

# UTM Geo Map APP Quick Start (Version 1.3)

## Measure Points (Marker)

You can measure points of coordinate base on GPS or position on the Maps and save marker into database for unlimited number using “Real-time Map” module.

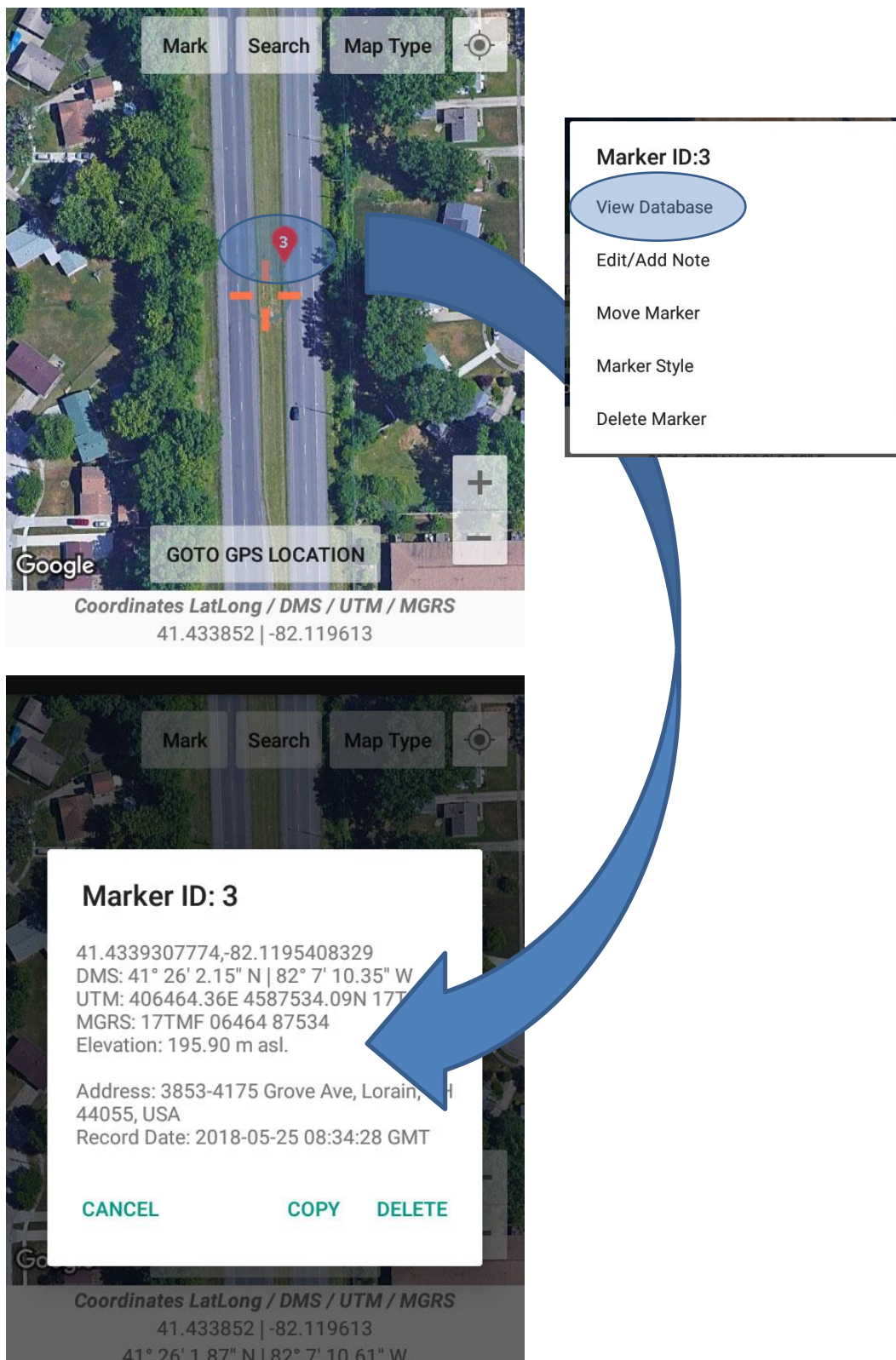
The image displays the UTM Geo Map app interface, divided into two main sections: a main menu and a map view. The main menu, titled "UTM GEO MAP a simple mapping & GIS tools", lists various features: Real-time Map, Offline GPS, Coord. Converter, Area/Dist Measure, Marker Map, Buffering, Overlay, Compass Map, Elevation Profile, Manage Data, Export File, and Buy Premium. A large blue arrow points from the "Real-time Map" option to the map view below.

The map view shows a map of Central Africa with several red markers numbered 5 through 12. The interface includes a search bar at the top, a "Map Type" selector, and a "GOTO GPS LOCATION" button. The bottom of the screen displays coordinates in LatLong, DMS, UTM, and MGRS formats, along with a "Cmps" button and a "Mark" button. A "Tools" menu is visible on the left side of the map.

Annotations on the right side of the image point to specific features:

- Quick Search Location / Address
- Change Map Type: Road map, Sattelite, Terrain, Hybrid
- Search for coordinates (lat long, UTM, MGRS), Marker ID
- Go to GPS coordinates
- Map Tools & File Reference
- Place Marker
- Copy / Share coordinates

Move the map to desire location or click [GOTO GPS LOCATION] button to move cursor to current GPS location, click [Mark] or anywhere on the map to place marker at that location, this marker will automatically stored in database & clickable. Click newly created marker to see the options.



Every marker record including its coordinates (latitude longitude DD & DMS, UTM, MGRS), elevation MSL (premium), address geocoding & date record.

