



COMP 4985

Assignment 3

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Introduction

This is a communications application designed to gain experience with Android application development.

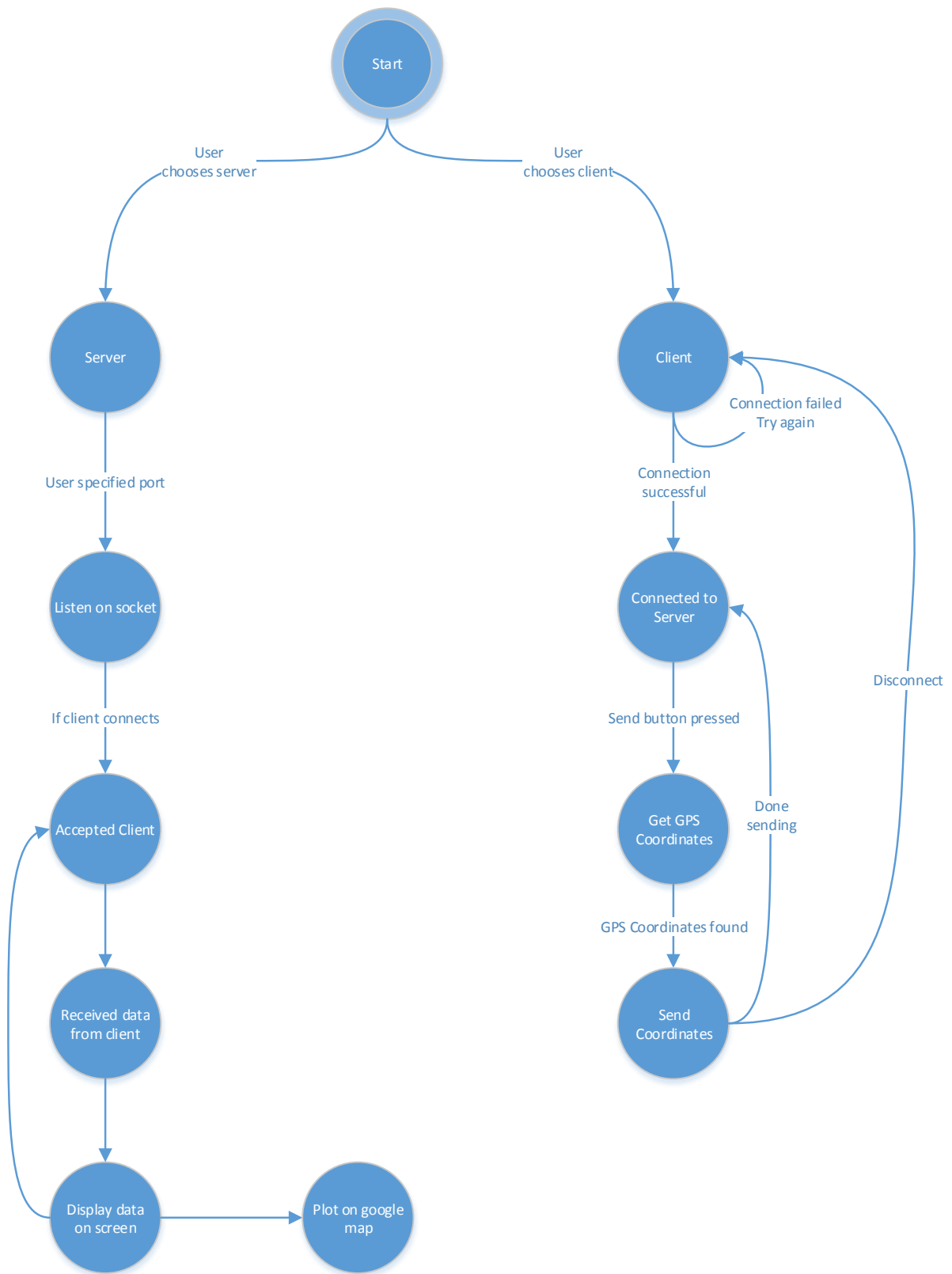
One device will act as a server and receive location updates from clients. Incoming location updates will be displayed as text along with a time stamp and the user it was received from. Upon receiving location updates the server will plot or update the client's marker on Google Maps using the Google Maps API. A client will be able to connect and disconnect as they desire.

