Comp 4985 Computer Systems Technology January 2014

Data Communication Option

Assignment #3 Design Doc

Ian Davidson, Josh Campbell
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Design

State transition diagram...3-4

Testing

Use

State Transition Diagram
Server

Client

Server

Port # entered and
button press

Get_server_info

Close_connection

Ip + port #
entered

Exit button
pressed

connected

Data sent to server

Send_data

On button
press

Get_location

Location data obtained

Packetize_data
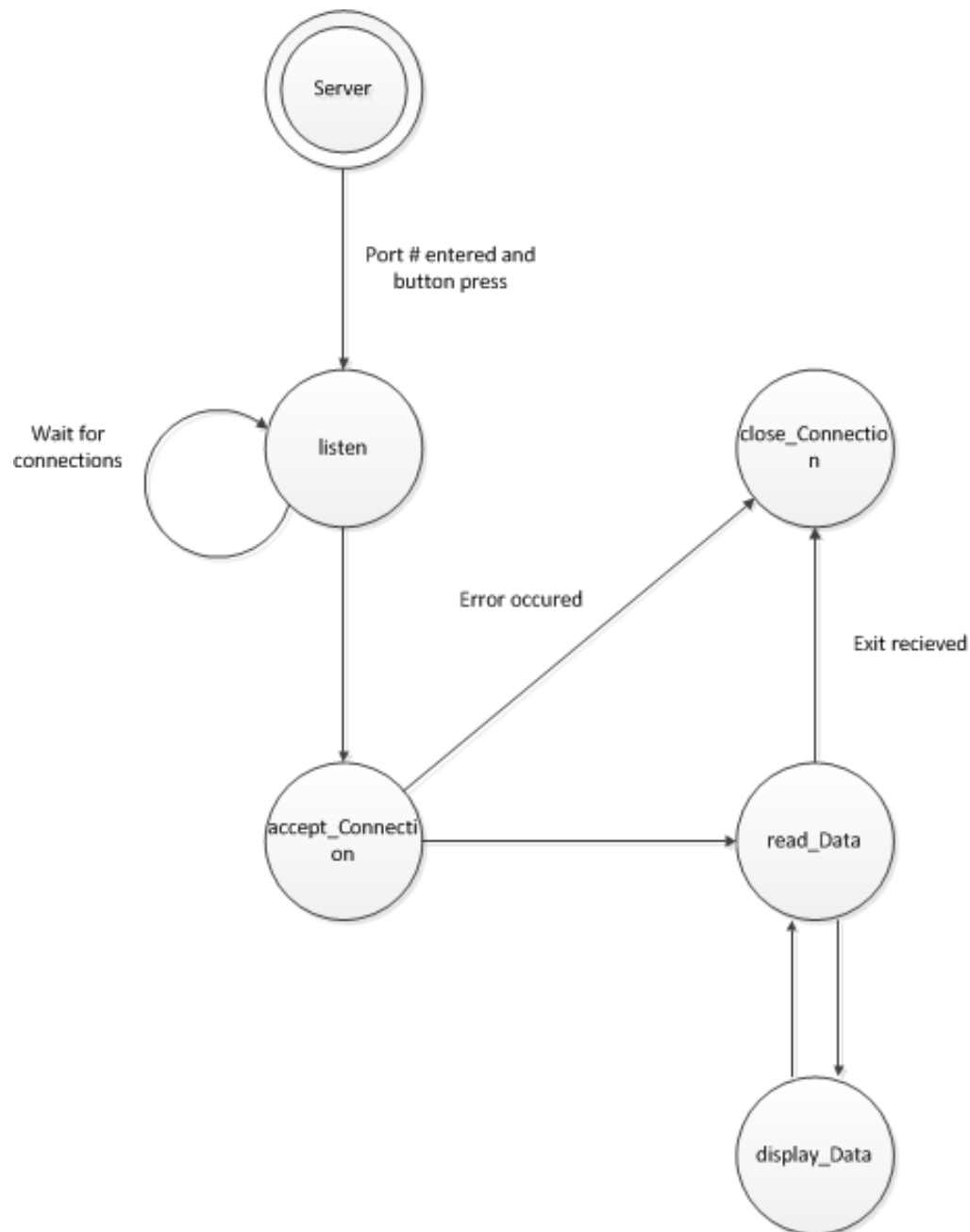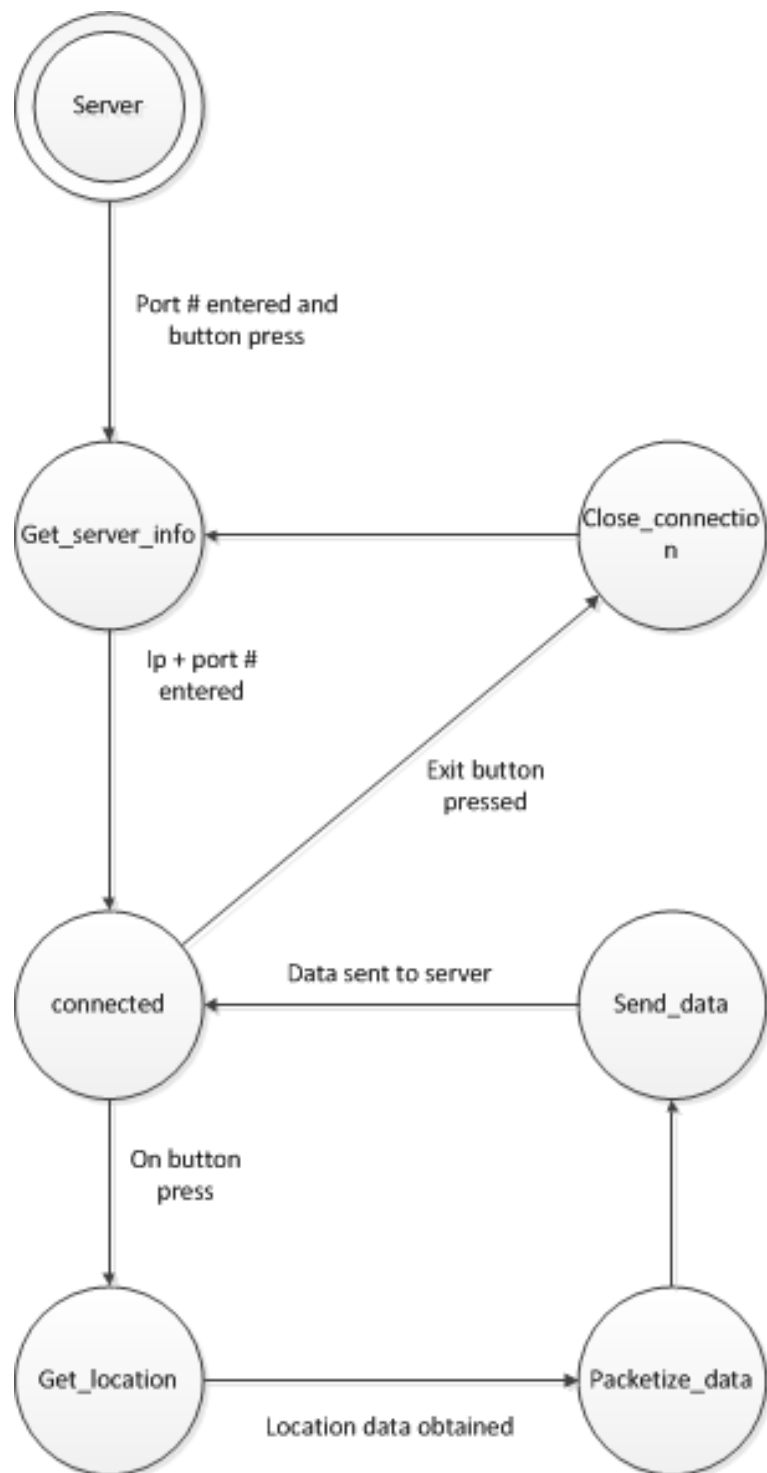
Pseudo Code

