AREA CALCULATER

Project Report

İbrahim Burak GÜLER

Abstract

This application was made to calculate the area on the map. It calculates the area between the selected locations on the map in square meters. In addition to that, it calculates the area of the user's position change when walking in square meters. While making these kinds of operations , application will use both location and data services. Likewise, If you leave your home and walk around your home and garden, you can easily calculate the area with this application. If you do not want to exit from your home, you can calculate the area from where you are using the application with the draw command.

How It Works

Figure 1 - Location of User in Map

As it seems in the figure, If user presses the locate button on the top right when the application is opened, user will see a screen like this. On this screen, the latitude and longitude of user's location can be seen when user clicks on the icon.Moreover, user will see zoom, clean and draw buttons.

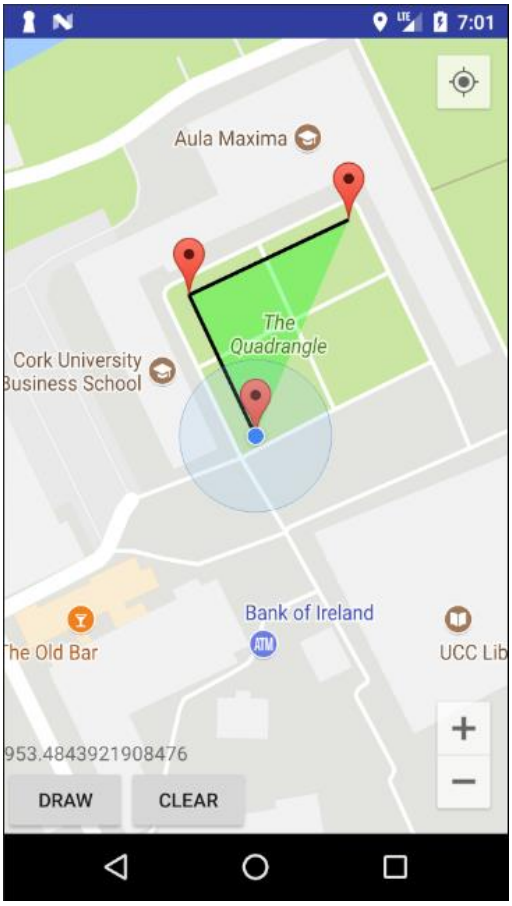

Figure 2 -Drawing Area with Position Changing

The application starts to shape the way the user is going by drawing it on the map. The user does not have to come to the it's starting position, it shows the currently valid field in green and shows the value of the field in the bottom left.

Figure 3 - Completed Area

When the user stops at the place he wants to calculate the area, such a shape and value comes out. With clear button, user can clear the map.

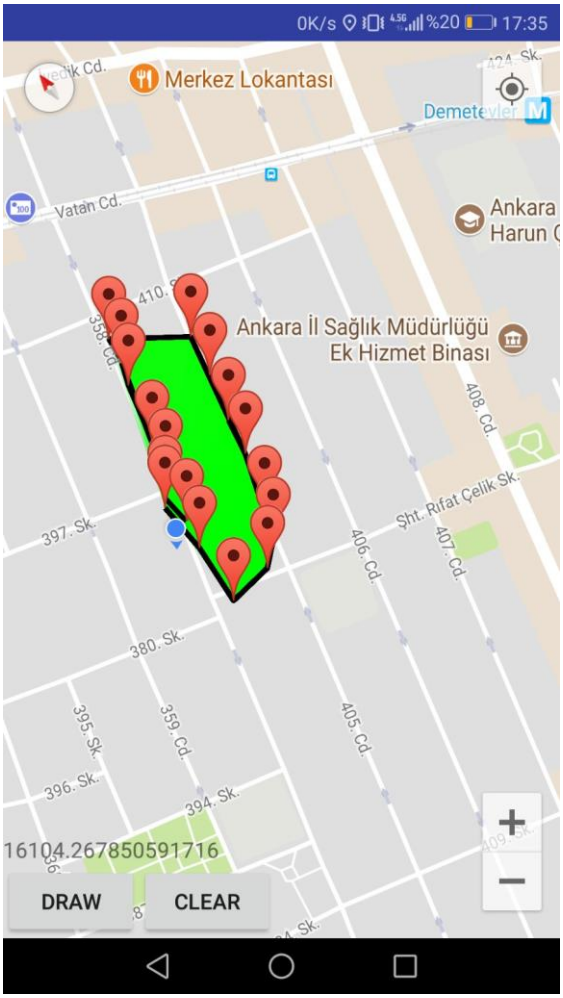

Figure 4 - Example of Calculating Area

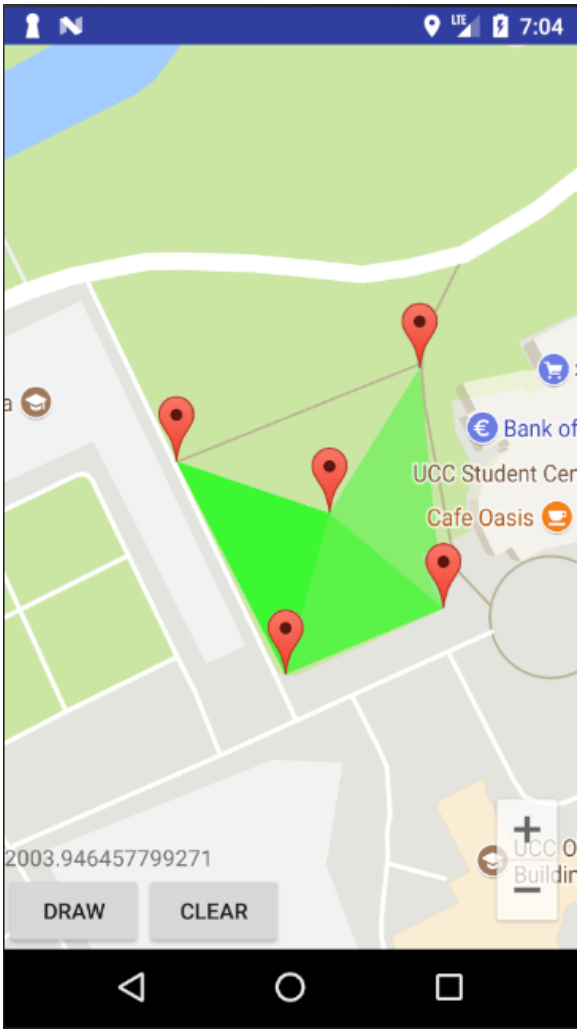

Figure 5 - Drawing Shape on Map

When the user presses the draw button, the location services are turned off and the user clicks anywhere he wants to get the land he wants to measure. When user presses the redraw button, the map will be cleared and can be redrawed.

Implementation

- Firstly, Map Activity was created in Android Studio.
- Later, we put the API Key into the google_maps_api.xml file and linked to the google maps service.
- Later, location permissions were added to the androidManifest file.
- Later access to the user's location was provided via ActivityCompat.requestPermissions.
- Location Manager provides connectivity to Network Provider and GPS Provider. There were one listener in them. These have been added to the user location marker. With the requestLocationUpdates, the update time and distance have been specified. Later, the location was added to the list of location information, keeping it in a list.
- We then added the positions taken in order to Polygon and Polyline. These were then mapped to the @Polyline and @Polygon methods.
- Draw Map method was created. Set On Map Click Listener method has been added to this Draw Map method. With this method, the area is created by clicking on the desired position.
- Clear Map method was created. With this method all changes we know on the map are reset.
- Finally, the numerical value of the field indicated by SphericalUtil.computeArea was calculated and printed on the screen.