Objective

The objective of creating this application is to accomplish the following tasks:

- Communicate between at least two devices using the TCP/IP protocol suite; client and server
- Obtain latitude and longitude coordinates via GPS and Network
- Display client coordinates through Google Maps
- Update a clients coordinates

Design



Pseudo Code

Class Main

```
{
    onCreate()
    {
        initialize textfields;
    }

    onClickClient()
    {
        get port number();
        start Client activity();
    }

    onClickServer()
    {
        get port number();
        Start Server activity();
    }
}
```

Class Server

```
{
    onCreate()
    {
        initialize textfields;
        createMap();
    }

    void createMap()
    {
        makeMap();
    }

    serverThread()
    {
        while(;;)
        {
            client socket = accept();

            while(data from client)
            {
                display(data);
                updateLocation();
            }
        }
    }
}
```

```

onStop()
{
    socket.close();
}
}

```

Class Client

```

{
    onCreate()
    {
        initialize textfields;
    }

    clientThread()
    {
        assign port and ip;
        create socket();

        update current time();
    }

    onClickConnect()
    {
        create socket();
    }

    onClickSendCoordinates()
    {
        get current location();
        get current time();
        write to socket(name, time, latitude, longitude);
    }

    updateTextThread()
    {
        update textfield(status);
    }

    disconnect()
    {
        socket.close();
    }
}

```

Test Documents

Test	Test Description	Expected Result	Pass/Fail	Screen Shot
1	Turn server on to listen to socket	Server is listening on socket	Pass	Figure 1
2	Client able to enter name, IP, and port to connect to a server	Type in all fields	Pass	Figure 2
3	Client press connect	Server accepts connection	Pass	Figure 3a, 3b
4	Client finds own location	Client searches for GPS/Network Provider	Pass	Figure 4
5	Send Coordinates from client to server	Server receives information	Pass	Figure 5a, 5b
6	Client sends additional information	Server updates on screen	Pass	Figure 6a, 6b
7	Server receives information, and adds a marker on screen	Marker is added on google maps	Pass	Figure 5a, 5b, 6a, 6b

