

Course Assignment II (App)

Introduction

This assignment implements a native android mobile application named Bluetooth Chat App which utilizes XML and Bluetooth (BT) as its web service and APIs (application programming interfaces) respectively for its operations. This app was developed on Android platform using Android Studio and Java as well as XML as programming languages. This app is particularly intended for communication use in places where internet, wifi and mobile data/network such as GSM are absent or too expensive to afford. It is a very useful wireless mobile chat tool designed for short-range, low-power communications in the 2.4 GHz unlicensed band. The current version of Bluetooth standard has a gross data rates of up to 3 Mb/s.

Application Built and Description

The Bluetooth Chat App framework provides access to the Bluetooth functionality through the Android Bluetooth APIs. These APIs let this app wirelessly connect to other Bluetooth devices, enabling point-to-point and multipoint wireless features making it possible to transfer data to other devices in the network circle. The sequence of events when in use are as follows:

- Checking to see if device supports Bluetooth
- Requesting for Bluetooth permission
- Checking to know if Bluetooth is enabled
- Discovering Bluetooth devices
- Listing paired devices
- Connecting to a device
- Write and read text messages/data

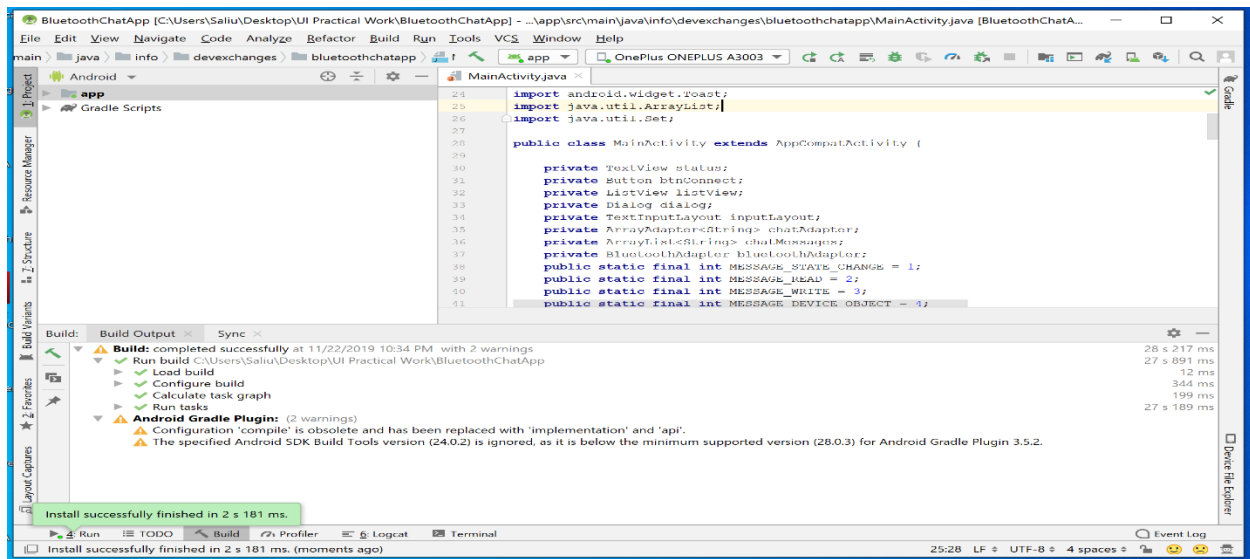


Figure 1. Android Studio showing app development and implementation

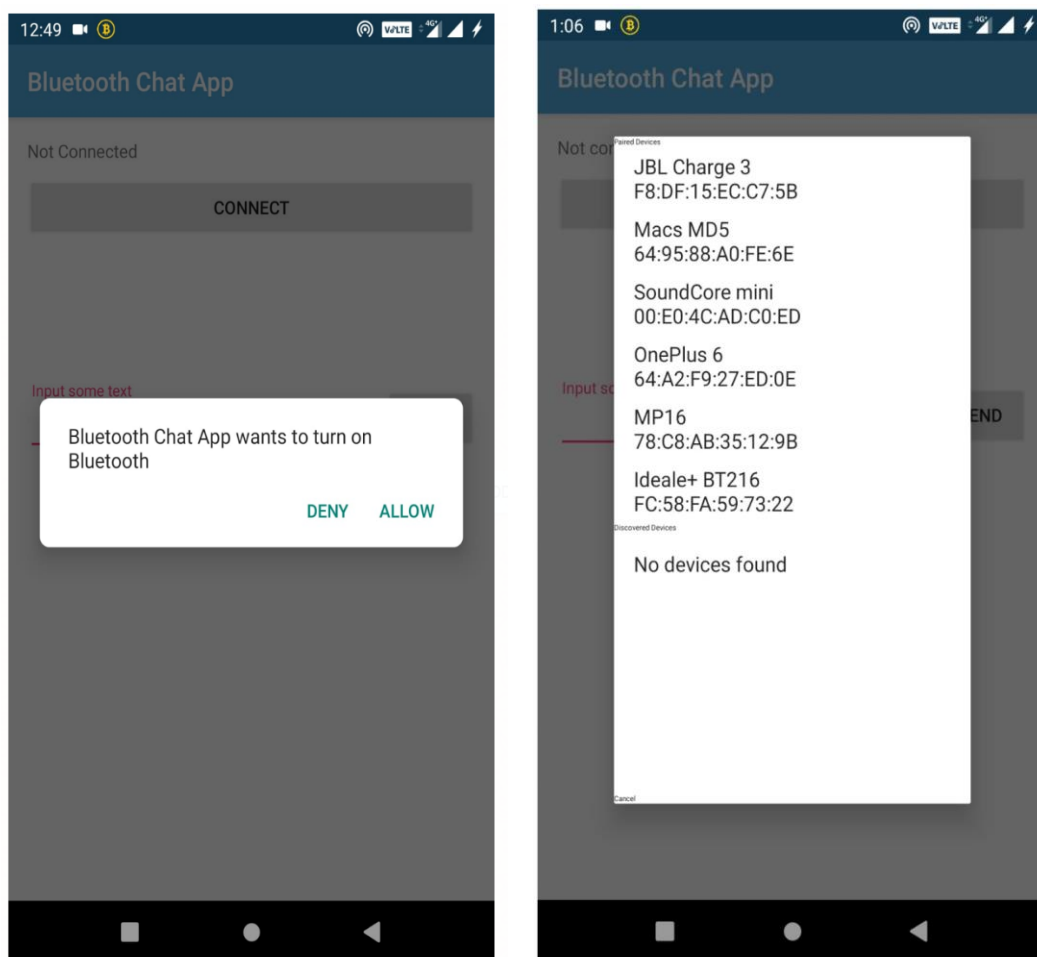


Figure 2. App showing request for BT permission and listed BT devices

Functionalities

Based on the sequence of events the user interface (UI) help accomplished the following:

- Scanning for other Bluetooth devices by pressing “CONNECT” button
- Querying the local Bluetooth adapter for paired Bluetooth devices
- Displaying paired devices
- Establishing radio communication (RFCOMM) channels or sockets with chosen device
- Connecting to remote chosen device
- Transferring data over Bluetooth by pressing “SEND” button after text typing
- Chatting over the mobile through Bluetooth connectivity

