GIS AND

OPEN SOURCE

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Usage

managing various:

- natural resources
- man-made resources

GIS is every where, used by all

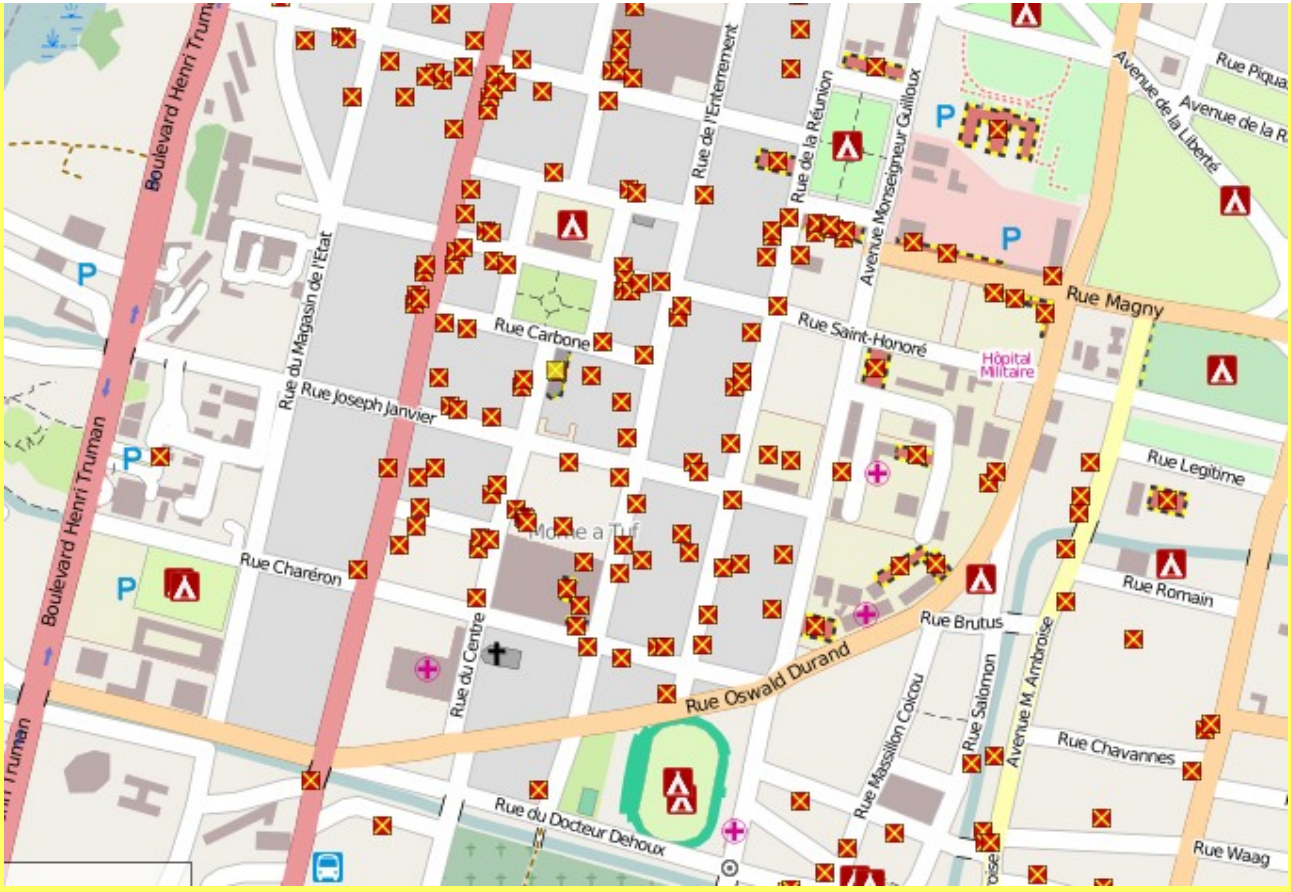
Geo-spatial Data

- Government agencies
- Companies
- Community generated

Most maps you think of as free actually have legal or technical restrictions on their use, holding back people from using them in creative, productive, or unexpected ways.

OpenStreetMap

OpenStreetMap creates and provides free geographic data such as street maps to anyone who wants them.