Figures

Figure 01

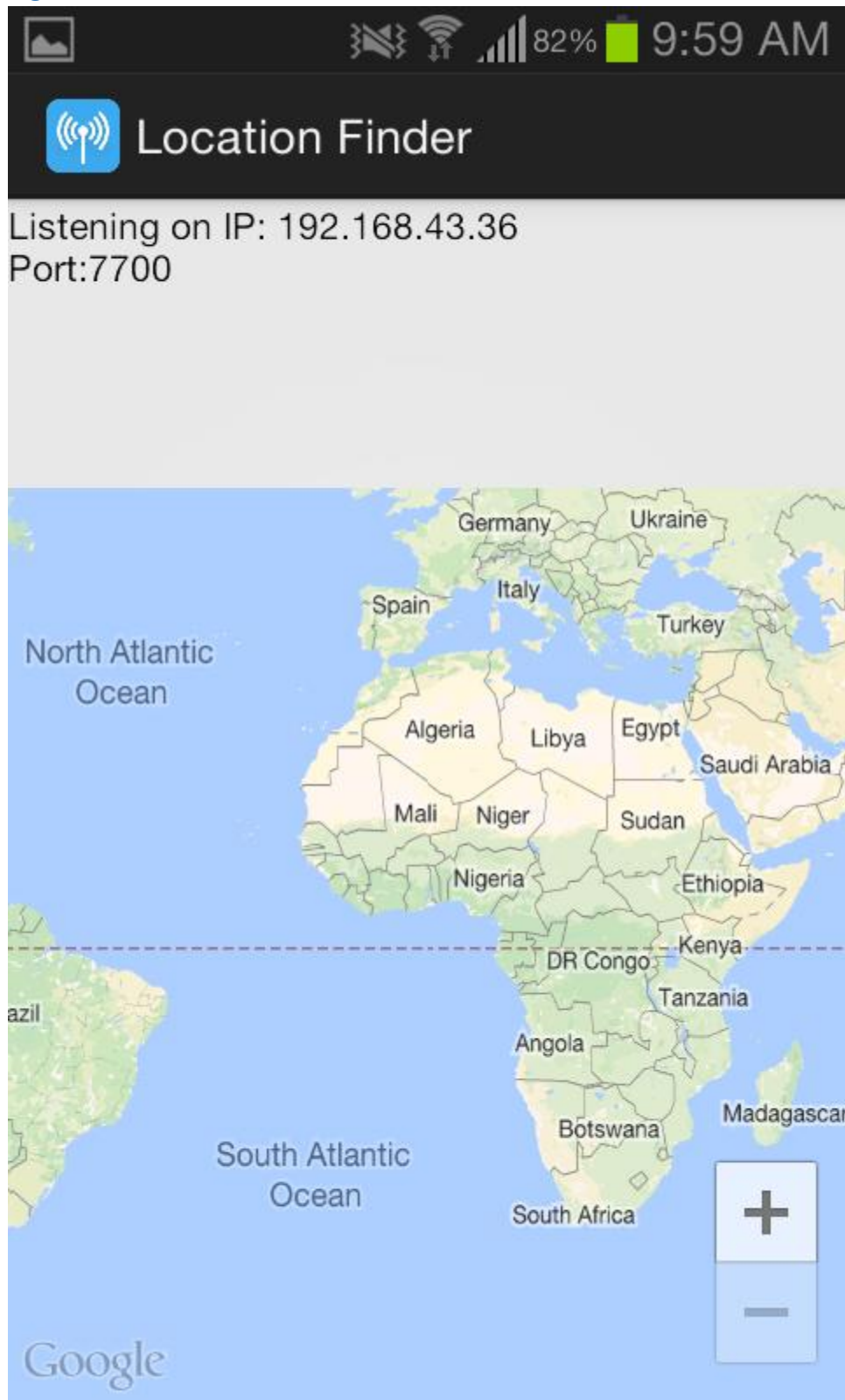


Figure 02