## Change Marker Style

**Marker ID:3**

View Database

Edit/Add Note

Move Marker

Marker Style

Delete Marker

**Create/Edit Note**

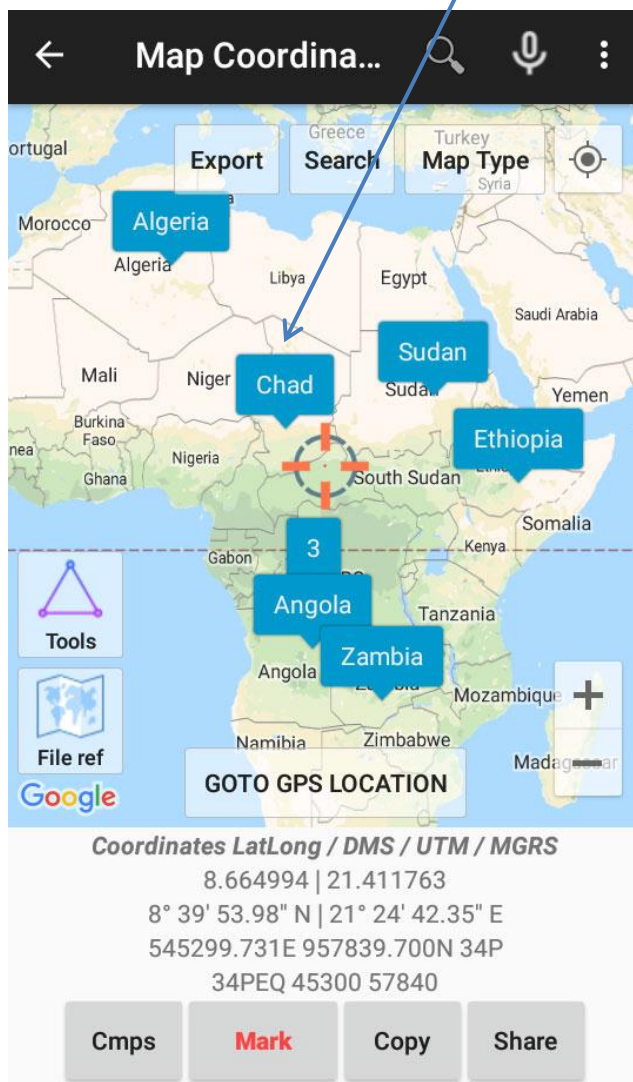
Chad

CANCEL SAVE

**Change Marker Style**

Normal Marker With ID

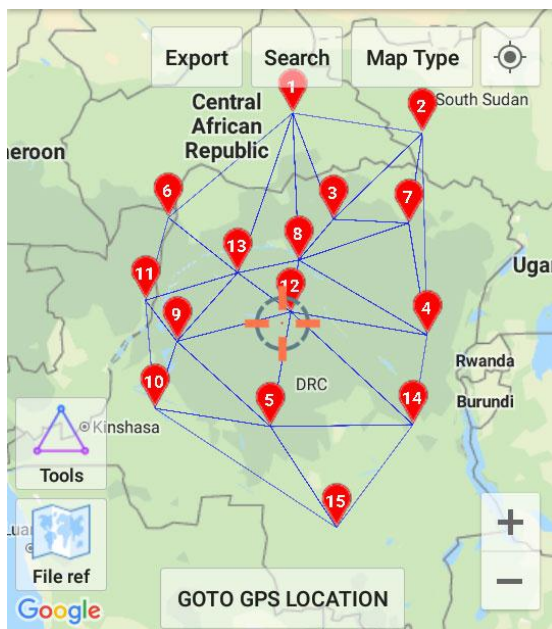
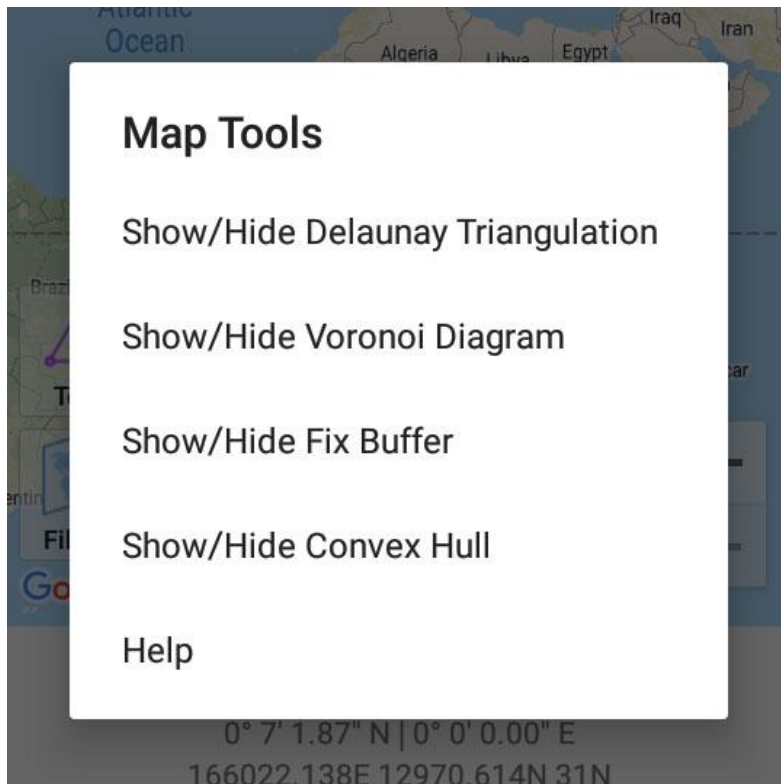
Bubble Marker With Note / ID



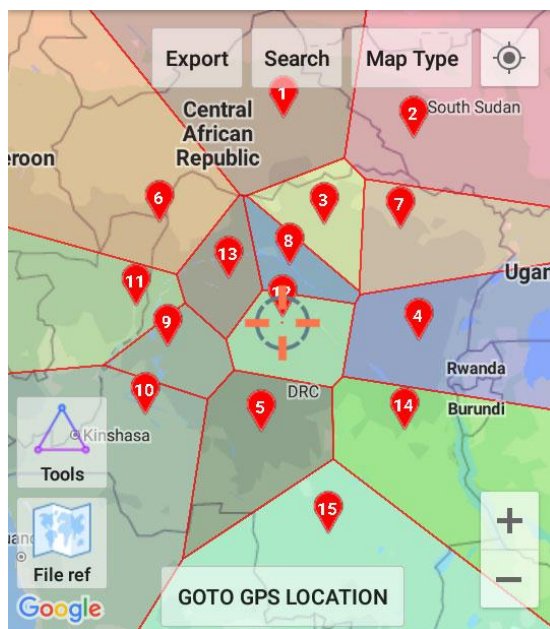
Bubble marker with notes, make marker easier to recognize. To display a marker like this, you must provide a note at each point, if the marker does not have a note then the ID will appear.

## Map Tools.

Click Tools button to show advance geometry analysis tools: Dynamic TIN (Delaunay Triangulation), Dynamic Voronoi Diagram, Dynamic Fix Buffer with specific buffer width & Dynamic Convex Hull.