1: Damaged building: Haiti EQ

2: OSM map on GPS

Thanks

"Many thanks Freddy. Very timely maps of Haiti that sent me to the Garmin. I went down and installed the GPS in our search and rescue teams. OSM undoubtedly be a great help to our response teams, especially those going to move to rural areas." Colombian search and rescue operators

http://www.inveneo.org/?q=haiti-wifi-network

We've been given coordinates that are miles off the actual location, a real issue when street signs are missing, landmarks are destroyed and the city has a dusk curfew.

"This is where OpenStreetMap is a godsend" in How to Deploy Long-Distance WiFi in Haiti (2010-02-10) by

Inveneo, a NGO whose mission is connecting those who need it most, on how they were able to bring high-speed Internet access - critical communication capacity - to eleven relief agency locations with minimal equipment and installation time.

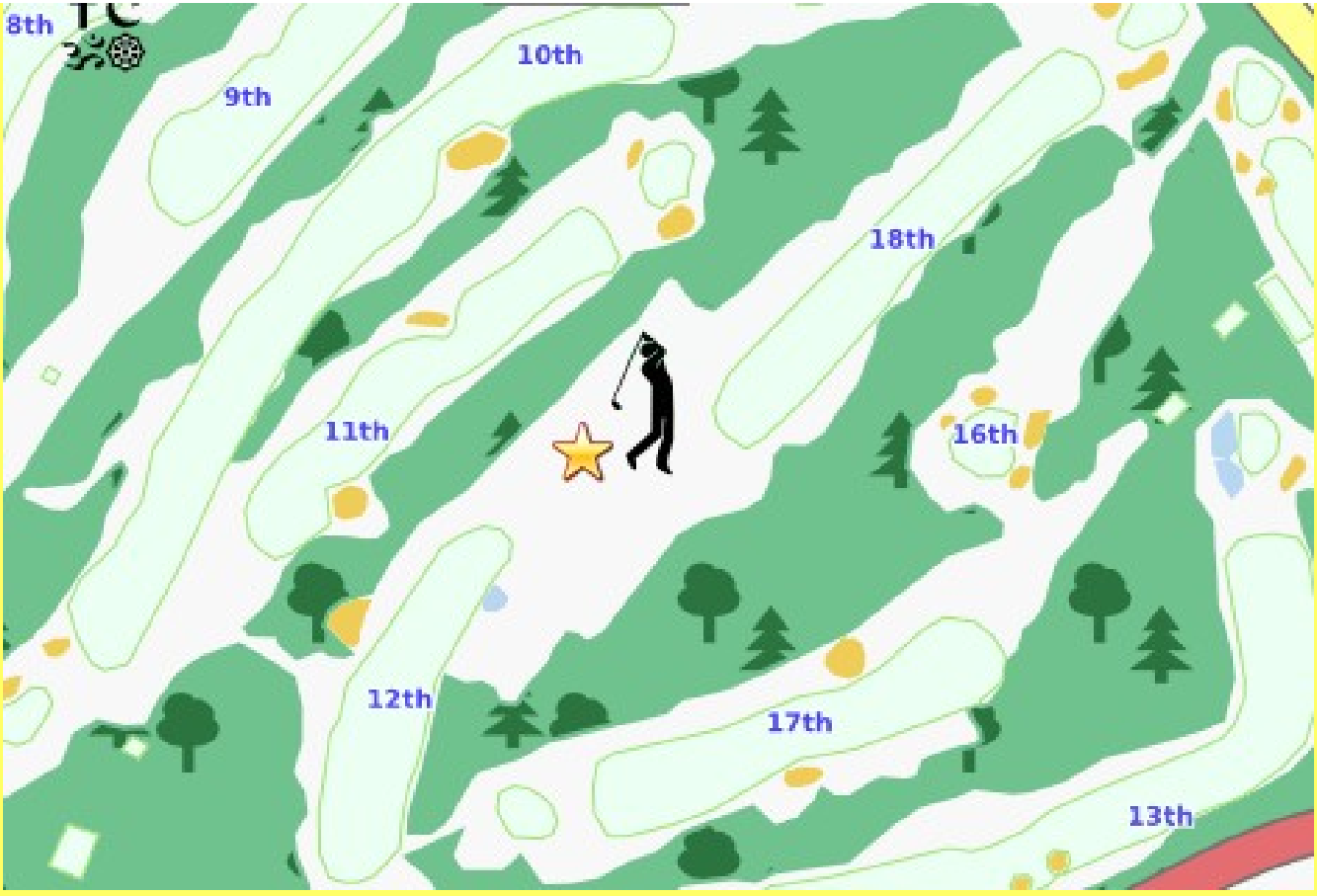
Best of OSM

http://bestofosm.org/


Zone 3 Pulianthope
Park Town
