



User Manual - Read Me

Linux - Android GPS

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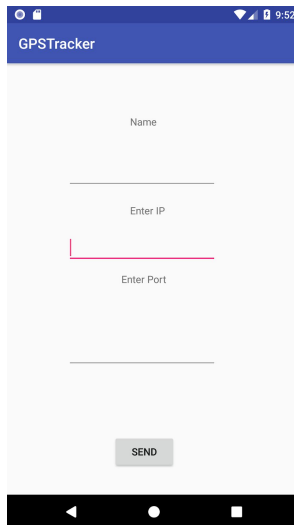
Jenny Ly

Ben Zhang

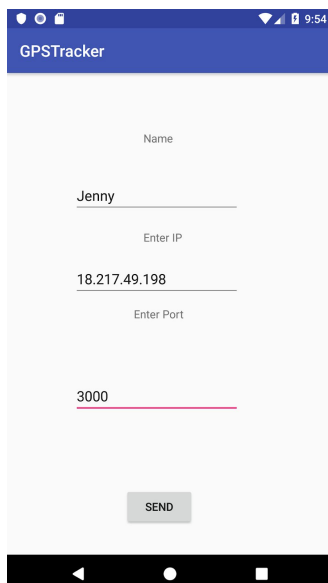
User Manual

Android Application

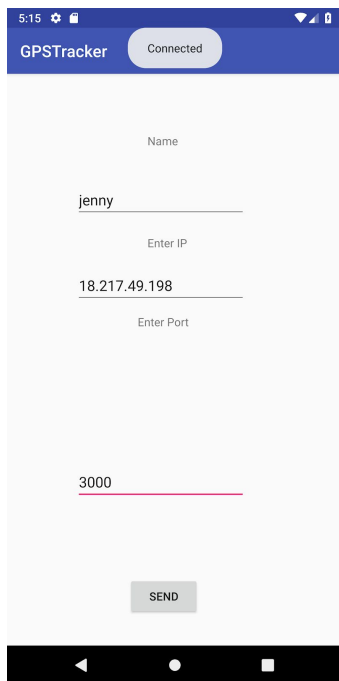
- 1) Either import the android package and run in emulator in android studio, or install apk and run the app on an android phone



- 2) Connect to the server with the **IP address: 18.217.49.198** and **Port: 3000**. Each unique username will have its own coordinates updated and hence is the primary key for the user. Once the fields are filled click the send button to begin TCP connection and continuously update your coordinates.



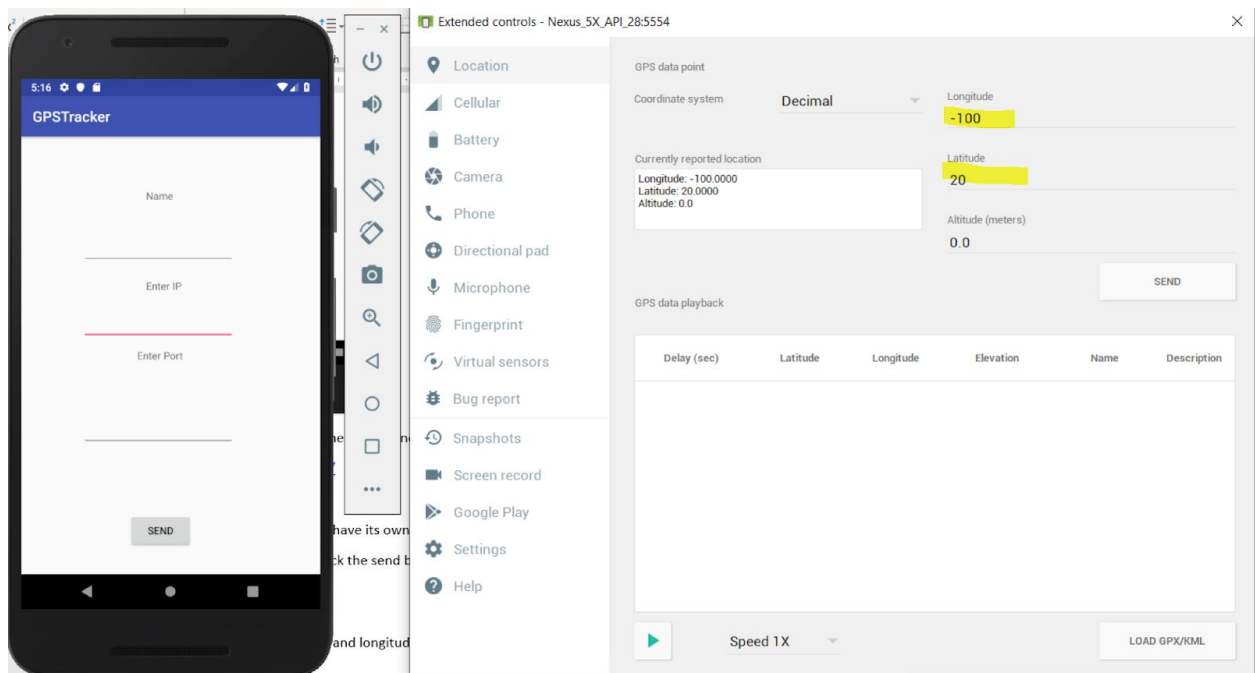
3) A confirmation message will appear to indicate the connection is successful.



