



## Development of a mobile GPS-GIS data processing software

P. M. Udani and Ajai  
Remote Sensing Applications Area  
Space Applications Centre (ISRO)  
Ahmedabad-380015, India  
Email: nmudani@sac.isro.gov.in

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**Abstract:** Global Positioning System (GPS) has been extensively used in establishing the high precision ground control points, geodetic surveying and in geo-referencing of the satellite images, during the past few decades. One of the emerging applications of GPS derived data is real time GIS database creation to cater to the need of geospatial services. GPS receivers used for real time mapping and GIS database creation are normally mobile GPS and their output is encoded in the form of NMEA protocol string. The NMEA data can not be directly used for real time GIS database creation and GPS data processing software is required. The present paper describes the information content of GPS NMEA data, core GPS data processing functions and development of GPS interface software. Modular approach has been followed in software development. Generic GPS-GIS functions have been built and developed functions have been subsequently used for building GUI based GPS data processing and interface software. The GPS interface software facilitates real time GIS databases creation as per the interoperable shape file data model. Nearly 150 functions are embedded in GPS-GIS interface software for providing support pertaining to communication port configuration, data decoding, filtering, GIS database creation, browsing and generation of map output. The mobile GIS system comprising of GPS-GIS interface software, CF GPS and windows CE pocket PC is useful for in-situ data collection, emergency mapping and GIS data access in the field for disaster support. Comparison of windows CE software development environment, GUI of GPS interface and data symbolization are also dealt with.

**Keywords:** GPS, Mobile GIS, NMEA, Shape file Data Model, Windows CE Operating System.