

GSM localization

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GSM localization is the use of multilateration to determine the location of GSM mobile phones, usually with the intent to locate the user.

Types

There are several types of **Localization-Based Systems**:

- **Cell Identification** - The accuracy of this method can be as good as a few hundred meters in urban areas, but as poor as 32 km in suburban areas and rural zones. The accuracy depends on the known range of the particular network base station serving the handset at the time of positioning.
- **Enhanced Cell Identification** - With this method one can get a precision similar to Cell Identification, but for rural areas, with circular sectors of 550 meters.
- **TOA** - Time of arrival
- **AOA** - Angle of arrival
- **E-OTD** - This is similar to TOA, but the position is estimated by the mobile phone, not by the base station. The precision of this method depends on the number of available LMUs in the networks, varying from 50 to 200 m.
- **Cell Broadcast** - This technology lets mobile operators notify users on their current location. Users' handsets can display the location name (city, country, etc.), the area code or any other location-relevant information.
- **Assisted-GPS** - A largely GPS-based technology, which uses an operator-maintained ground station to correct for GPS errors caused by the atmosphere/topography. Assisted-GPS positioning technology typically fallback to cell-based positioning method when indoors or in an urban-canyon environment.

See also

- Multilateration
- Global Positioning System
- Assisted GPS
- Internationalisation : usability, product design, user interface and cultural data collection
- Positioning (telecommunications)

External links

- GSM Localization on Mobile Phones (http://www.cs.toronto.edu/~walex/papers/are_gsm_phones_the_solution_for_localization_wmcsa2006.html)
- Uplink Time Difference of Arrival, Assisted GPS, Enhanced Cell Identification, Angle of Arrival (<http://www.trueposition.com/TrueNorth-aoa.php>)
- CellSpotting: A Global Cell Id-Based Information Service (<http://www.cellspotting.com>)
- LBS, the ingredients and the alternatives (<http://www.gisdevelopment.net/technology/lbs/techlbs006.htm>)
- GSM Tutorial (http://www.visualgsm.com/gsm_index.htm)
- Location API for J2ME (<http://www-users.cs.umn.edu/~czhou/docs/jsr179/lapi/>)
- Tracking of mobile cell phones using GSM Cell ID (<http://www.cell-tracking.com>)
- J2ME and Location-Based Services (<http://developers.sun.com/techttopics/mobility/apis/articles/location/>)
- Instruction and Information on GSM cellphone tracking and location (http://www.findcall.com/mobile_phone_tracking/)
- Accurate GSM Indoor Localization (<http://www.placelab.org/publications/abstract.php?ID=ubicomp2005-indoorGSM>)
- Celltrack for Symbian phones (<http://www.afischer-online.de/sos/celltrack/p.html>)
- Cell phone tracking service providers in USA and elsewhere (<http://www.phone-tracking.com>)

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Categories: GSM Standard | Mobile telephony

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