The image shows a mobile app interface for GPSTracker. At the top, there's a status bar with the time 5:15 and various icons. Below it, a blue header bar contains the app name 'GPSTracker' and a 'Connected' button. The main area has four input fields: 'Name' with the value 'jenny', 'Enter IP' with the value '18.217.49.198', 'Enter Port' with the value '3000', and a 'SEND' button at the bottom.

NOTE:

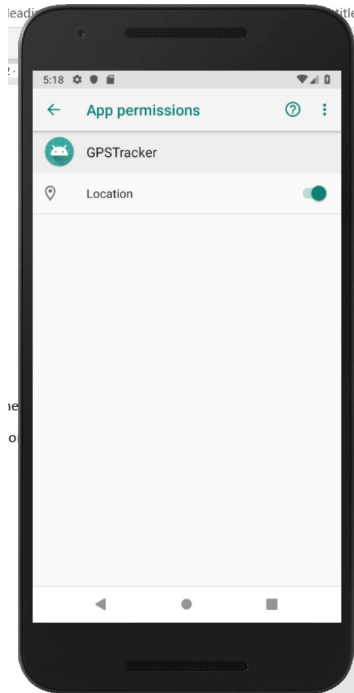
For emulators, the longitude and latitude must be set in the settings.



The image shows a screenshot of the GPSTracker app running on an Android emulator. The app interface is visible on the left, showing the 'Name' field with 'jenny', 'Enter IP' field with '18.217.49.198', 'Enter Port' field with '3000', and a 'SEND' button. The settings menu is open on the right, displaying various system settings. The 'Location' settings are highlighted, showing the 'Coordinate system' set to 'Decimal'. The 'Currently reported location' section displays the following values: Longitude: -100.0000, Latitude: 20.0000, and Altitude: 0.0. The 'GPS data playback' section shows a table with columns for Delay (sec), Latitude, Longitude, Elevation, Name, and Description. The 'Speed' is set to '1X'.

Delay (sec)	Latitude	Longitude	Elevation	Name	Description
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The location permission must be turned on. The location permission can be accessed by holding onto the application icon and then click on the option icon which appears.

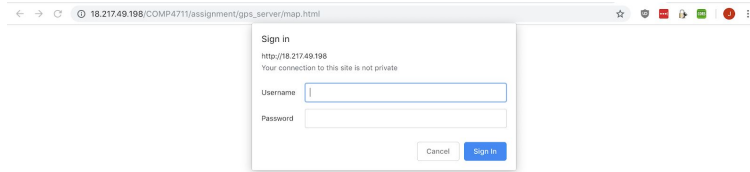


Web Application

1. Access the web browser map with the following link.

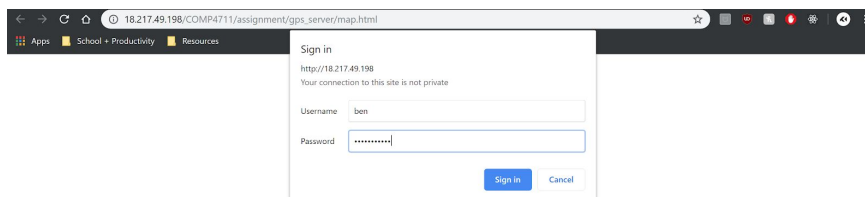
http://18.217.49.198/COMP4711/assignment/gps_server/map.html

2. The following landing page will appear requiring sign-in credentials.



3. Sign-in with the following credentials.

- **Username: ben**
- **Password: k4ardth3m39**



ReadMe

Components

1. Android Application
2. Server Application + Map website

COMP4985 Android GPS Project				Search CC
Name	Date modified	Type		
.git	2019-03-24 7:27 PM	File folder		
Android Code	2019-03-24 6:18 PM	File folder		
Documentation	2019-03-25 10:18 ...	File folder		
Server Code	2019-03-24 6:18 PM	File folder		
Team directories	2019-03-24 6:08 PM	File folder		

Android




In the following folder there are:

1. **Full Android Project**
 - Project can be imported to Android Studio and run on an emulator
2. **APK**
 - Apk can be installed on android device and run natively

Server

In the server folder there are:

1. **Server.js** - Node JS script that runs on a server, handles both android TCP request and Map http requests. Server is started with command ``node server.js``. Note: node is required.
2. **Map.html** - A map that requests user location for the server
3. **Users** - Saves all user coordinates received from the server as JSON objects

 users	2019-03-26 9:58 A...	File folder	
 map.html	2019-03-19 6:47 PM	Chrome HTML Do...	2 KB
 server.js	2019-03-18 9:45 PM	JavaScript File	4 KB

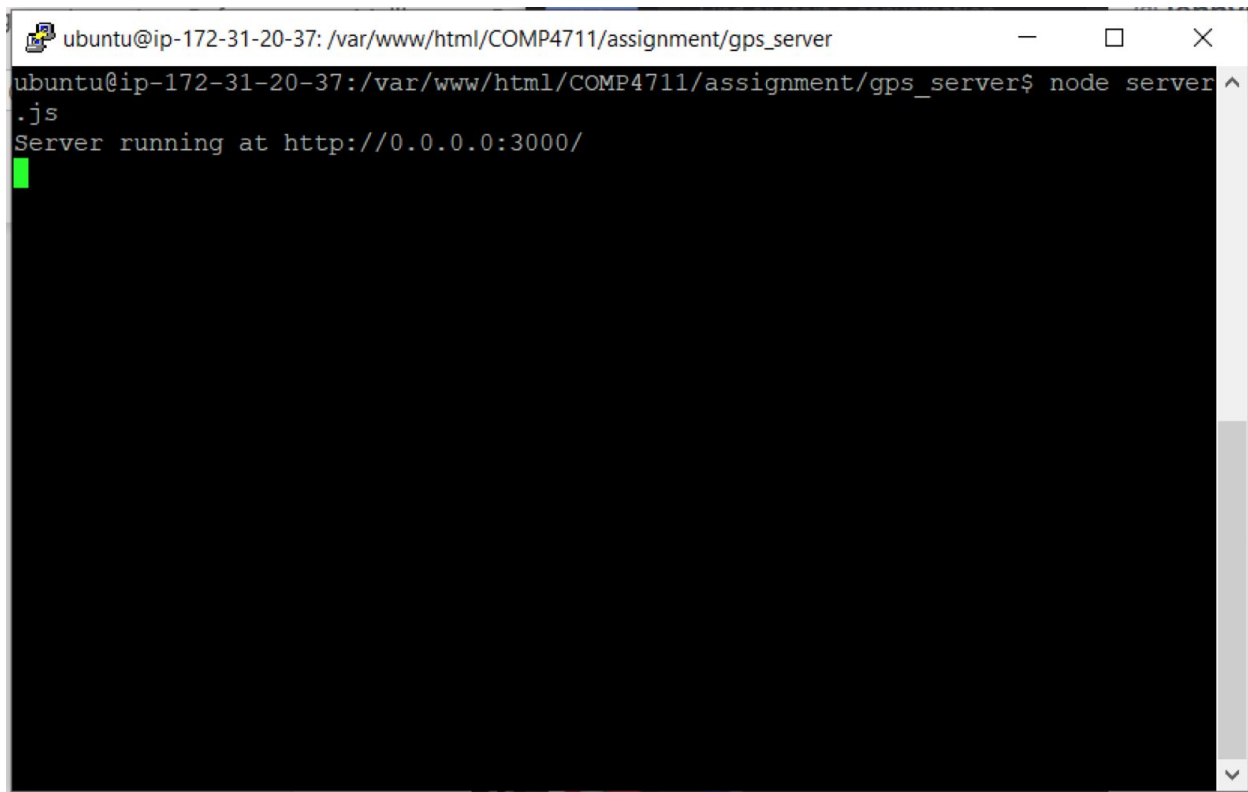
Deployment

Server Side

1. Set up a server (using AWS EC2 in this instance)
2. Install Apache to host the map.html file
3. Put all 3 components under the same directory
4. Install node

```
ubuntu@ip-172-31-20-37: /var/www/html/COMP4711/assignment/gps_server
ubuntu@ip-172-31-20-37:/var/www/html/COMP4711/assignment/gps_server$ dir
map.html  server.js  users
ubuntu@ip-172-31-20-37:/var/www/html/COMP4711/assignment/gps_server$
```

5. Run command '**node server.js**' to start server



```
ubuntu@ip-172-31-20-37: /var/www/html/COMP4711/assignment/gps_server
ubuntu@ip-172-31-20-37:/var/www/html/COMP4711/assignment/gps_server$ node server.js
Server running at http://0.0.0.0:3000/
```