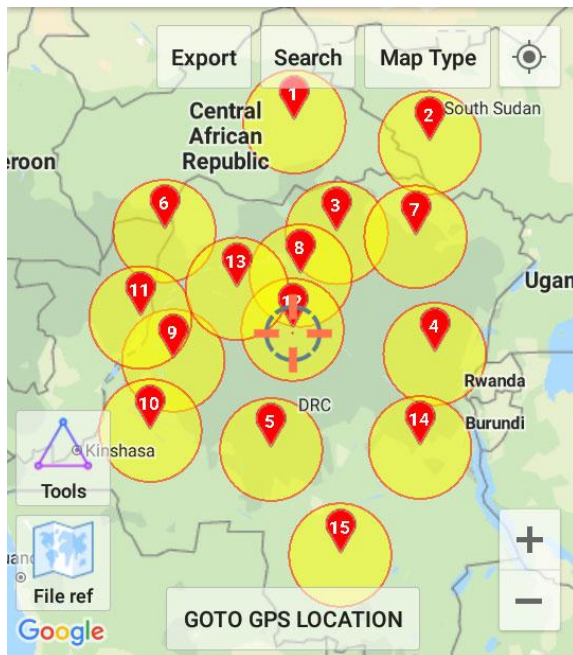


*Delaunay Triangulation.*



*Voronoi Diagram.*

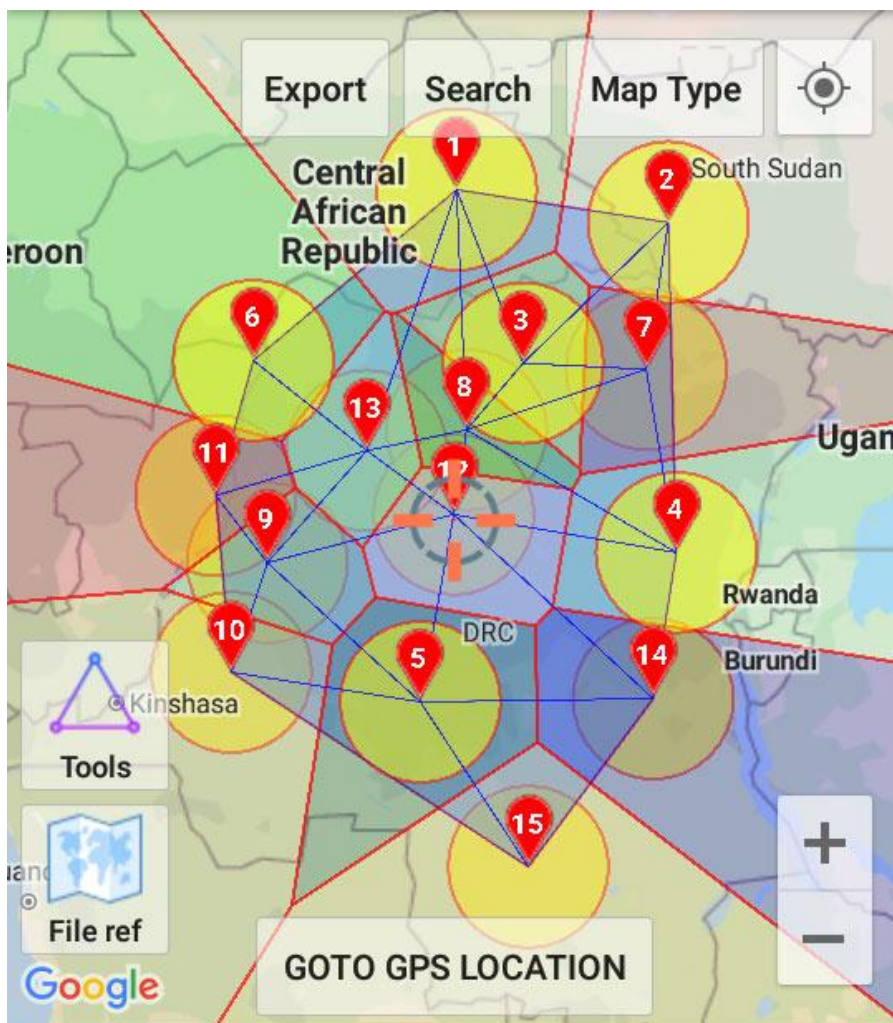




*Fix Buffer.*



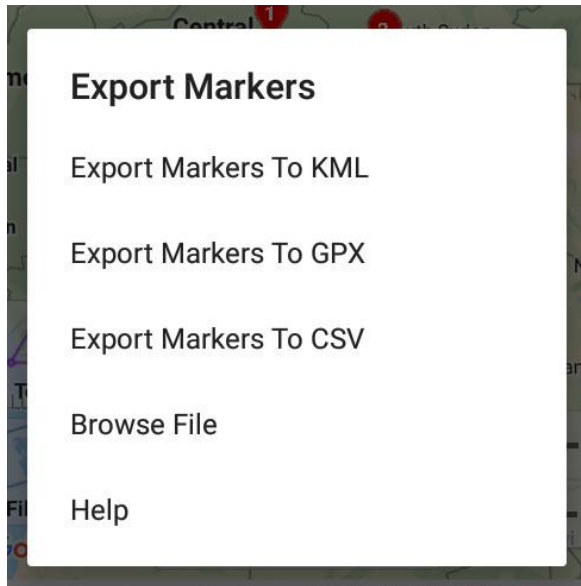
*Convex Hull.*



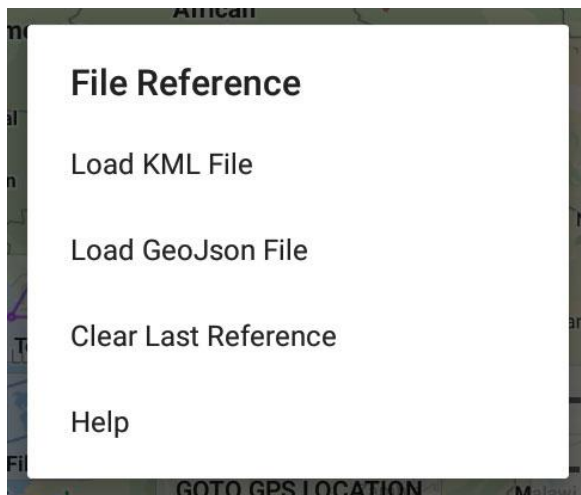
*View all together.*

## Export & File Reference

Click Export button on top of your screen in this module, then you can export all your marker data to a file and stored in Google Drive.

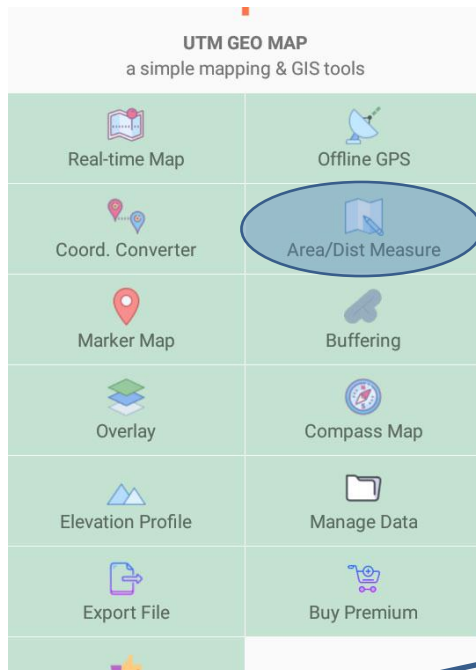


Click [File ref] button on the bottom left side of your screen to load previously saved data as a reference file. This reference is static and cannot be edited.



## Measure Distance (Line) and Area (Polygon)

Use “Area/Dist Measure” module to measure Area & Distance on the map or base on GPS / marker data. This module also can be used for registering line & polygon and save those data into database, calculate direction route, perform smoothing, buffering, overlay and some other geometry analysis for simple GIS work.



Clear unsaved line / polygon

Change measure mode

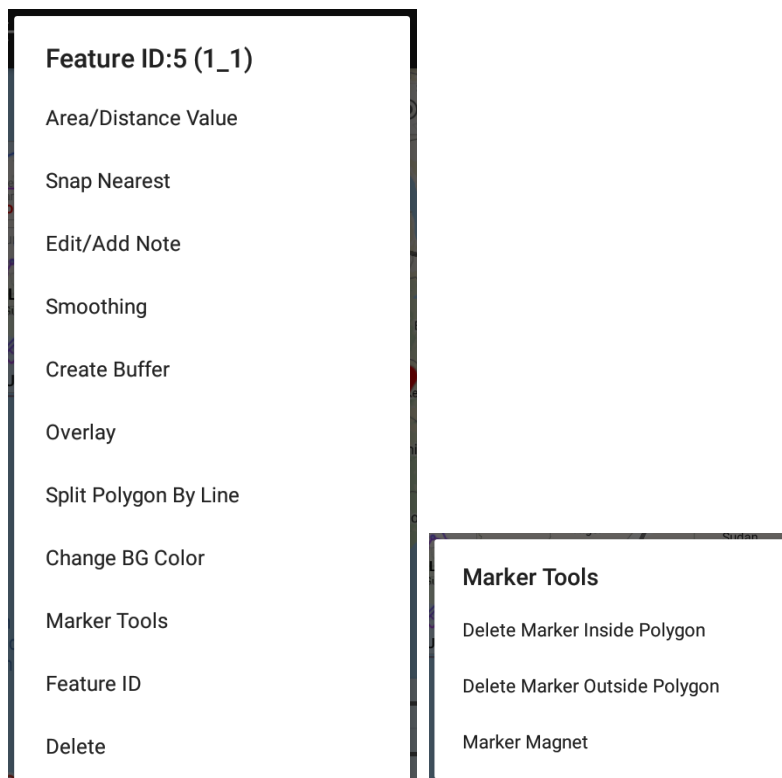
Draw direction route polygon

Change area / distance units

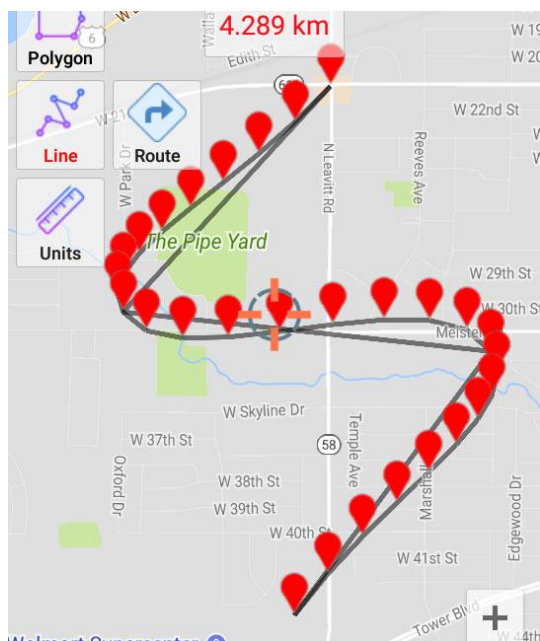
Area / distance result

Place measure points, undo last measure point, save line / polygon.

After completing the measurement, press the [Save] button to save the data into the database, the stored line / polygon will automatically appear on the map and clickable, click the object to display other options:



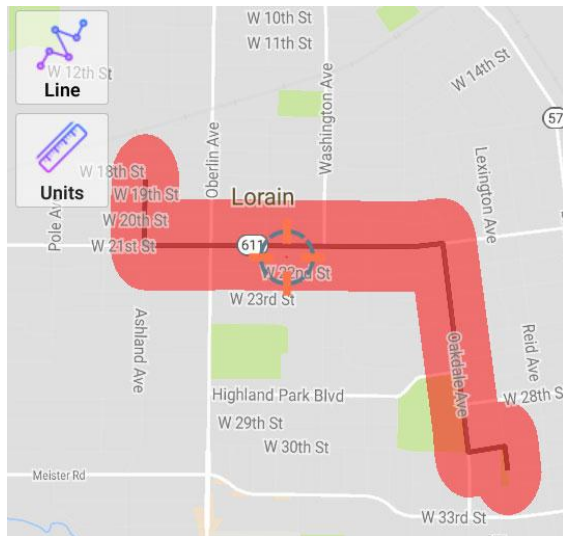
For example, smoothing tool can be used to smooth the object you have and can be apply to both line and polygon. Click the object and then select smoothing menu, a new object (smoothing result) will automatically generated and show on the map. This smoothing technique are using Cubic Bezier interpolation algorithm and can be customize before the process base on your need.



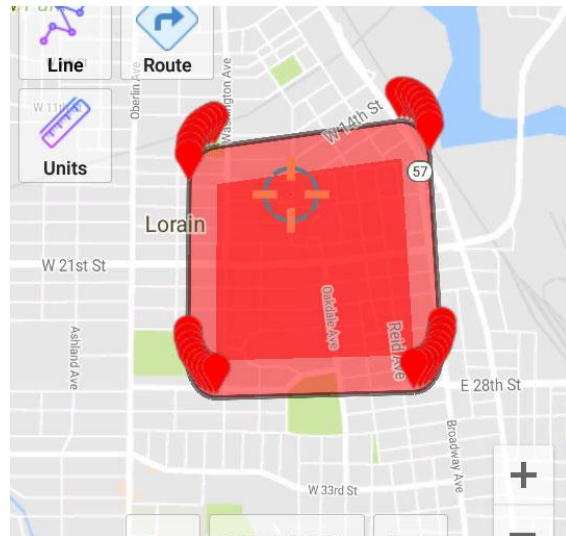
(Original object & smoothing object)



Besides of smoothing, with this tool you can also perform buffering from existing data (point, line or polygon), just click the object, insert buffer length (in meters) and buffer will automatically generated. Buffer from polygon are support for negative length value.

