

MULTIPATH MANAGEMENT IN GLOBAL NAVIGATION SATELLITE SYSTEMS

Technological advantages

Innovative :

- Delocalized multipath correction computed on remote servers or available from the cloud.
- Enhanced accuracy and reliability in complex environments.

Efficient :

- Intensive and complex calculations not on local GNSS receivers.
- Easy to maintain and update.

Invention synthesis

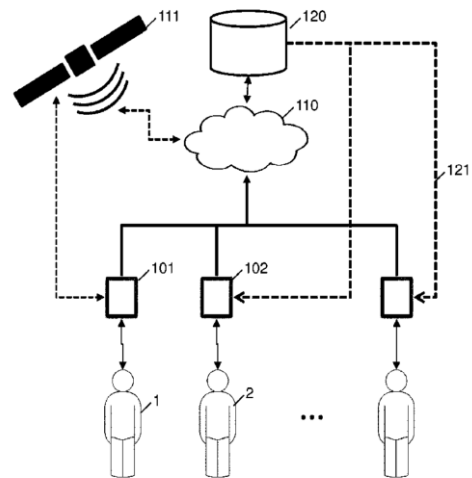
The invention deals with GNSS data processing for more reliable positioning.

While in open spaces GNSS positioning can be quite accurate (large number of satellites in view, little perturbations), fine positioning in complex areas (such as within cities) can be challenging because of fewer satellites in line of sight and because of multipath signals (reflections).

The invention aim is to mitigate multipath; it is based on communicating from the GNSS receiver to a remote server : the spatial position, the clock, the multipath parameters. The remote server can process the data and parameters (for example with spectrum based techniques) to provide updated and improved corrected data. Corrections can be adaptative depending on the environment (refresh rates ...) and pre-computed multipath maps can be created (for example stored in a cloud).

Potential applications

- All GNSS receivers that can communicate with a data server. Especially useful in complex urban areas.



Schematic example about this invention

- (1,2) Users
- (101,102) GNSS receivers
- (110) Data cloud
- (111) Satellites constellation
- (120) Data servers
- (121) Surface / Signal propagating on the surface

Commercial benefits

- Enhanced reliability and accuracy for GNSS receivers positioning.
- Computing, data processing are done on remote servers.
- Compatible with all GNSS receivers capable of server communication, all satellite constellations.

Patented invention - under license.