

# Testing goGPS low-cost RTK positioning with a web-based track log management system

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# Topic

Integration of **goGPS** positioning software with a **web-based track log management system** to provide a solution for high-accuracy low-cost collaborative surveying.

**GPS Track Log Search**

IP Address:

Date:

Time Between:  To

KHDOP <

GPS Mode

Number of Satellite

[>> GPS Data Upload](#)  
[>> Log Statistic Page](#)

[Download KML Track Log](#)

**GPX**  
[Download GPX Track Log](#)

[Display Track Log using Google Earth](#)

1000430.74183, 5720738.28864

# goGPS open source project

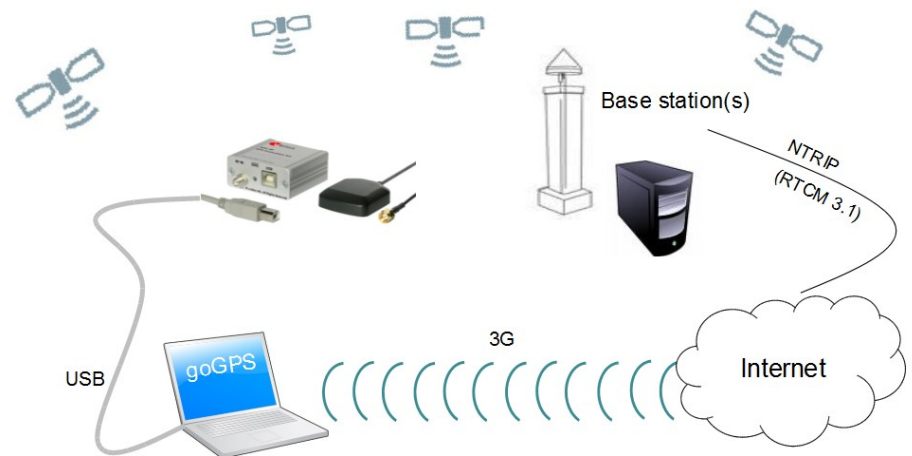
Main features:

- RTK on low-cost receivers (e.g. ublox AEK-4T)
- customized Kalman filter on GPS raw data (L1, P1)
- real-time and post-processing functioning modes
- DTM exploitation for vertical position improvement
- constrained navigation on road networks



Improvement of positioning accuracy to about 50 cm with low-cost receivers

<http://www.gogps-project.org>

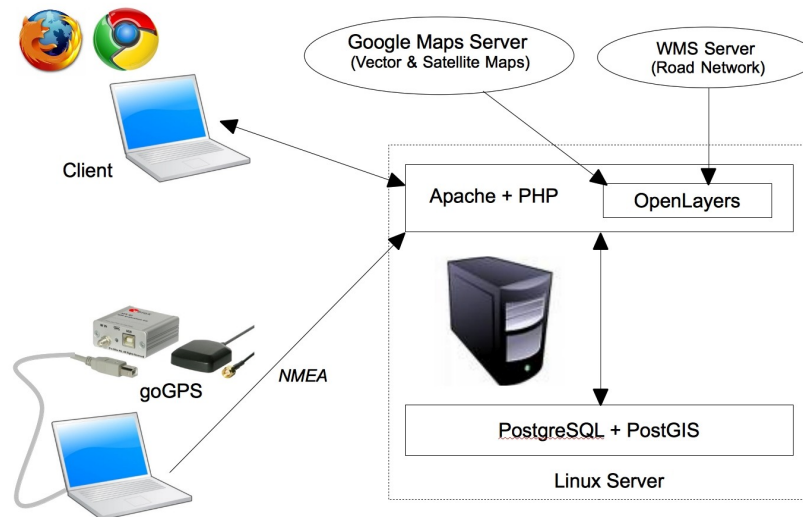


# Integrated web-based system

The system allows users to query and display track logs by selecting date, time, GPS receiver, data quality, etc.

The architecture of the system can be divided into 3 components:

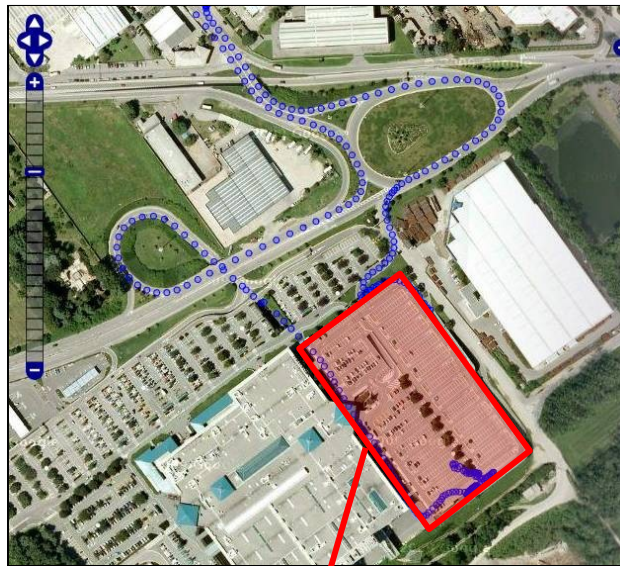
- 1) goGPS, processing GPS raw data
- 2) the server, providing data archiving and geospatial services
- 3) the client, displaying GPS locations and tracks using OpenLayers



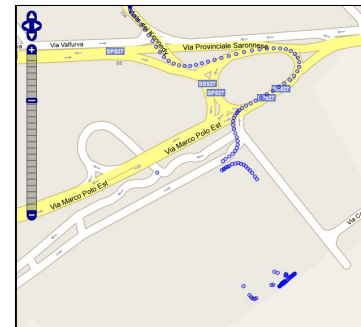
# Data selection

Originally data were filtered on the basis of **HDOP**.

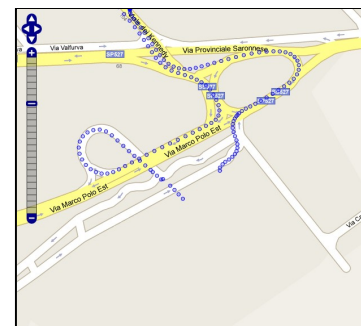
In this work this index has been modified taking into account the **Kalman filter error covariance matrix**, thus improving the result.



*Two-story parking structure,  
causing a sudden change from good  
sky visibility to no sky visibility at all*



*HDOP-based filtering*



*KHDOP-based filtering*



**Thank you!**