Function Server

        If Server Start Button Pressed
            ListenForConnections()
            Change screen message to "Listening"
        End if

End Function

Function ListenForConnections()

        Create Server Listening Socket
        While server is running

            Try to accept a new connection
            If a connection was accepted
                start ReadingServerThread()
            end If

        End While

End Function

Function ReadingServerThread()

        While Connected to a client
            try and read data from the client
            If data was read
                Write location data to the screen
            End If
        End While

End Function

Function Client

        Get IP and port
        Get Location data
        Get Timestamp
        Get Device name
        Get IP address

        Start SendingClientThread()

End Function

Function SendingClientThread()
       Store DeviceIP, Latitude, Longitude, TimeStamp, and devicename in data string

       Create Socket to server
       If connection was established and send button was pressed
           Send data to server
       End If

End Function

Testing Table

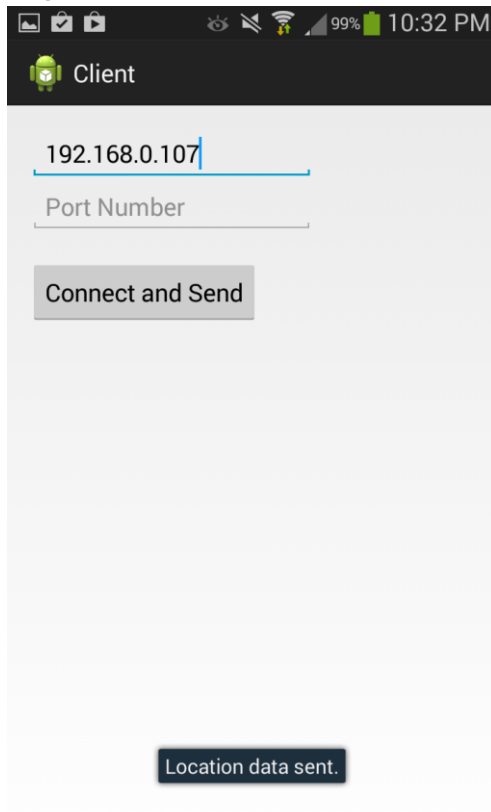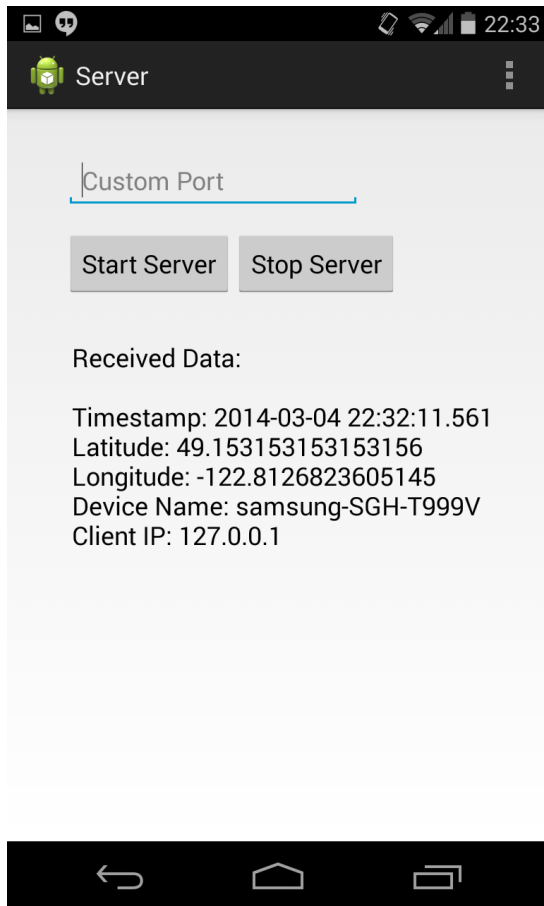| Test	Test Description	Tools Used	Expected Result	Pass/Fail
1	Client Sends Location data	N/A	Toast popup saying data was sent	PASS, see fig 1.
2	Server receives location data	N/A	Changing of textview to show packet data	PASS, see fig 2.
3	Client and server accept custom ports	N/A	Server receives data on custom port	PASS, see fig 3 and 4.
4	Client and Server send/receive IP and device name	N/A	IP and Devicename appear in the server's textview	PASS, see fig 2.