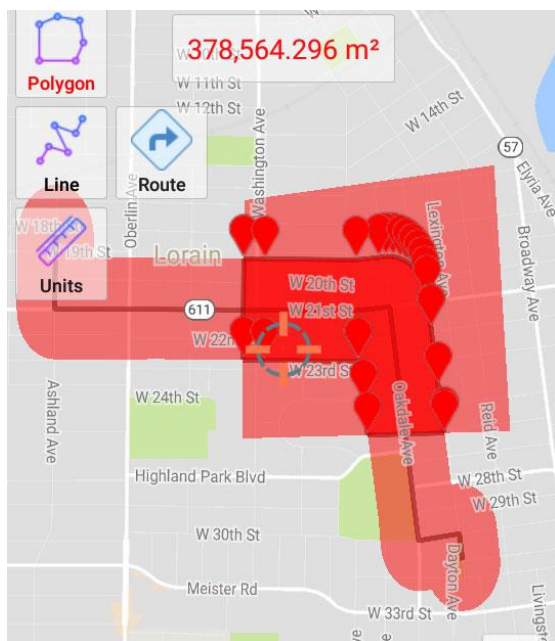


*(Buffer from line feature)*



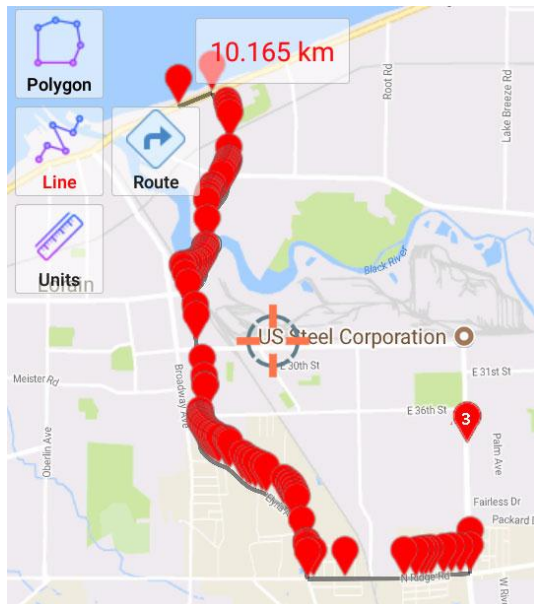
*(Buffer from polygon)*

You can also do a simple overlay (union, intersection & difference) on polygon or line object that overlaps each other. For now this overlay tool only suitable for simple geometry.

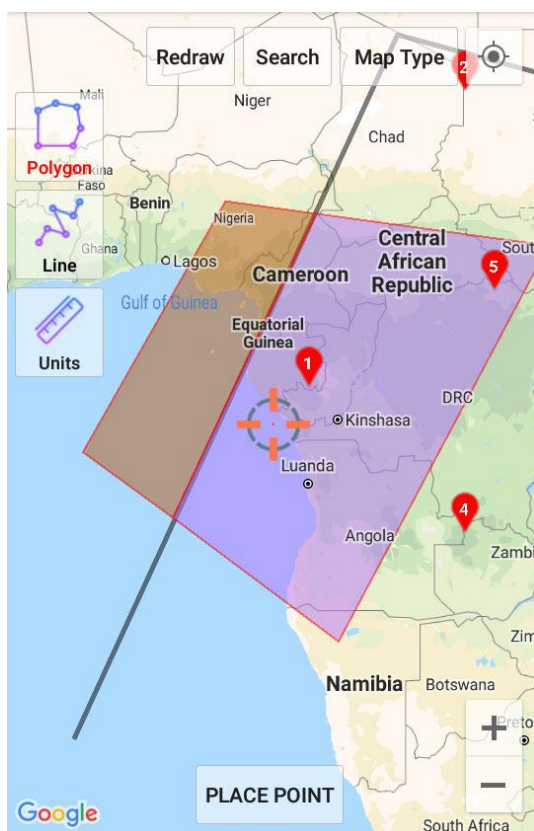


*(Result of intersection overlay from 2 overlapping polygon)*

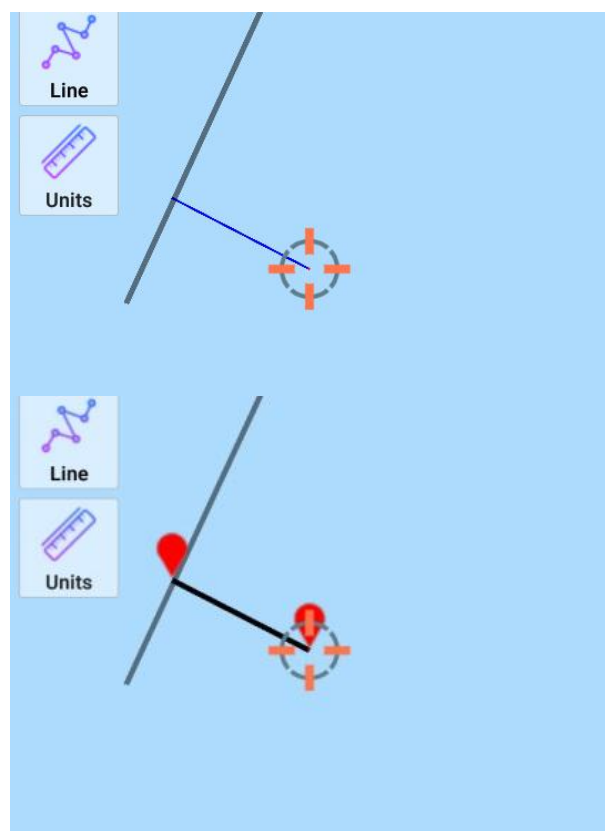
Measuring line / distance of road can be done manually by registering each vertex on the map or created automatically using direction route tool. Direction route is need at least 2 vertex data as the parameter for starting and end points, if you have more than 2 vertex, you can use the rest of vertex as way point.



*(Polyline created automatically along road using the direction route tool)*

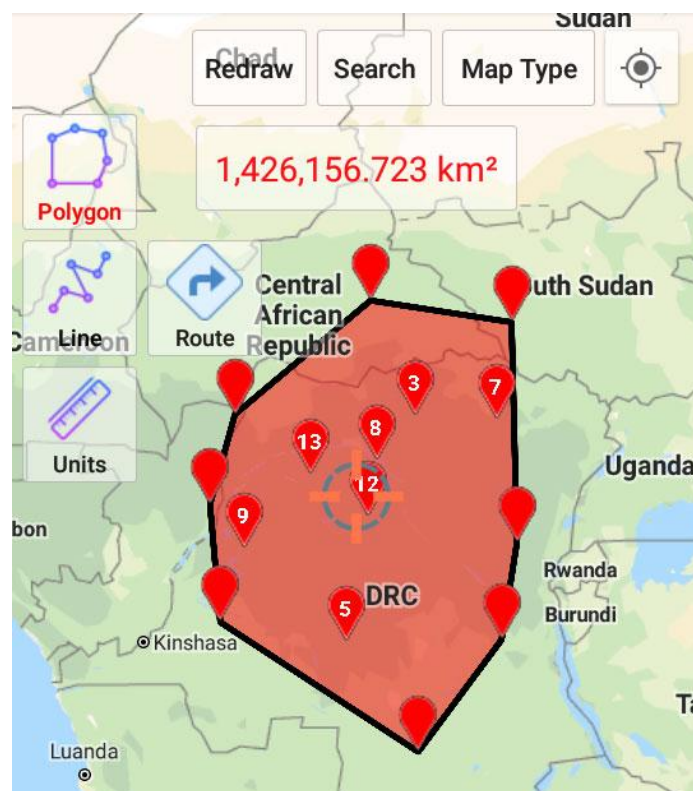
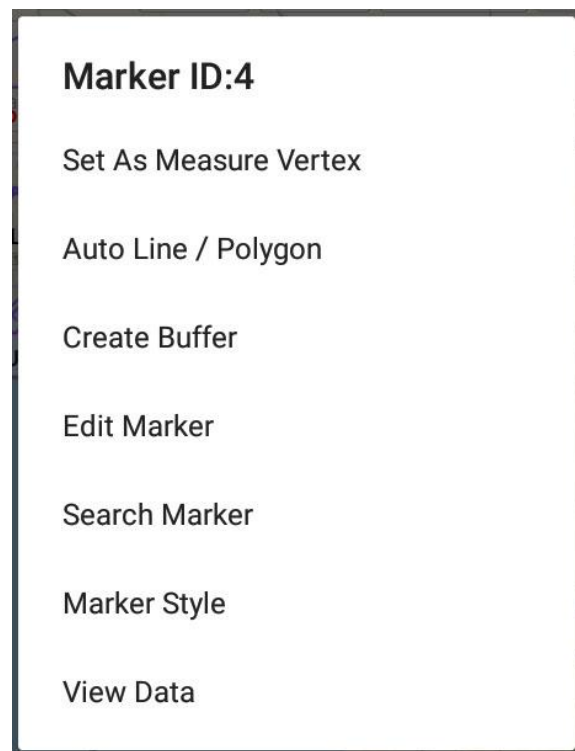


