ABSTRACT

Development of a Chat room Application based on Android Bluetooth

Android OS has emerged as core of smart devices including mobile phones which offer utility based application development that can be plugged and played. Bluetooth provides a low-power and low-cost wireless connection among mobile devices and their accessories, which is an open standard for implementing a short-range wireless communication. Motivated with short-range communication capability of Bluetooth a chat room application over Bluetooth in Android OS based devices has been developed as part of this project. The goal of the project is to develop a chat room suit on top of Bluetooth protocol stack that works on Android based platforms. The objective is that the application would enable an interactive chat session via Bluetooth between a pair of Bluetooth enabled devices with support of Android kernel services. A Client-Server based framework has been designed and developed that enable communication using Bluetooth protocol stack running on Android kernel. Based on the proposed framework for chat room suit, the development was carried out in Java Programming Language using Eclipse Integrated Development Environment (IDE) that supports with assistance of Android Emulator and the Android Development Tools (ADT) plug-in. The chat room suit interacts using APIs to implement the necessary client and server systems calls as per Android operating system to allow the reliable communication paradigm in its user-space and transmits the data packets via Bluetooth channels. While the interactive data is ready to be sent the application prepares the payload and encapsulates it into TCP packet and eventually injects into the Bluetooth frames for transferring to the other side. The application is ported in Samsung Galaxy Tab 2 and MotoG, which provisions chat session between the two devices in a Bluetooth network. To start the chat session Bluetooth Device search is initiated and a device is selected from the Search List from the application window of the device running it for connection establishment. After connection is established with the other device, both users can type messages and real-time chat can be accomplished. The application is tested inhouse in different devices that supports Android operating system 3 and above. A Samsung Galaxy Tab 2 and a MotoG phone based testing has been successfully done inhouse.

This project was mainly targeted to acquire ideas on Android applications development using Java and Eclipse and to use the Bluetooth API provided by the Android platform to implement communication between Bluetooth devices. The project was successfully carried out and was completed within the schedule.

Keywords: Android, Bluetooth, Java, ADT, IDE