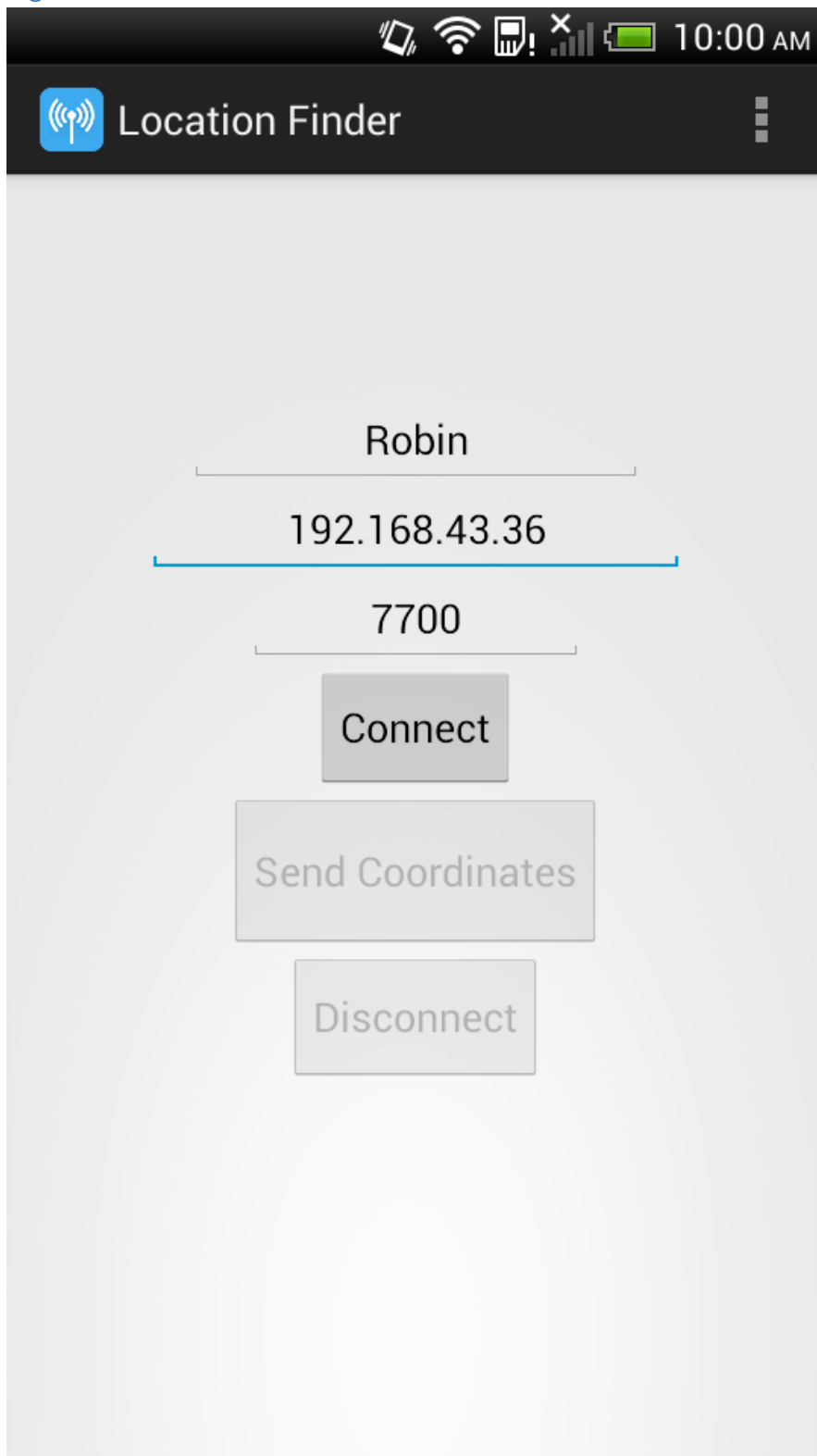


Figure 03a

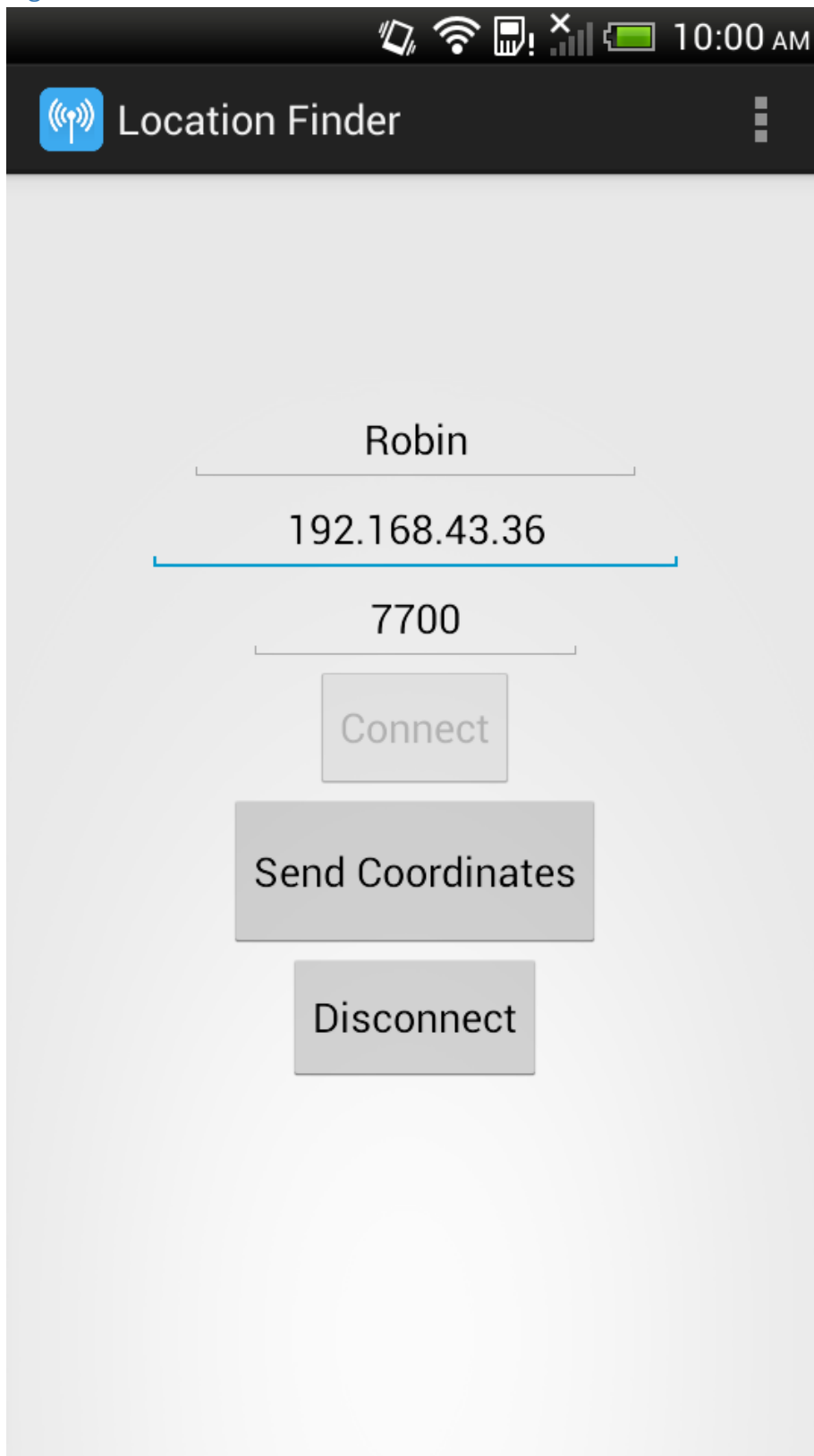