*(Split polygon by line)*



*(Snap nearest)*

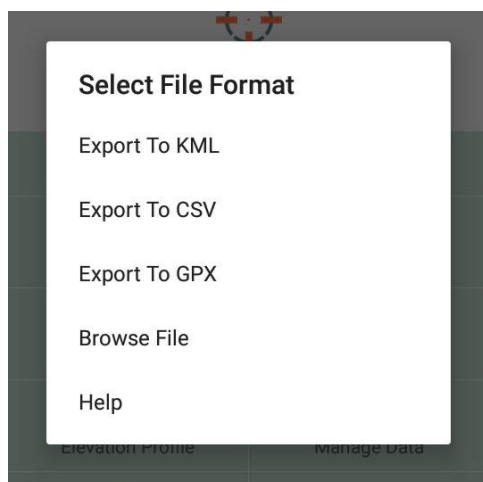
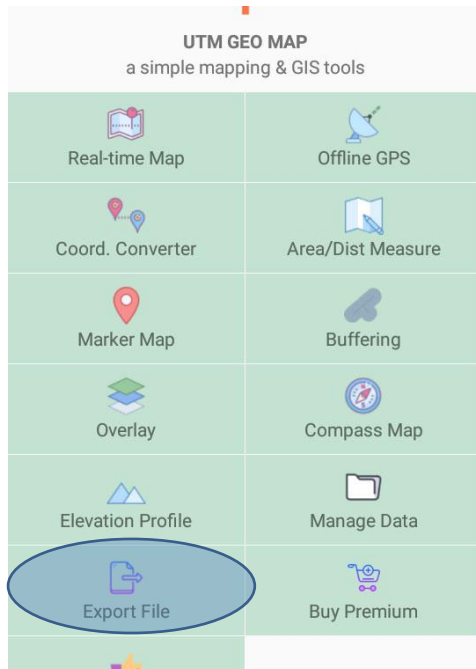
To measure line / polygon using existing marker or GPS measurements, you can manually click each marker and select “set as measure vertex” or create polygon automatically using “Convex Hull” methode.



(Polygon created automatically using Auto Line / Polygon tool )

## Export Data To KML, GPX & CSV

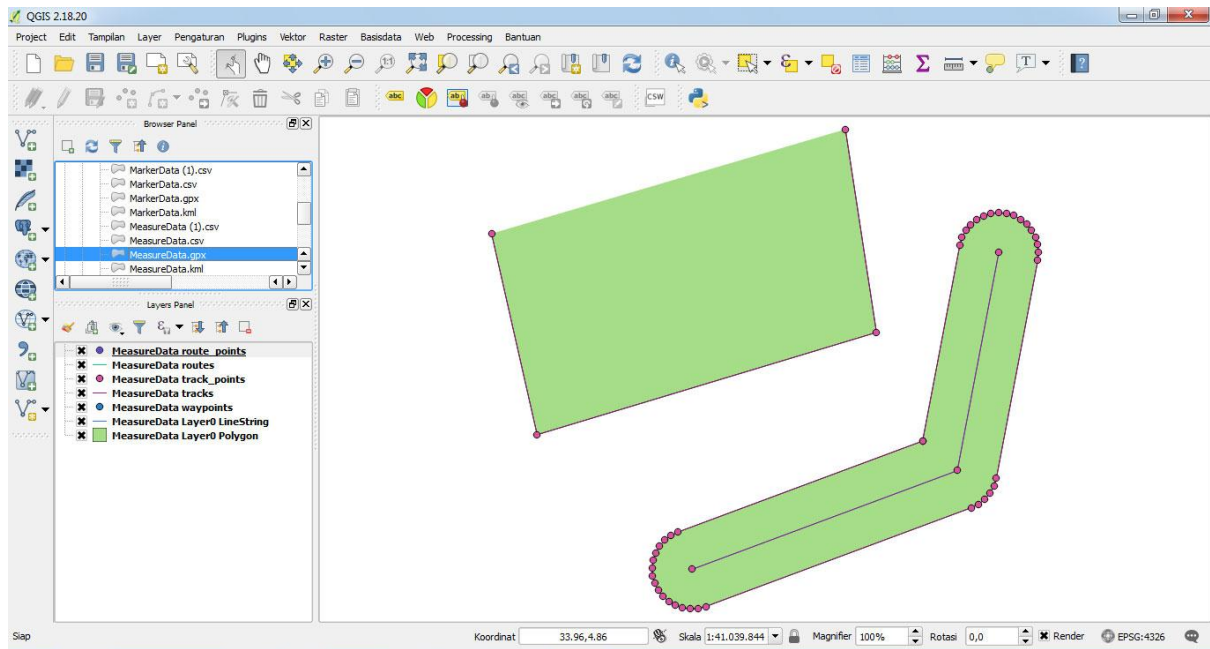
You can export all measurement data (Marker, Line or Polygon) into KML, GPX or CSV file to be used in other application or PC software such as QGIS. The export file will be stored in Google Drive for easy access from other devices or from the PC.



To access exported files from your PC, first you have to install google drive (<https://www.google.com/drive/download/>).

After finish installing Google Drive on your PC, the file will automatically appear in the file explorer and can be accessed directly from any GIS / CAD program that support KML, GPX or CSV file format.



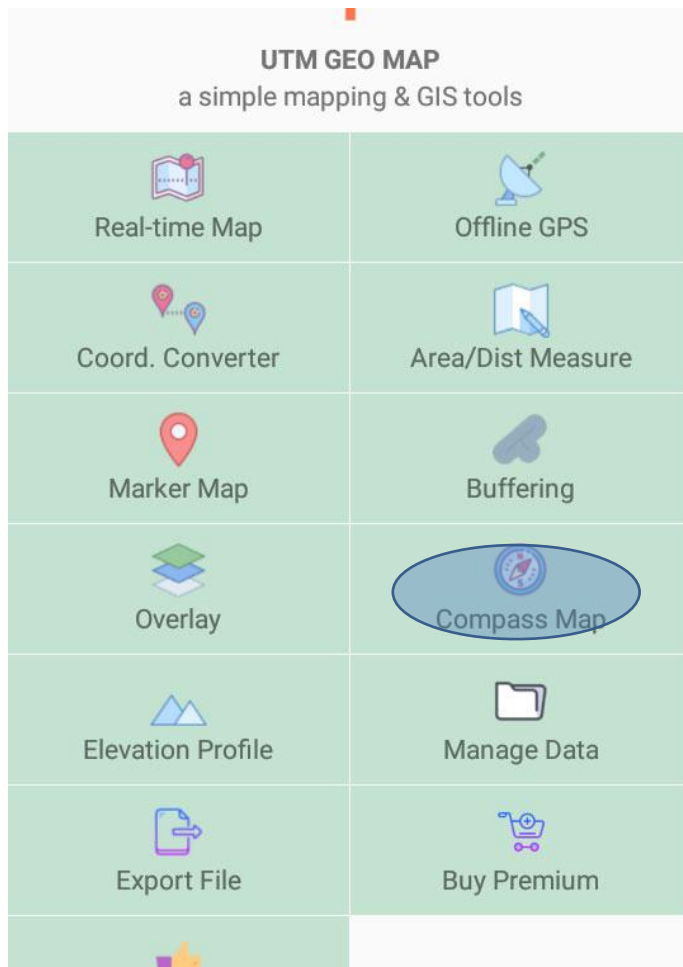


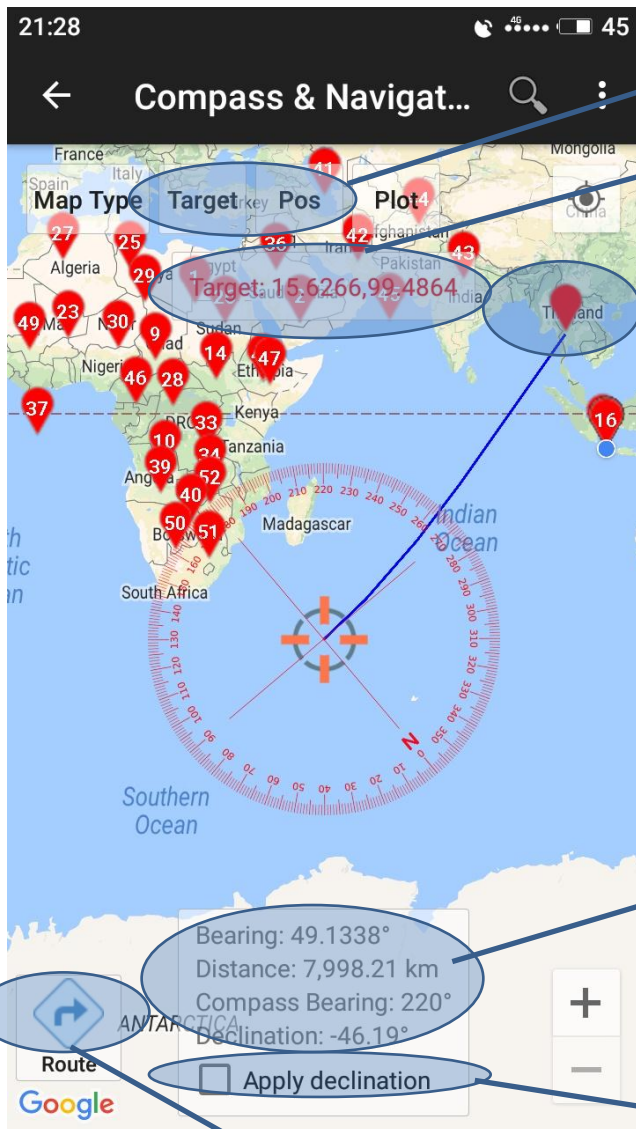
*(Import file in QGIS directly from Google Drive)*

## Compass Map

Compass Map Module can be used to measure azimuth / bearing & distance between 2 places or coordinates. This module also equipped with magnetic compass & magnetic declination value in current compass position to correct compass north direction from magnetic north into true north.