Beach Chengalpattu Line
Ward 80 Nehru Nagar
Fort St George
Choultry
Rajaji Salai
Kendriya Vidyalaya Island Grounds
Mayor Kabalamurthy Rd
Ward 79 Adikesavapuram
Pallavan Salai
Anna Salai
Zone 2 Basin Bridge
Chintadripet
Island Grounds
War Memorial
Gymkhana Club
Chennai Port - Maduravoyal Elevated Expressway (planned)
Swami Sivananda Salai
Ward 81 Chintadripet
Ritchie St
Atthipattan St
Ayya Mudali St
Singanna Naicken St

3: Chennai

4: Cubbon Park - Bangalore



5: Coimbatore Golfcourse

6: Golfcourse: Indian rendering

Software

- OSGeo: 2005 The Mapserver Foundation, Feb 2006 The Open Source Geospatial Foundation
- OS Geo India: Jan 2007

OSGeo's Software

Graduated

1. GDAL/OGR
2. GRASS GIS
3. Mapbender

4. MapGuide
5. GeoTools
6. MapServer
7. OSSIM
8. deegree
9. geomajas
10. OpenLayers

11. Quantum GIS
12. FDO

In Incubator

13. GeoServer
14. MapFish
15. gvSIG

16. GEOS
17. MetaCRS
18. PostGIS

Others

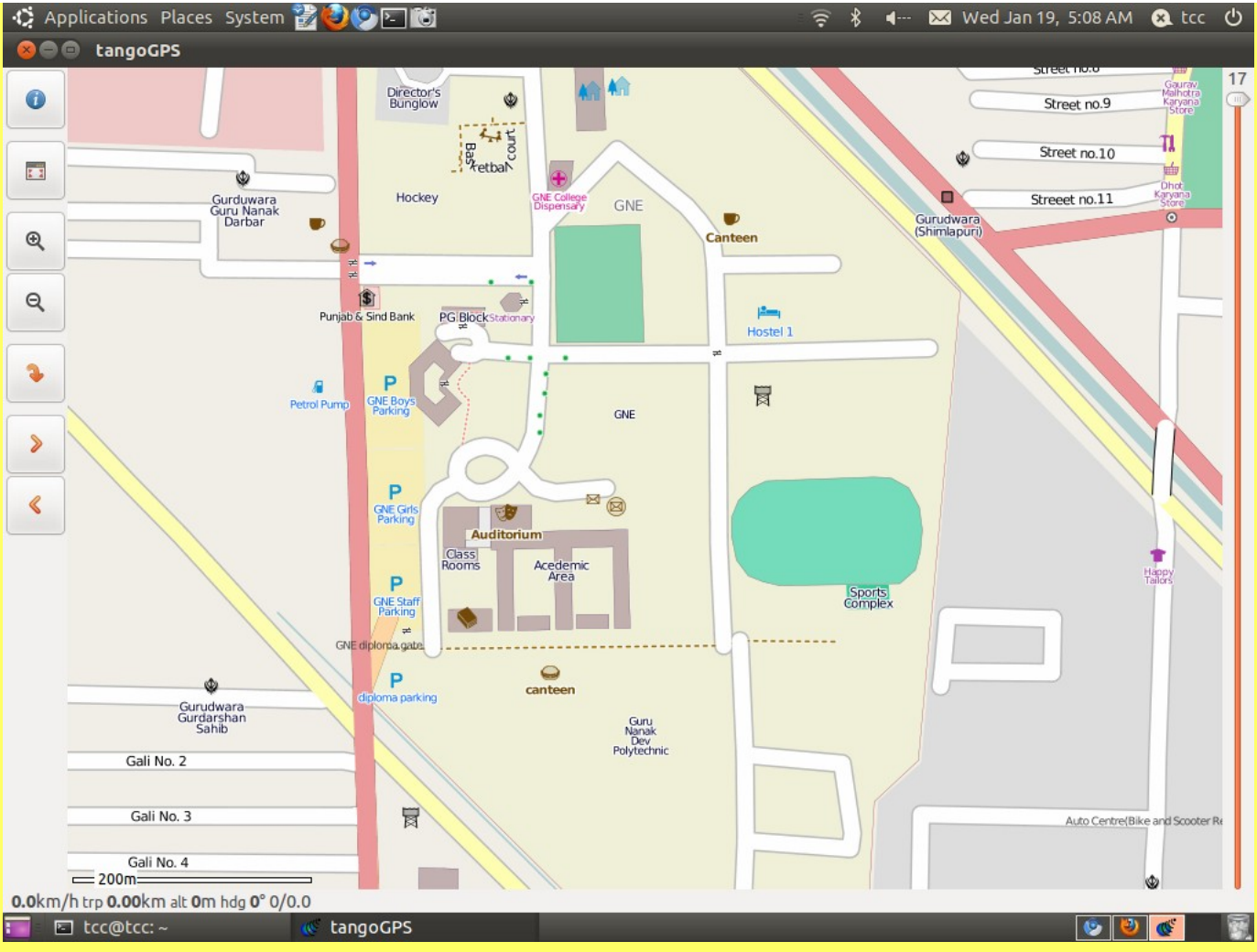
19. TangoGPS
20. SagaGIS
21. Viking
22. GPS Drive
23. QlandkarteGT