Figure 03b

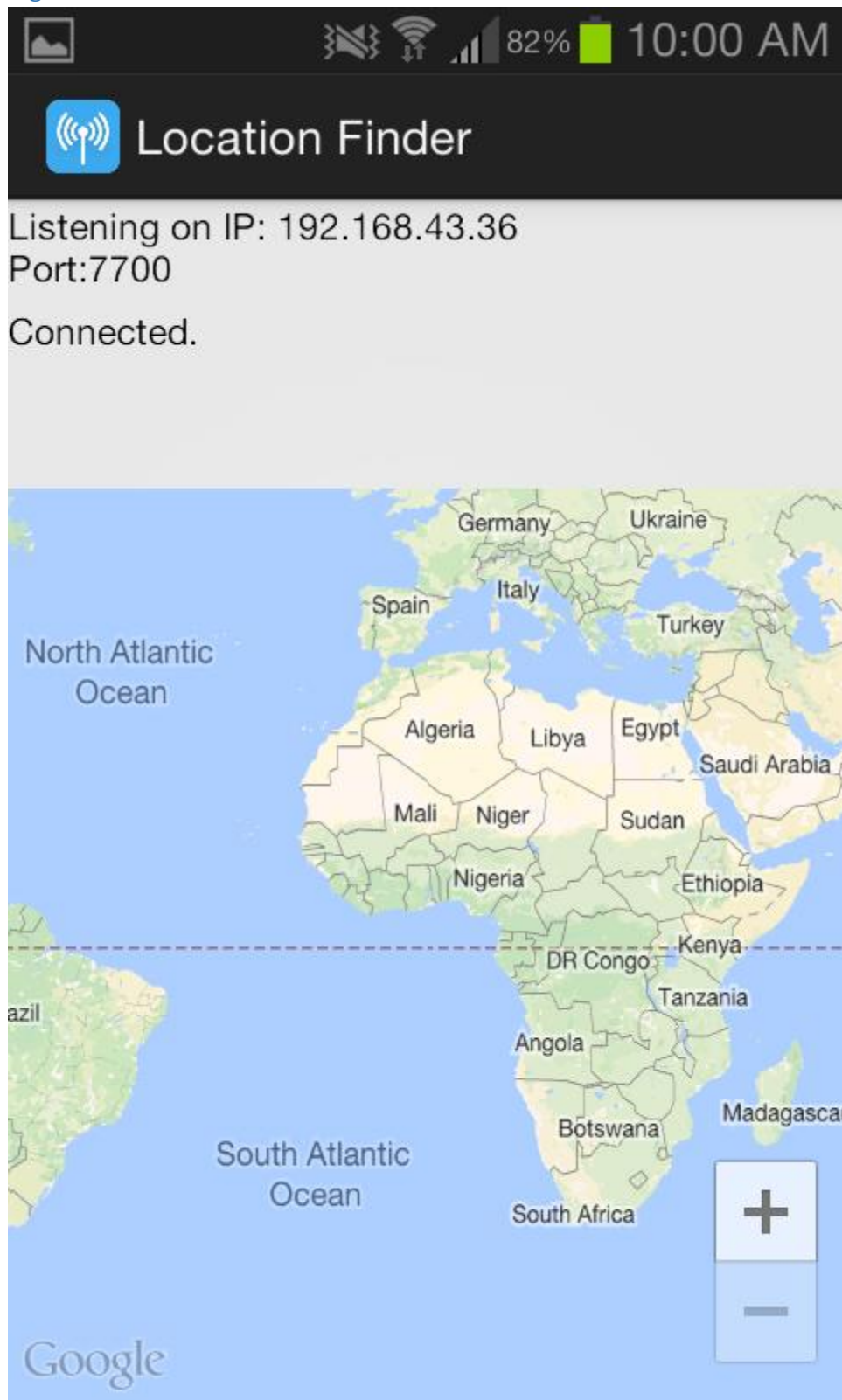