Compass Map module can be use as tool to help navigation in the field. In addition there is a button to calculate direction route (premium) that will show you direction from your compass position to target position on the map.





Change target / compass coordinates

Target Coordinates

Target Marker is draggable

Results Panel (click value to change units)

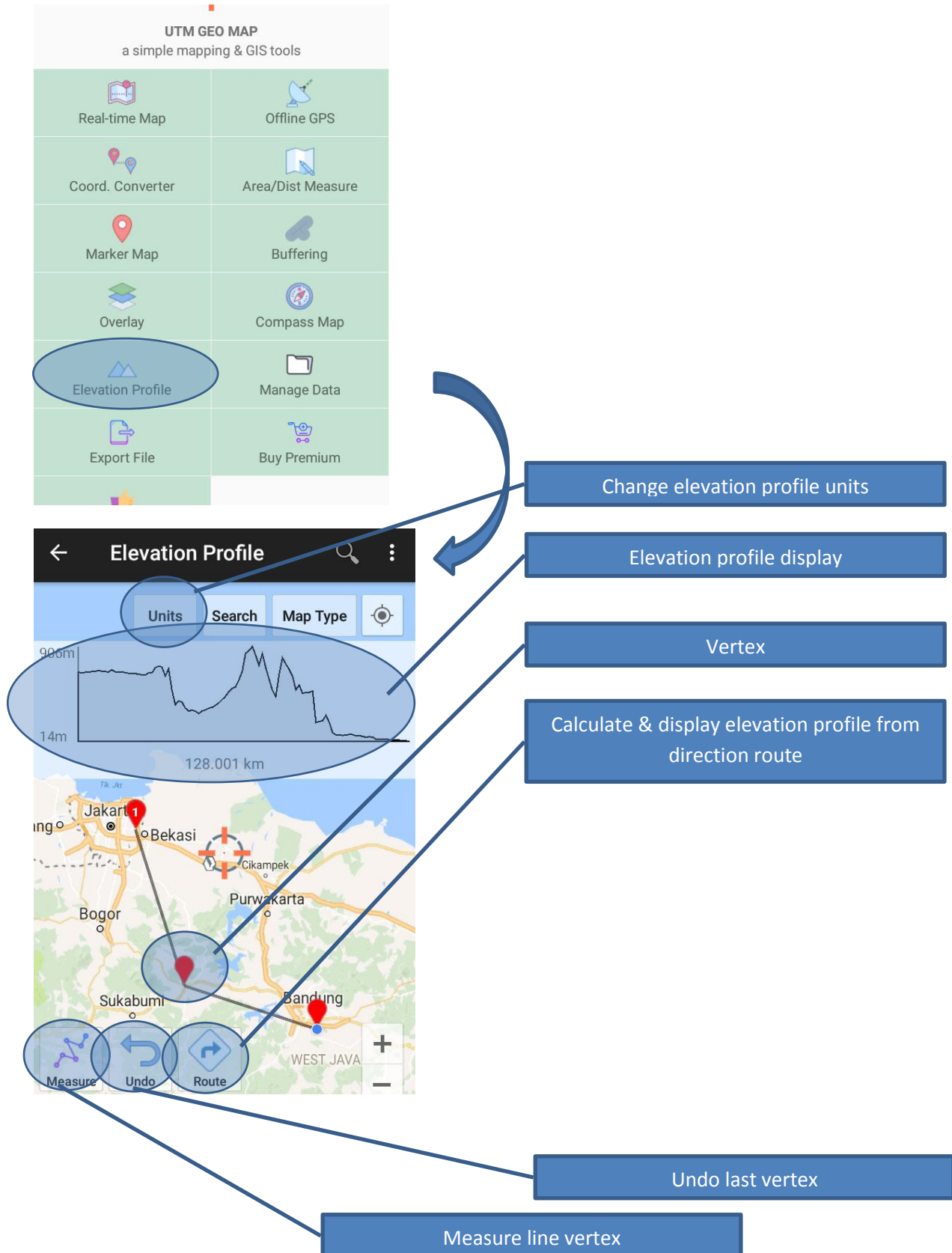
- Bearing
- Distance
- Compass bearing
- Current magnetic declination

Apply declination correction to the compass

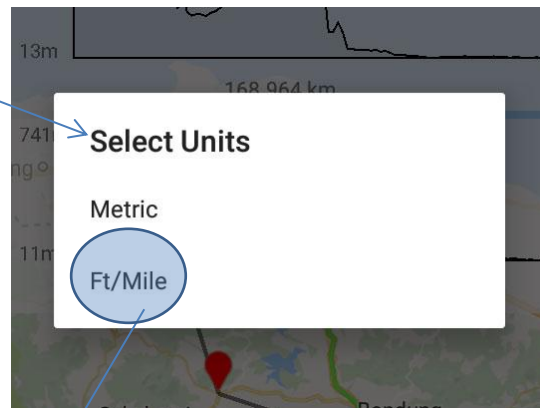
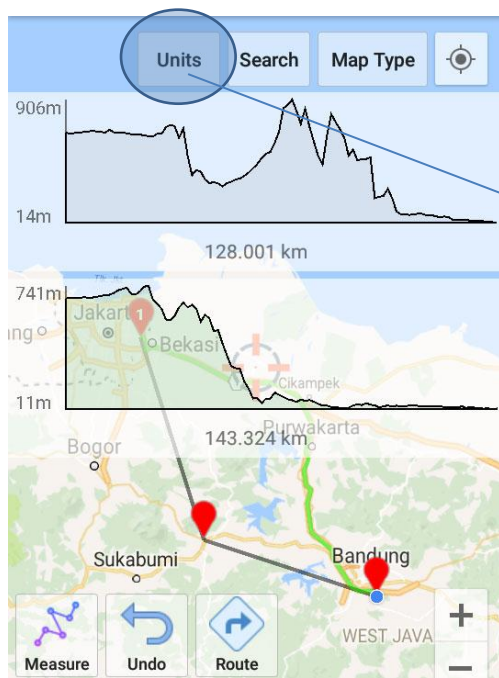
Direction route (Premium)

## Elevation Profile Module

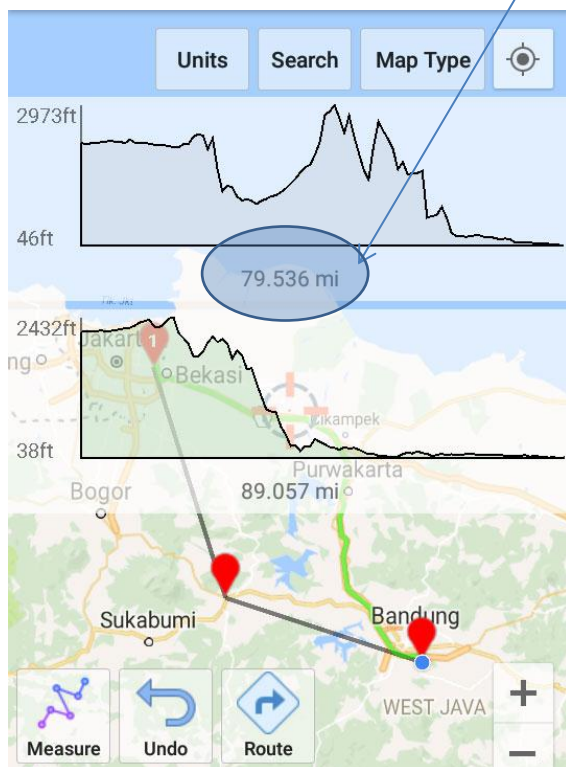
This is premium module made to calculate and display the elevation profile from line with two or many vertex on the map, also can be used for calculate elevation profile of road from auto generated direction route.







