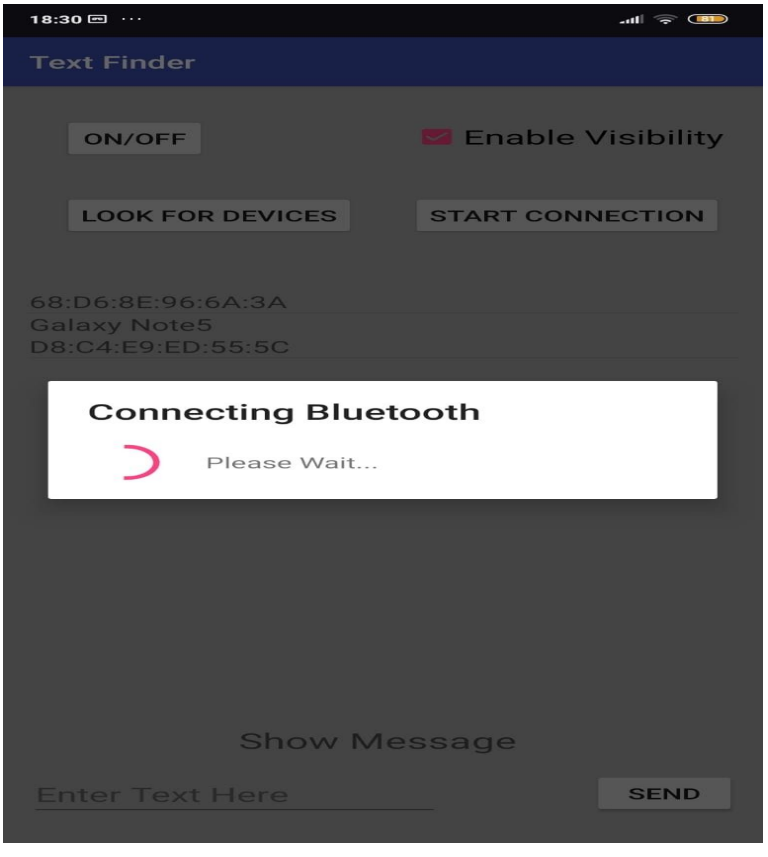




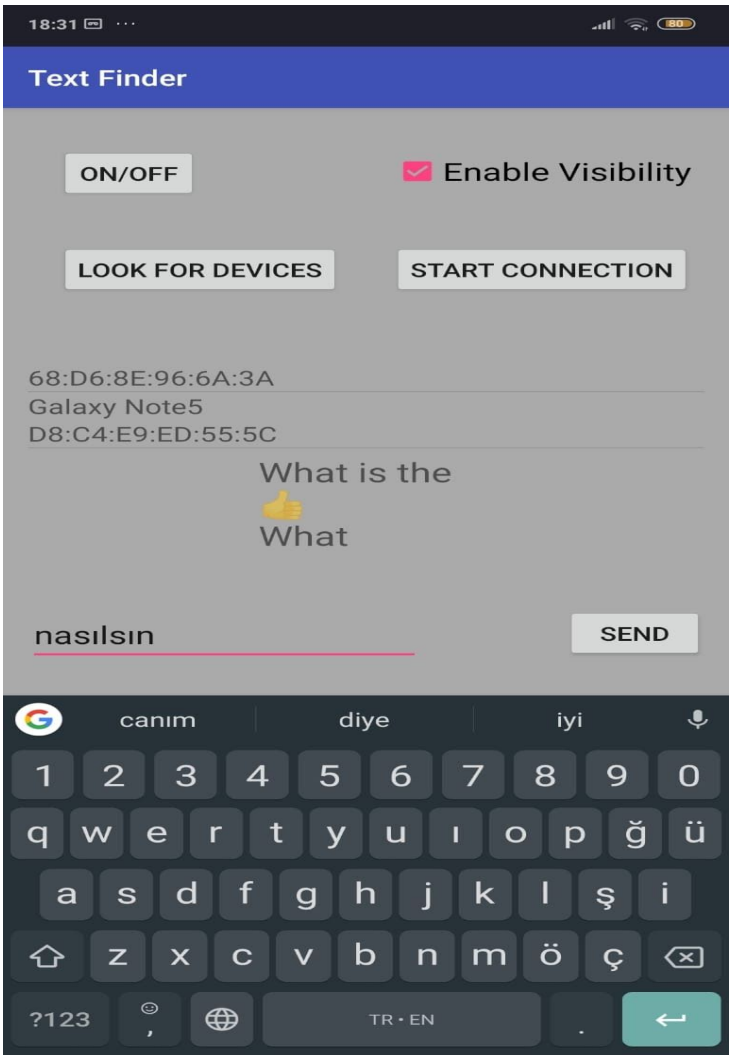
list of Bluetooth Devices

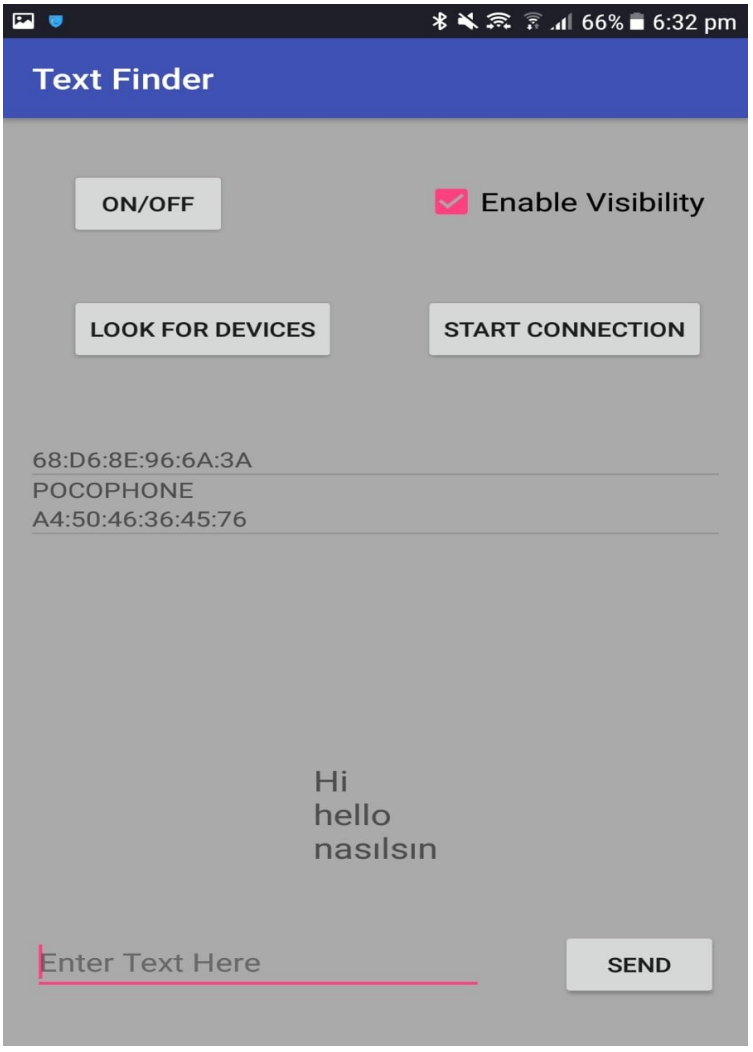


Connecting Bluetooth



Chatting





source :

1-programcreek,2016 <Bluetooth>

2-Sarthi Technology,Mar 5, 2018 ,<wifi>