24. GPSCorrelate
25. Navit
26. GPSPrune
27. GPXViewer
28. GeoTranz
29. GpsMid

TangoGPS

- Mapping application for use with or without GPS
- Works on an Linux powered device
- Map data from the Openstreetmap, other repositories can be added
- www.tangogps.org

7: TangoGPS on mobile phone



8: TangoGPS on Laptop

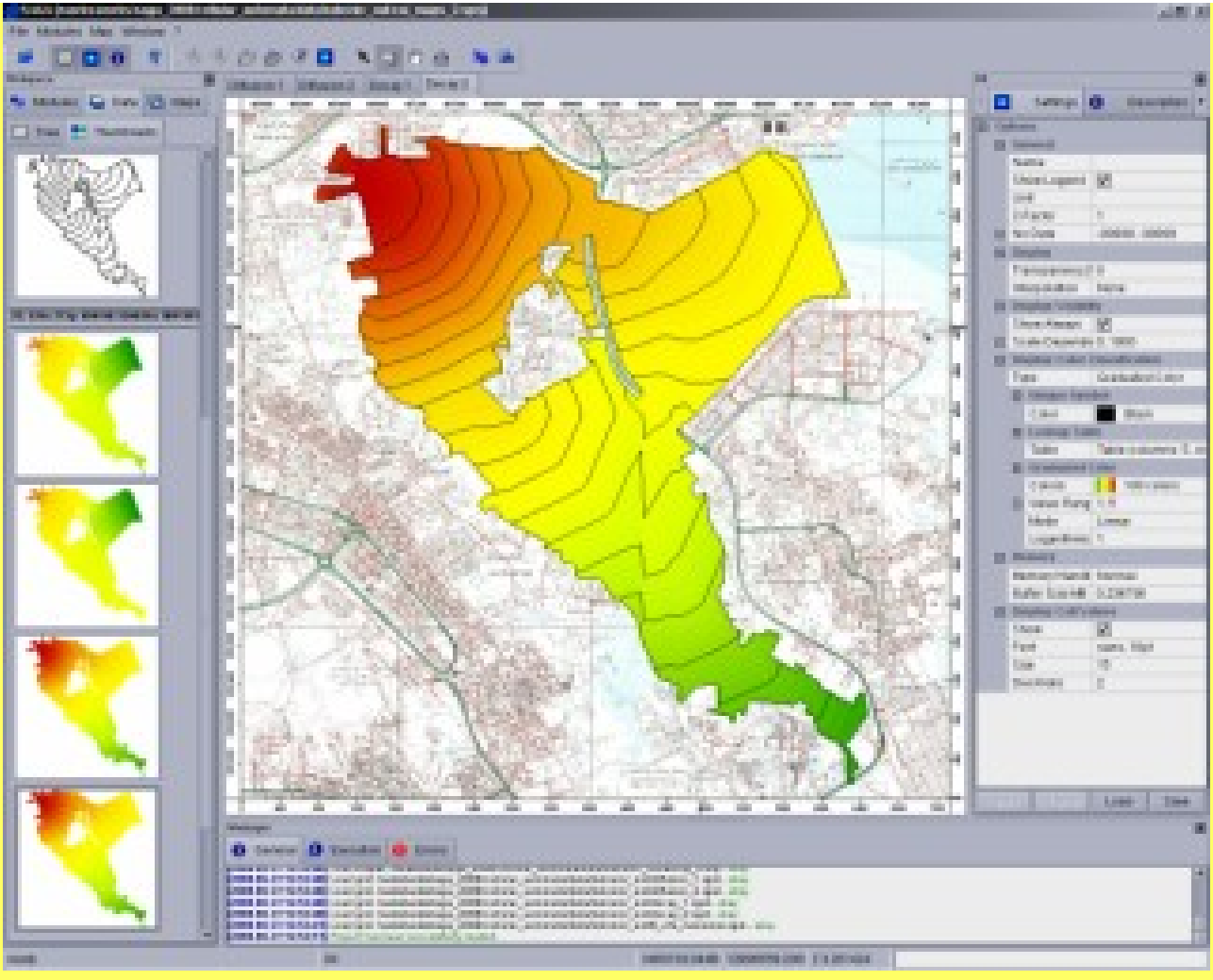
- The maps are automatically downloaded and cached for offline use while you drag or zoom the map.
- If connected to a GPS your current position and track are shown on the map and you can log positional data for further processing.
- Support for Zephyr HxM heart rate monitors