Figure 04

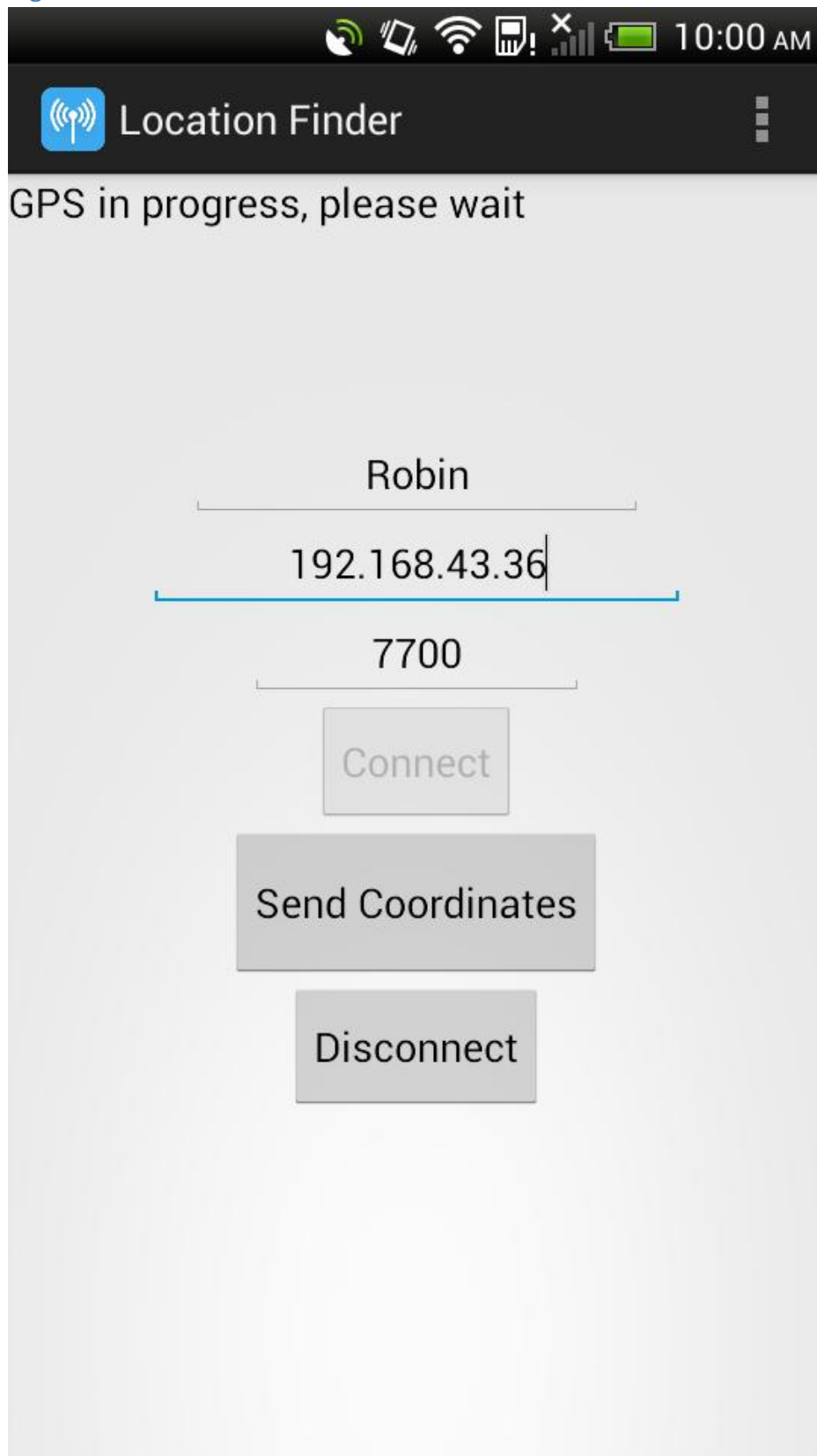


Figure 05a