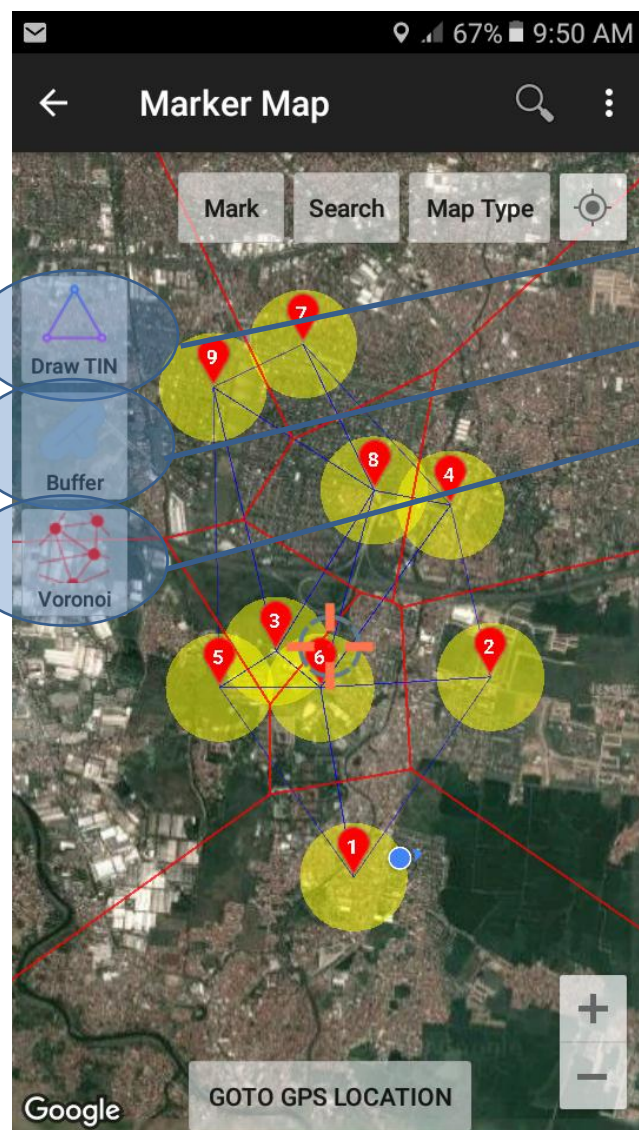
(Display of elevation profile for both line & direction data)



(Elevation profile with ft / mile units)

## Marker with Delaunay Triangulation View (Triangulated Irregular Network / TIN), Voronoi Diagram and Buffer View Dynamically Using Marker Map Module.

With this small & simple application you can create maps featuring markers with Delaunay Triangulation network view, Voronoi Diagram and Buffer view simultaneously and dynamically, this map tools will give you more understanding about the distribution, network and location of the data that you have.

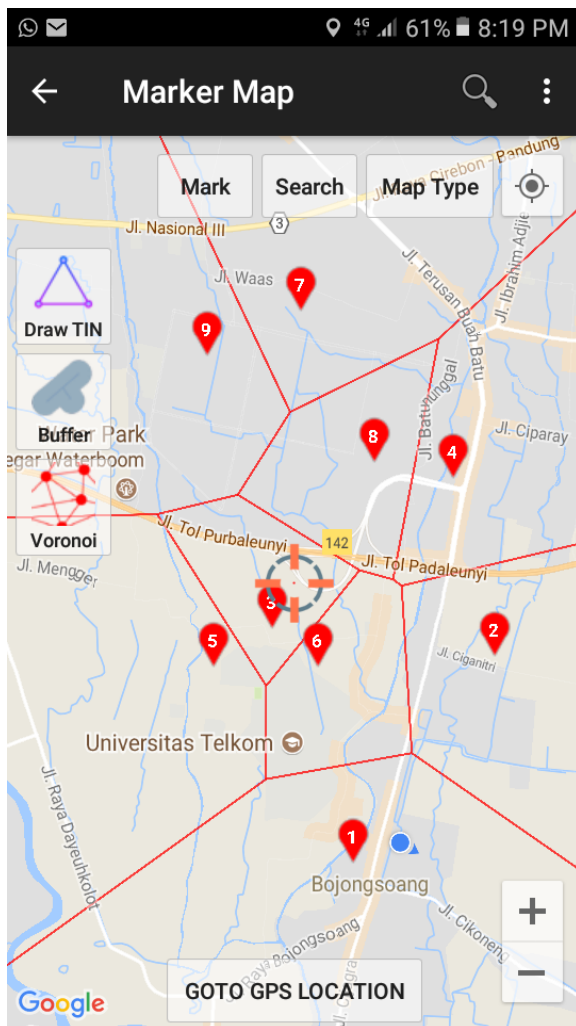


Draw / Hide Triangulation

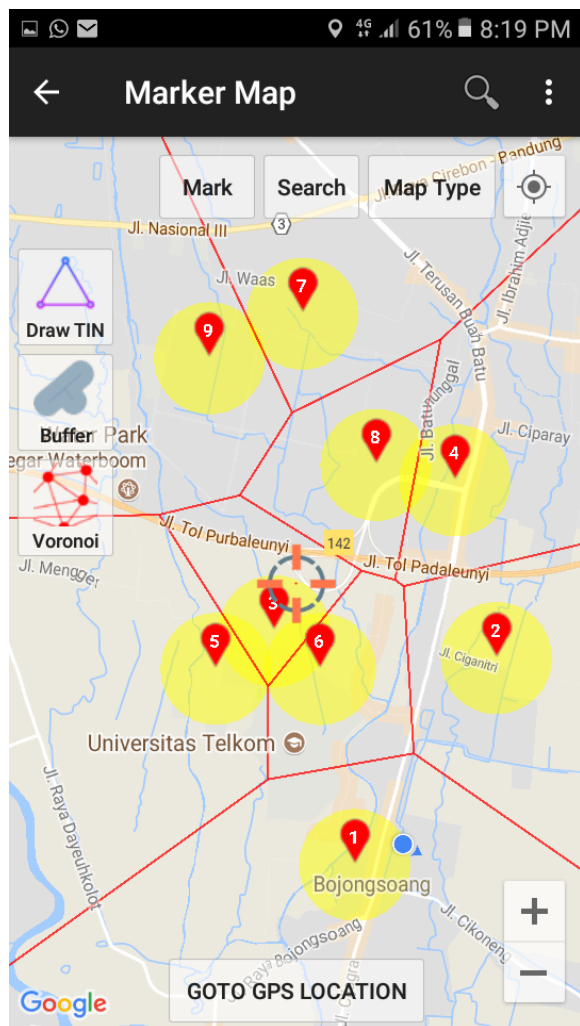
Draw / Hide Buffer

Draw / Hide Voronoi Diagram

Voronoi Diagram is a mathematical model that can be used in many jobs, such as determining which firefighting unit is nearest to the fire location, or analyzing coverage of a public facility such as a hospital. With the help of Voronoi Diagram we can see which areas have the furthest distance with certain objects represented by a marker on the map. Voronoi diagrams are also often used as a tool to analyze the spread of disease.