- Logging of your heart rate, fully synchronised with the GPS track
- Geocoded images can be shown with the correct position on the map and you can mark your favourite locations and any points of interest on the map.
- Find friends, you can exchange your position with them.

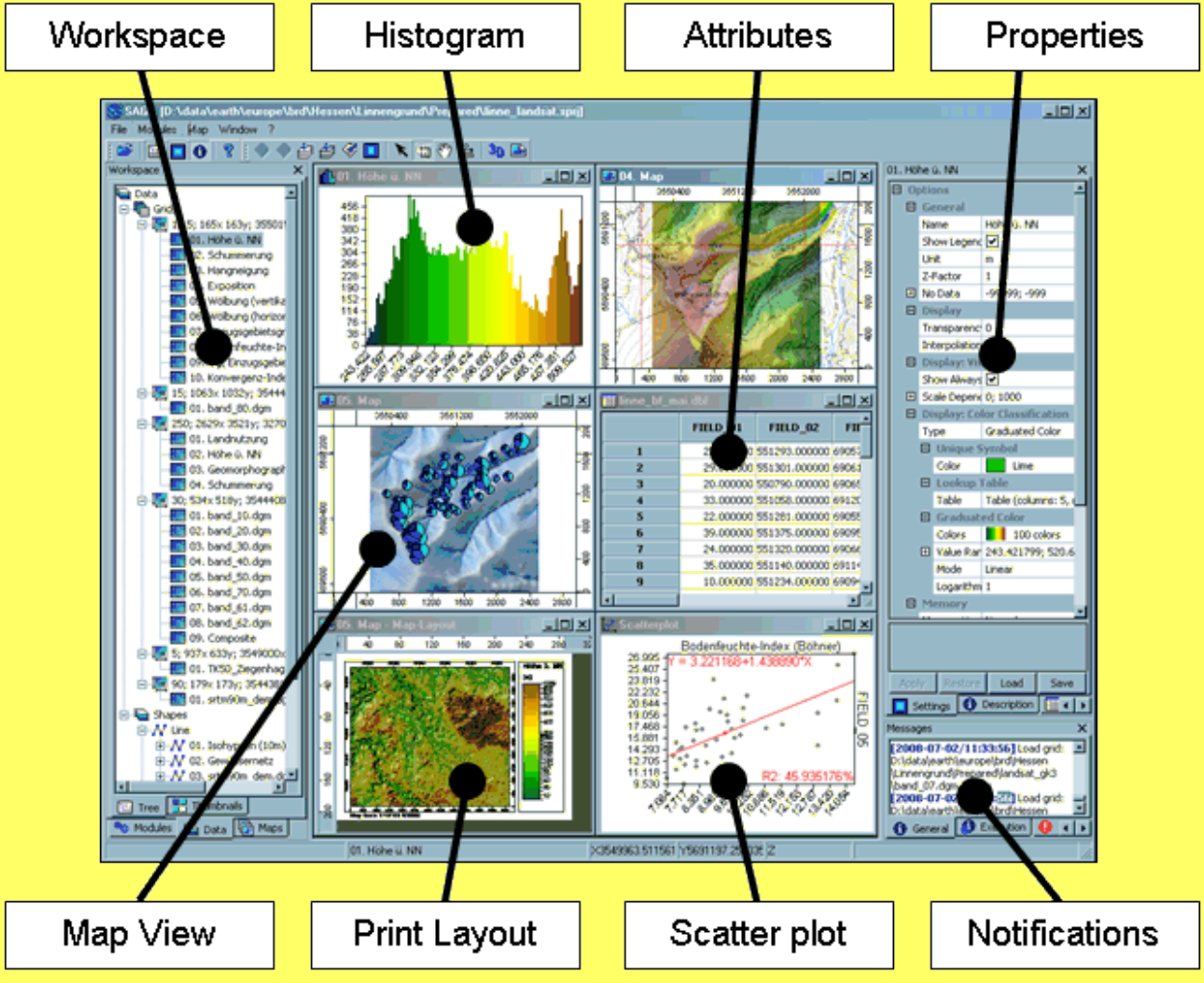
SAGA

- System for Automated Geoscientific Analyses
- GIS software
- Designed for an easy and effective implementation of spatial algorithms

- Offers a comprehensive, growing set of geoscientific methods
- Provides an easily approachable user interface with many visualisation options
- Runs under Windows and Linux operating systems



9: SAGA in action on Linux



10: GUI of SAGA

- Simulation
  - Cellular Automata
  - Modelling the Human Impact on Nature
  - Fire Spreading Analysis
  - Hydrology

- Terrain Analysis
  - Channels
  - Compound Analyses
  - Hydrology
  - Lighting, Visibility
  - Morphometry
  - Profiles

Automation of complex work flows and the routine processing of mass data through scripting.

Navit

Car navigation system with routing engine.

It's modular design is capable of using vector maps of various formats for routing and rendering of the displayed map. It's even possible to use multiple maps at a time.

11: Navit: Bird View Mode

- User interface is designed to work well with touch screen displays. Points of Interest of various formats are displayed on the map.
- The current vehicle position is either read from gpsd or directly from NMEA GPS sensors.
- The routing engine not only calculates an optimal route to your destination,

but also generates directions and even speaks to you using speechd.