Figures

Figure 1:

Figure 2:

Figure 3:

Figure 4:

Server

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Start Server   Stop Server

Received Data:

Timestamp: 2014-03-04 22:32:11.561
Latitude: 49.153153153153156
Longitude: -122.8126823605145
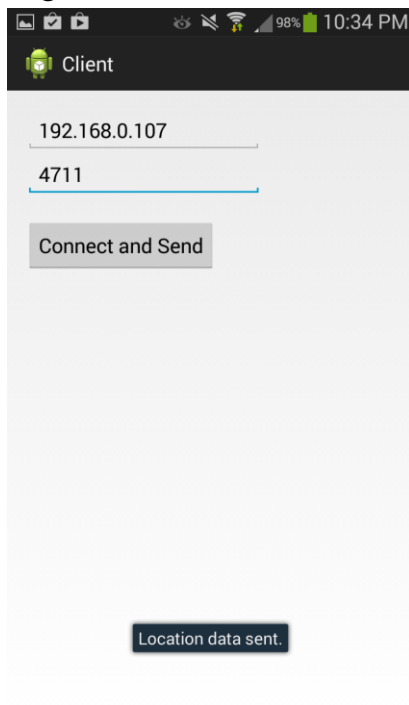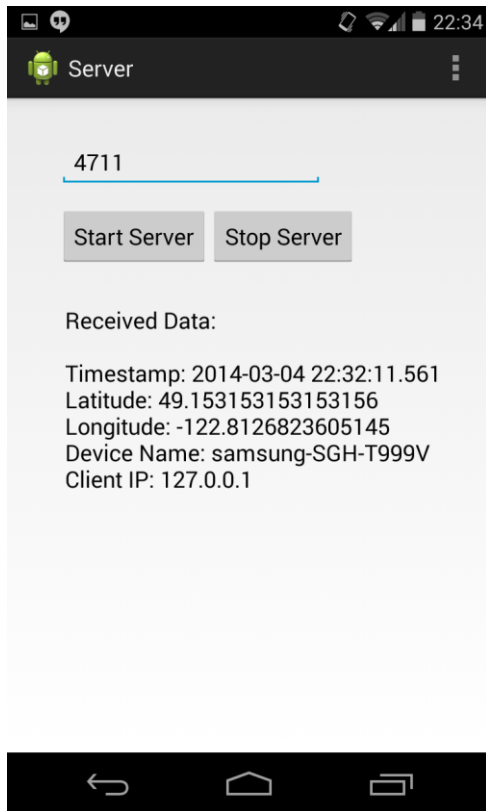Device Name: samsung-SGH-T999V
Client IP: 127.0.0.1

How to compile the project

Using Android Developer Tools:

Note: for this project, import the Client project and the Server project from the Code directory on the disk.

1. Click on the file menu option and select import.
2. Expand the android folder and select "Existing Android Code into Workspace" and click next.
3. Browse to the project code folder and select the root folder.
4. Make sure the project is selected and click finish.
5. Make sure your android device is plugged in and is in usb debugging mode.
6. Click the ADT run button and select your device.
7. The program will be installed to your device.

How to use the program

Note: if self compiling, the new compiled apk files are located in the BIN directory of the projects.

1. Copy the Client.apk and Server.apk files to your android device.
2. Using a file browser on your device such as ES File Browser, navigate to these apk files and tap on them to install them.
3. Connect to a wifi source.
4. Load up the client application on one device and load up the server on another.
5. Start the server first by clicking the Start Server button (it should say that it is now listening).
6. On the client, enter the desired IP address of the server device and then click the Connect and Send button.
7. The data should appear on the server shortly.