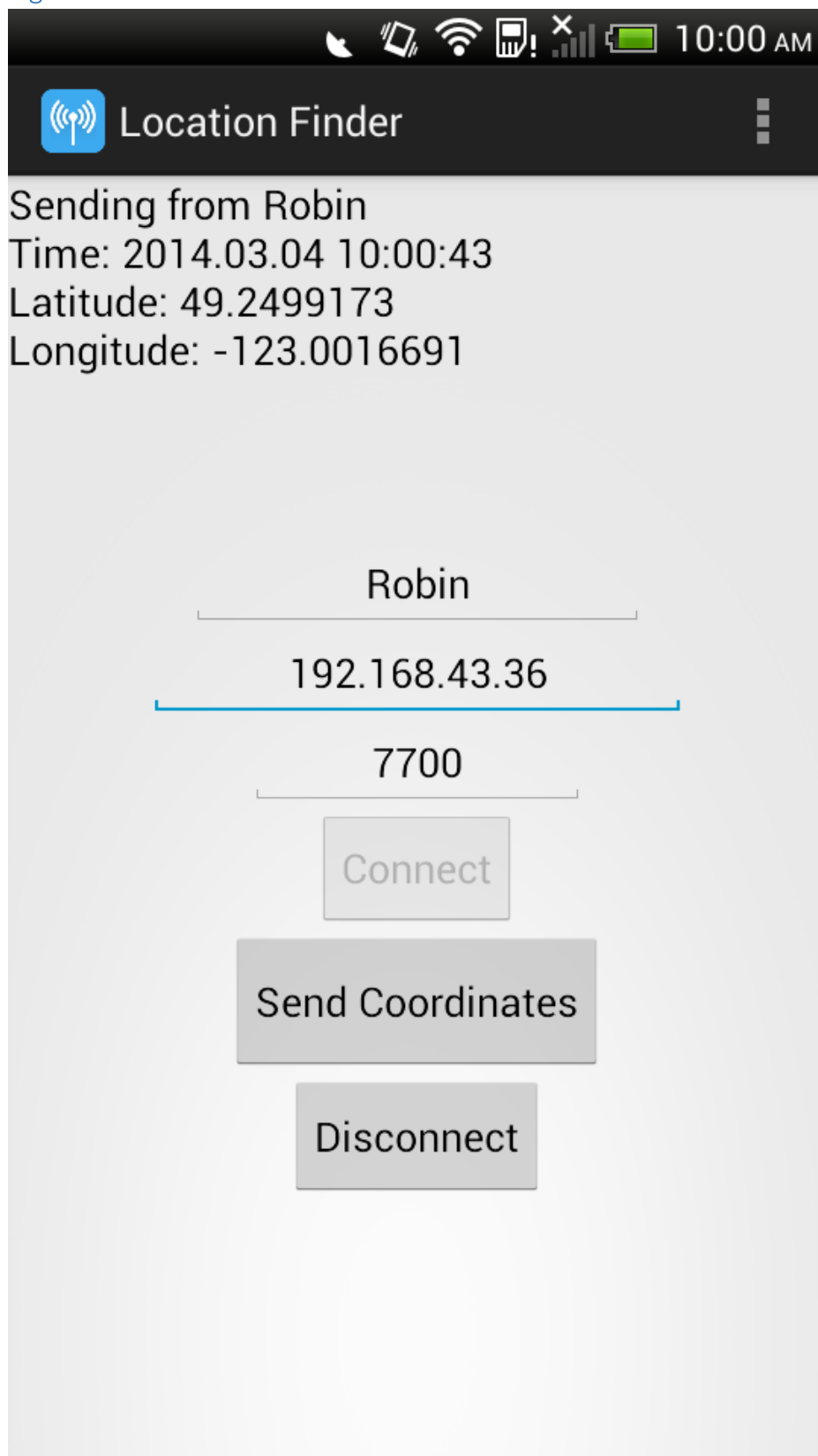


Figure 05b

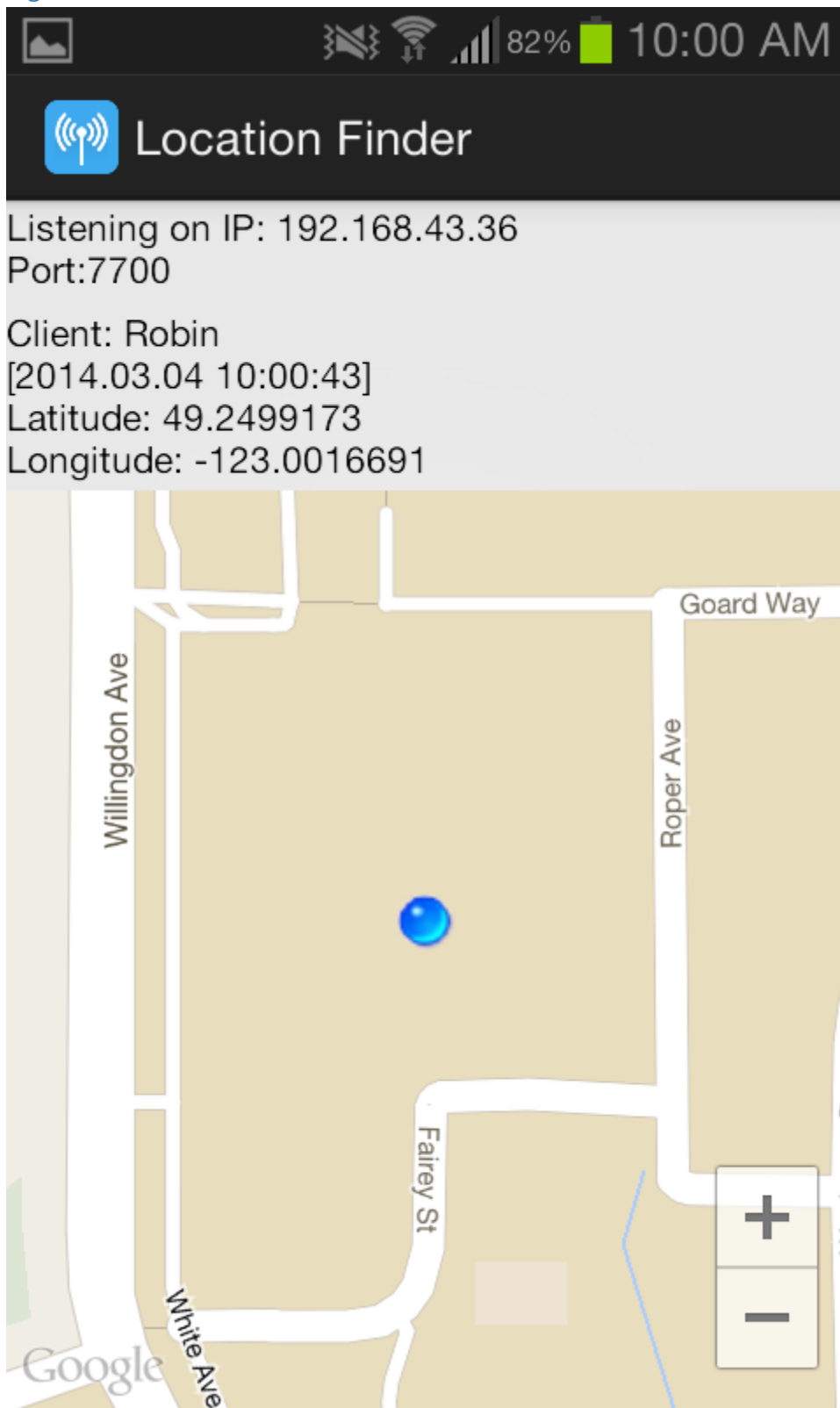