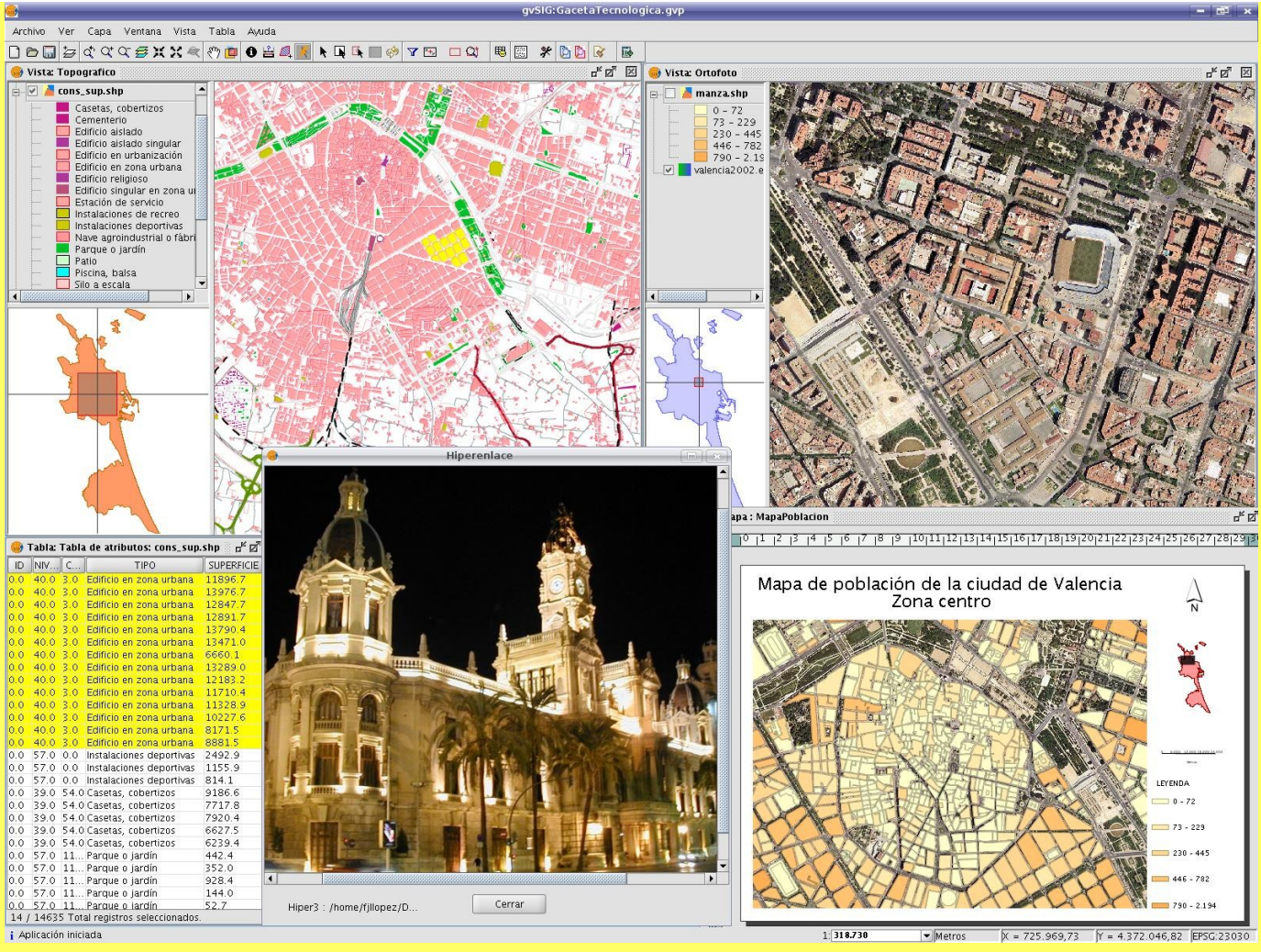
- Supports 24 languages
- Designed to be applied in everyday situations and by people that are not developers or technical people.
- http://wiki.navit-project.org/