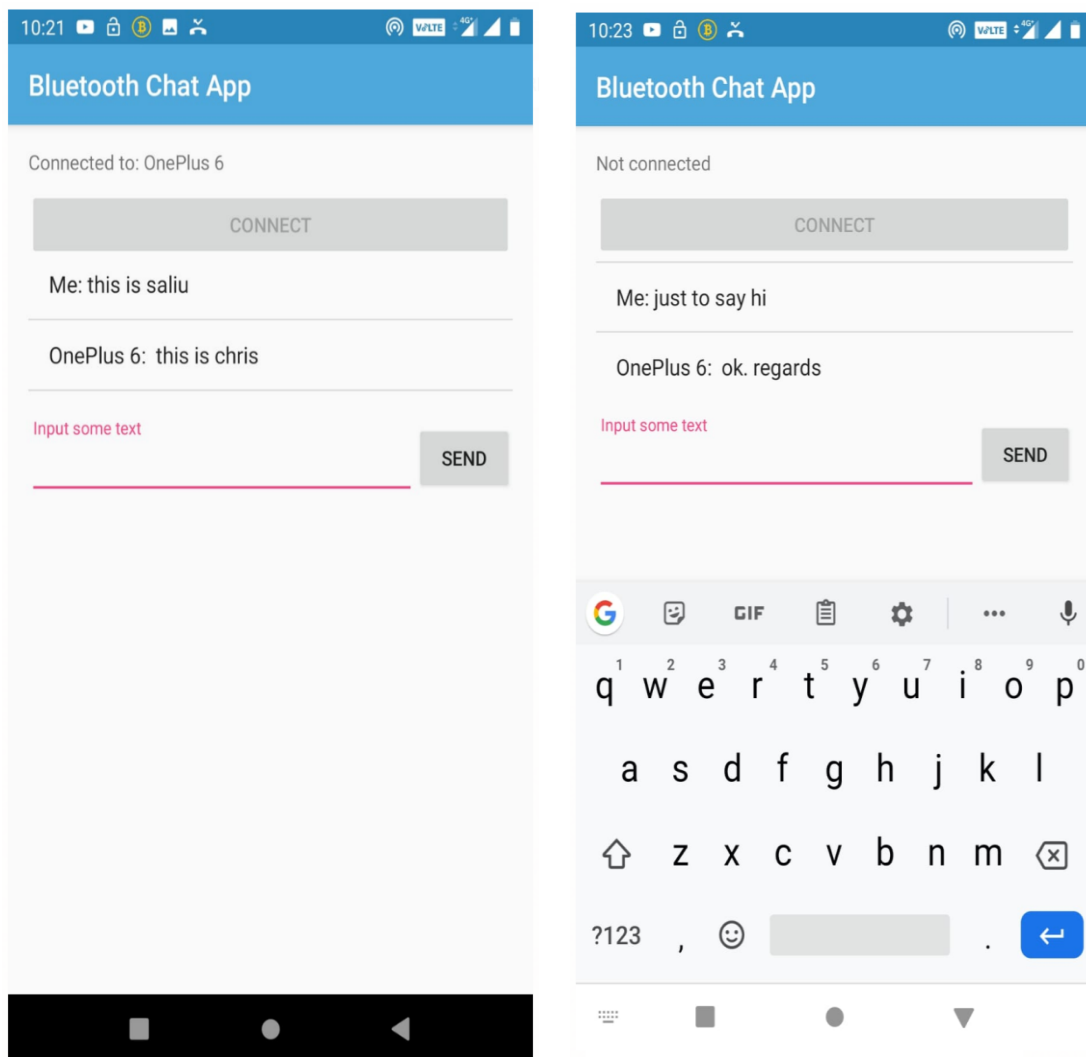


Figure 2. App showing chat messages and transferred data

Conclusion

The development, implementation and testing of this app had approved beyond doubt that it is indeed useful for communications among personal area network (PAN) user devices and a group ad hoc network devices as well as a network access point (NAP) devices especially when associated cost of device connectivity is intended to be completely avoided. The user interfaces are easy to use and follow with a robust implementation quality that is intuitive and simple. The implication would be to encourage the increase use of android smart phone for chat and transfer of data as a means of communication among individual in a group within a close range.

The app implementation strategies are moderately complex and moderately simple to comprehend. Without doubt, I have been able to develop a two-way text messaging app that implements chatting system devoid of complex server setup and internet use at no cost other than the cost of the smart phone itself.