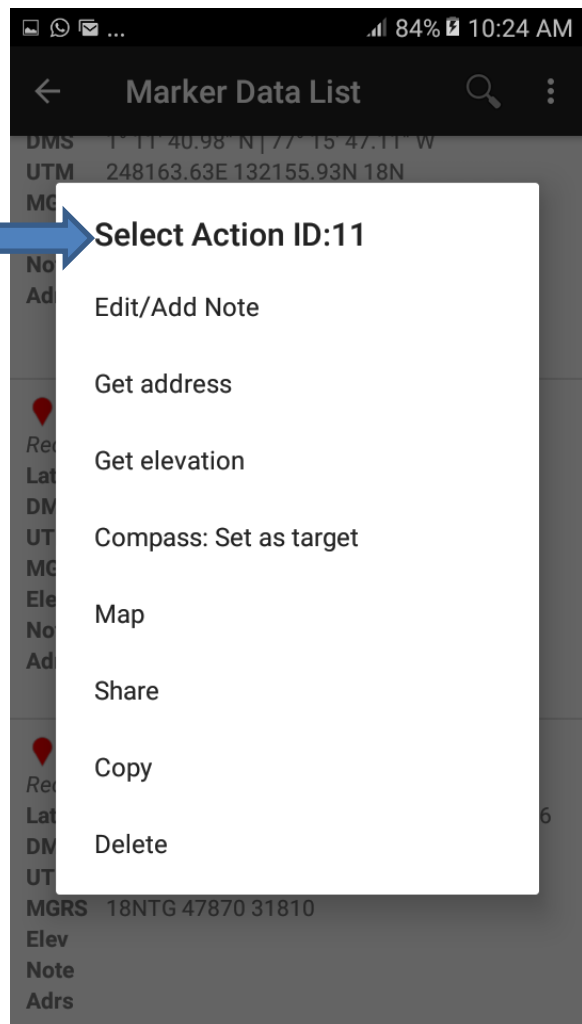
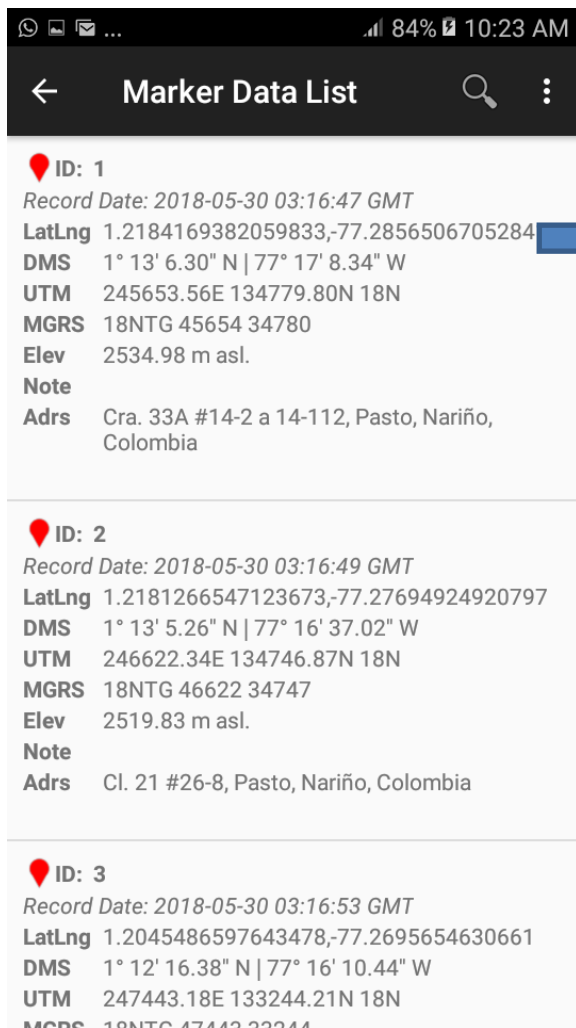
(Map with Voronoi Diagram)



(Voronoi Diagram combine with buffer view)

## Managing Database.

Use this module to manage your data such as adding notes, adding elevation & address data (premium), viewing current data on the map, share, copy to clipboard or delete from the database.





## Offline GPS

In the situations that you don't have any Internet access or even cellular network, you can still obtain your position and getting your current coordinates with this offline GPS module. The data captured with this module are longitude latitude coordinates, UTM coordinates, MGRS coordinates, elevations above ellipsoid, altitude above MSL (based on EGM96 geoid model), accuracy, current magnetic declination, available satellite on the sky and bearing and speed for you who probably observe GPS in a moving state.

UTM GEO MAP  
a simple mapping & GIS tools

Real-time Map

Offline GPS

Offline GPS

Lat Long

-6.978928,107.635617

UTM

791220.0E 9227766.3N 48M

MGRS

48MYT 91220 27766

Altitude

693.50 m

Alti. (msl)

673.04 m asl.

Accuracy

3.60 m

Bearing

63.20° Declination: 0.87°

Speed

0.09 m/sec

Copy

Share

Save

Available Satellite

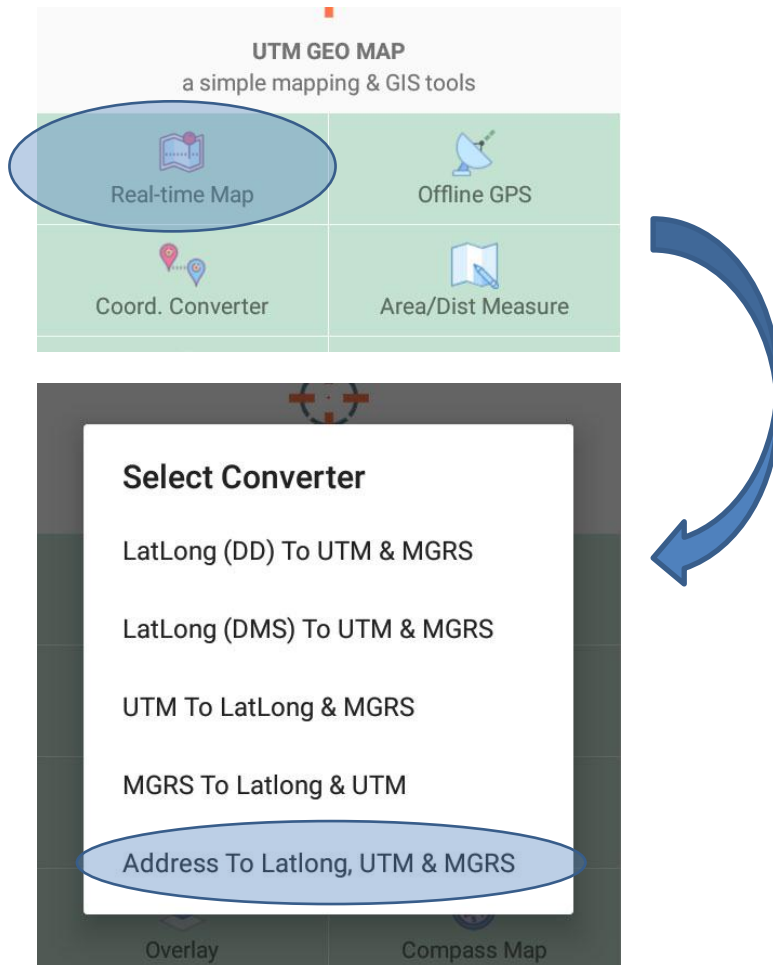
PRN	Used	SNR	Azimuth	Elev	GNSS
1	✓	22.1	159.0°	60.0°	NAVSTAR
3	✓	13.5	188.0°	30.0°	NAVSTAR
7	✓	20.6	338.0°	10.0°	NAVSTAR
8	✓	27.9	1.0°	35.0°	NAVSTAR
9	✓	25.9	292.0°	41.0°	NAVSTAR
11	✓	28.2	190.0°	88.0°	NAVSTAR
17	✓	15.8	227.0°	11.0°	NAVSTAR
18	✓	17.9	101.0°	63.0°	NAVSTAR
22	x	0.0	158.0°	31.0°	NAVSTAR
23	✓	23.8	234.0°	64.0°	NAVSTAR
27	✓	19.1	24.0°	5.0°	NAVSTAR
31	x	0.0	130.0°	8.0°	NAVSTAR
65	x	0.0	273.0°	12.0°	GLONASS
71	x	0.0	174.0°	19.0°	GLONASS
72	x	0.0	228.0°	28.0°	GLONASS
73	x	0.0	95.0°	16.0°	GLONASS



## Geocoding & Reverse Geocoding (Premium)

Geocoding is process of transforming a postal address to a numerical coordinates, in the other hand reverse geocoding is converts geographic coordinates to an addressable location. This tool is integrated in almost all modules in our application.

To perform geocoding process (converting address to coordinates), you can use “Coord. Converter” module, this module will convert your known address into latitude longitude (DD & DMS) coordinates, UTM coordinates, MGRS coordinates & getting elevation MSL (premium) in one click. Afterwards you can save this conversion results into database and integrated as a marker data.



**Notes :** We are very apologize that geocoding process in some devices (not all) will be limited due to the high price we have to pay. For those of you who affected and really need it, please buy / subscribe to our Premium Address Geocoding.

## Notes

This document is a quick guide for UTM Geo Map application which will be updated at any time, please download or check for the latest version at following link:

<http://www.yogantara.info/utmgeomapquickstart.pdf>

*UTM Geo Map is an android app designed to help your daily work related to location, maps and coordinates both in the field and in the office environment, this small & simple app can be running well in your small android devices or in large tablets. In practice we take advantage of some existing resources on your android device, such as GPS and compass. But it should be understood that the GPS on your android device, the compass and the map that we use in our app is actually not designed for the purposes of mapping with high accuracy. As a Geodesy Engineer, we do not recommend the use of this app for "real" mapping work. If you need tools for real mapping activity that require high accuracy, you should use Geodetic GPS or Real-time kinematic (RTK) GPS. But if you need a simple & portable mapping & GIS tools that you can take everywhere with acceptable accuracy, you can rely on this application.*

Download UTM Geo Map APP on Google Play Store:

URL : <https://play.google.com/store/apps/details?id=info.yogantara.utmgeomap>



Visit our website : <http://www.yogantara.com>

Share your project / picture in our Facebook page: <https://fb.me/utmgeomap>

Youtube Channel : [https://www.youtube.com/channel/UCspxQ5nQiqRD88g\\_-6GcCqw](https://www.youtube.com/channel/UCspxQ5nQiqRD88g_-6GcCqw)