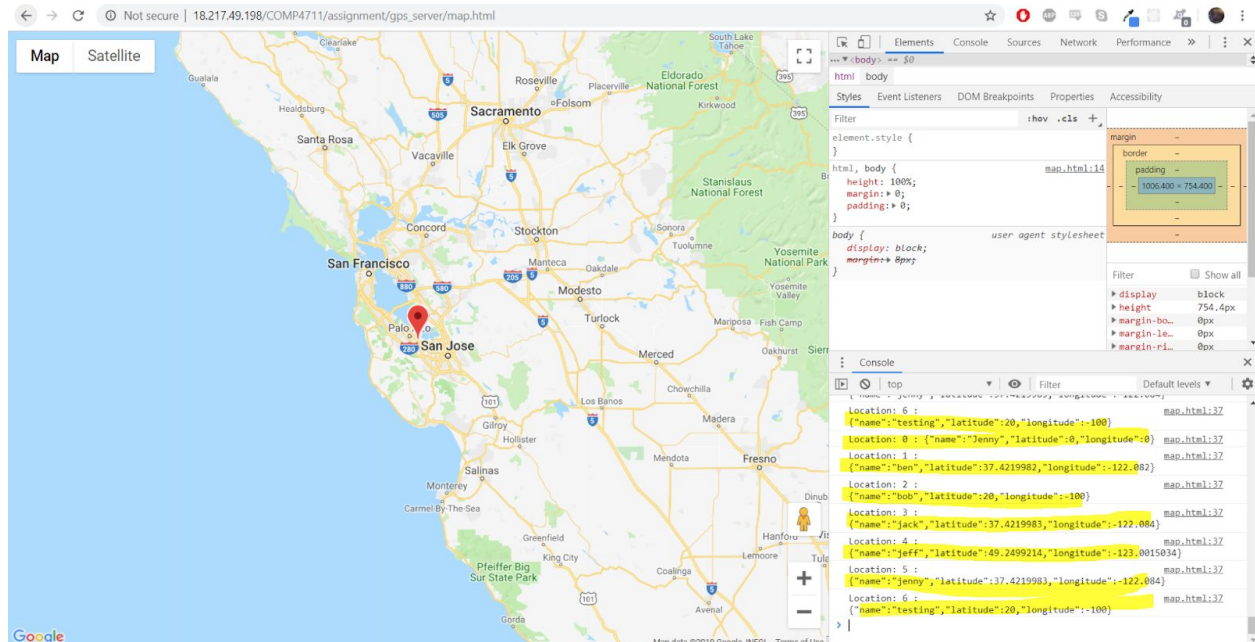
Client Side

Once the user has logged in to the android application with the correct credentials, the server will receive the user's location and name as a JSON object.

```
CONNECTED: 172.103.223.214:64400
DATA 172.103.223.214: {"name":"testing","latitude":20,"longitude":-100}
DATA 172.103.223.214: {"name":"testing","latitude":20,"longitude":-100}
DATA 172.103.223.214: {"name":"testing","latitude":20,"longitude":-100}
```


Viewing the map

Once launched, the map will request a list of all user JSONs from the node server, it will then display them on the map.



Server's response to the map's request.

```
ubuntu@ip-172-31-20-37: /var/www/html/COMP4711/assignment/gps_server
ubuntu@ip-172-31-20-37:/var/www/html/COMP4711/assignment/gps_server$ dir
map.html  server.js  users
ubuntu@ip-172-31-20-37:/var/www/html/COMP4711/assignment/gps_server$ node server.js
Server running at http://0.0.0.0:3000/
user list is :{"name":"Jenny","latitude":0,"longitude":0}
,{"name":"ben","latitude":37.4219982,"longitude":-122.082}
,{"name":"bob","latitude":20,"longitude":-100}
,{"name":"jack","latitude":37.4219983,"longitude":-122.084}
,{"name":"jeff","latitude":49.2499214,"longitude":-123.0015034}
```

The user's coordinates can be accessed from the JSON files stored in the users folder.

```
ubuntu@ip-172-31-20-37:/var/www/html/COMP4711/assignment/gps_server$ dir
map.html  server.js  users
```

The JSON contents can be directly access with any text editor:

```
ubuntu@ip-172-31-20-37:/var/www/html/COMP4711/assignment/gps_server/users$ dir
Jenny.json  ben.json  bob.json  jack.json  jeff.json  jenny.json  testing.json

GNU nano 2.9.3 Jenny.json
{"name":"Jenny","latitude":0,"longitude":0}\n"
```