Figure 06a

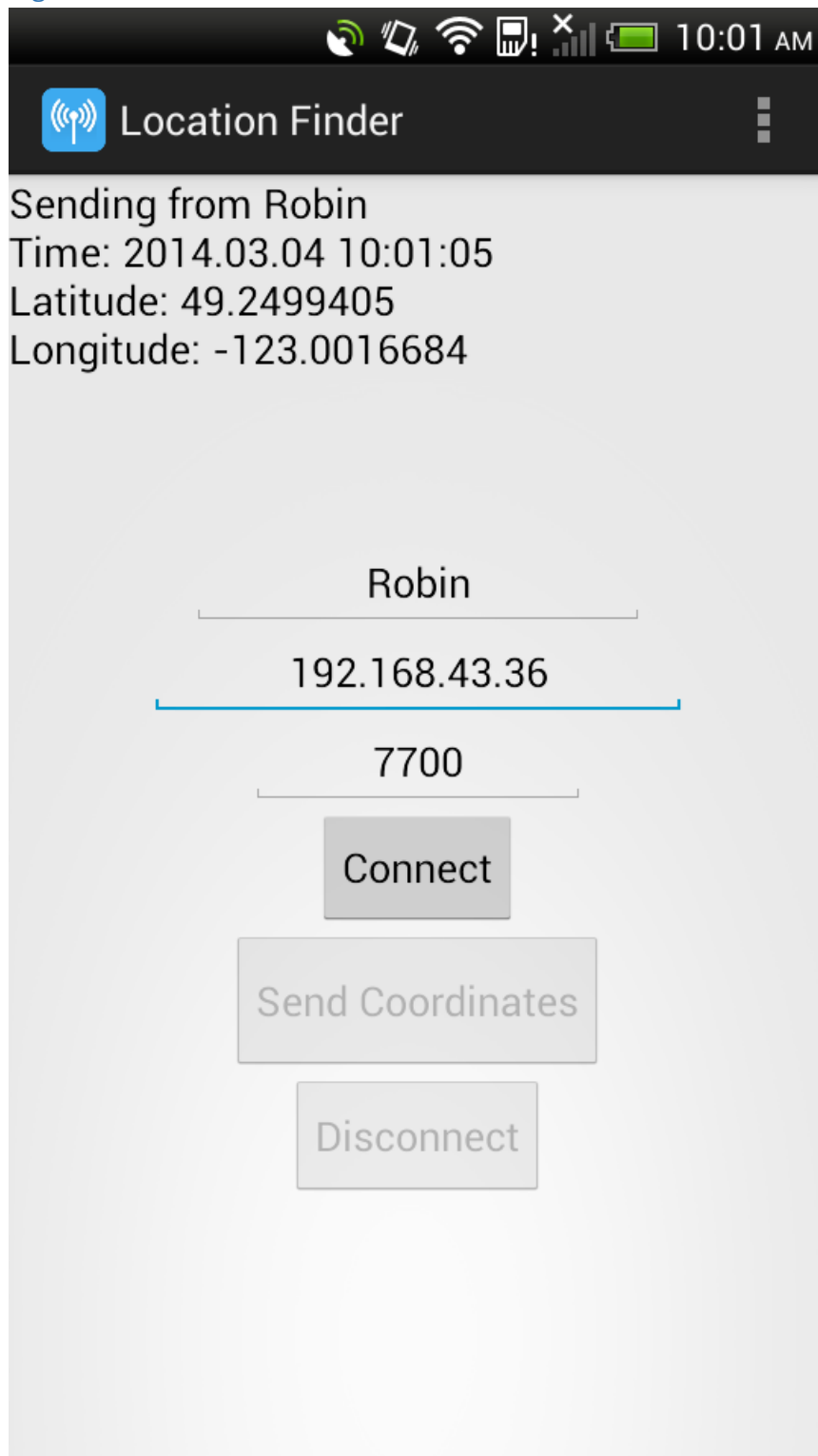


Figure 06b