gvSIG

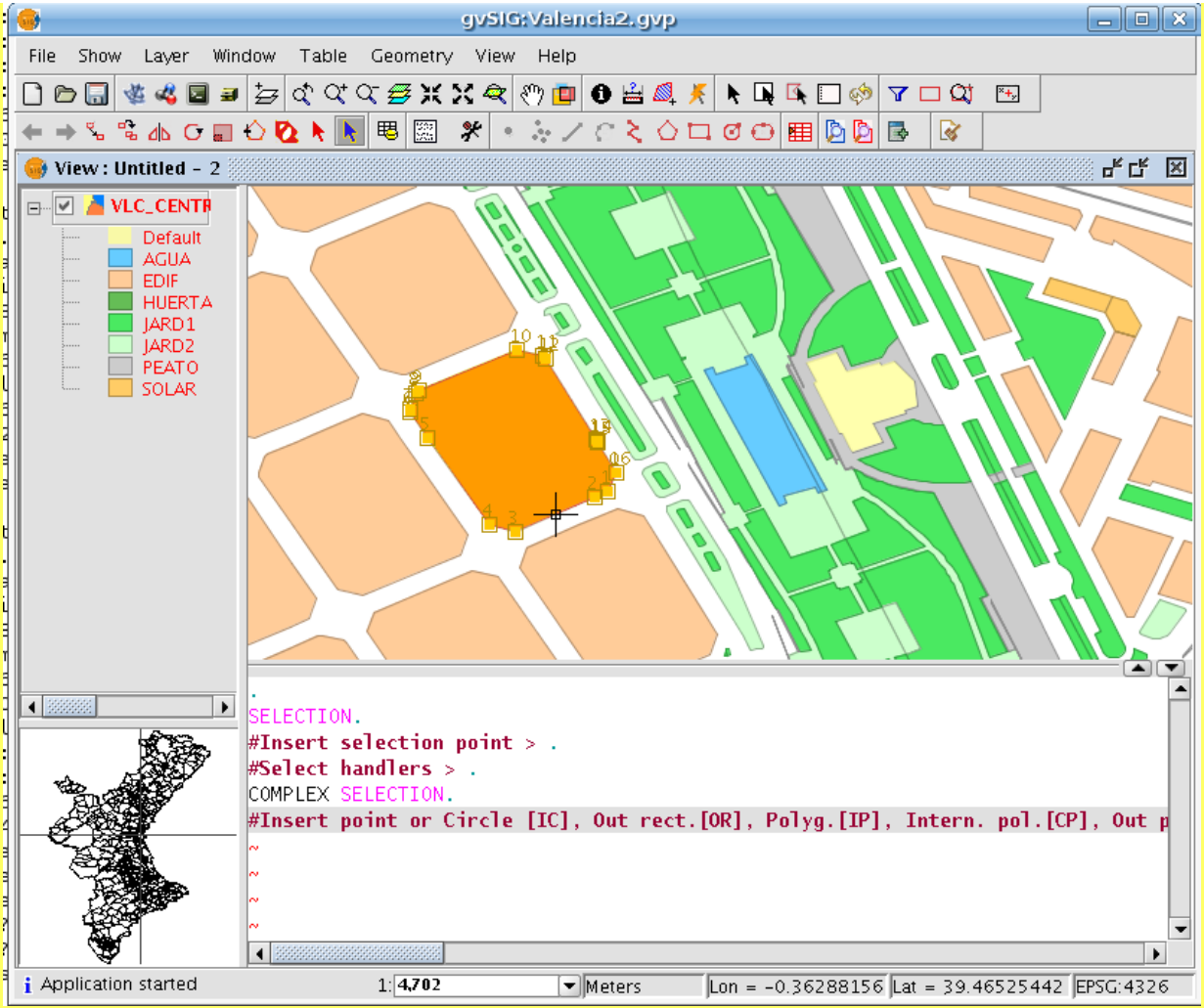
Desktop application GIS designed to solve complex management and planning problems.

Known for having a user-friendly interface

Features a wide range of tools (query tools, layout creation, geoprocessing, networks, etc.),



13: gvSIG in action



14: gvSIG - Editing

15: gvSIG on mobile

Government funded project.

In the year 2003, the Regional Council for Infrastructures and Transportation (CIT) of Spain, called for tender.

Partnership of private company, Government and University (Jaume I of Castellón).

Ideal tool for users working in the land realm. gvSIG is known for:

- integrating in the same view both local and remote data through OGC standards.
- being available in several languages (Spanish, German, French, Italian,...) .
- being platform independent

Features

- Fully rich GIS desktop client
- Interface translated into more than 10 languages
- Modular: developed using independent modules adding scalability value.

- Standard compliant: Open Geospatial Consortium (OGC)
- Interoperable: able to work with most of the known data formats:
  - raster : ecw, ENVI hdr, ERDAS img, (Geo)TIFF, GRASS, ...
  - vector & CAD: shapefile, GML, KML, DGN, DXF, DWG

- databases: PostGIS, MySQL, Oracle, ArcSDE
- remote: ECWP (Enhanced Compression Wavelet Protocol), ArcIMS

- Its (Spatial Data Infrastructure) SDI client condition permits the connection, through the use of standard ADL,
  - WMS, WFS (and WFS-T)

- WCS, WMC

- Discovery services client is also provided within gvSIG which can be use to localise data resources within an SDI (catalogue and gazeteer services)

  - Catalogs: Z3950, SRW, CSW (ISO/19115 and ebRIM)

  - Gazetteers: ADL, WFS, WFS-G

- Geoprocessing tools:
  - proximity: buffer, spatial join
  - overlay: clip, difference, intersect, union
  - other: convex hull, reproject, ...
- Integrated advanced CAD tools:
  - functionality for vector data edition: modify, create and delete elements

- command console typical element in CAD software
- tools like help tools, grid tools, command stack, complex element selections
- tools for inserting elements like points, polygons, lines, ellipses, etc...

- tools to modify its rotation, symmetry,...

- Integrated advanced raster tools:
  - georeferencing images, set image transparency, adjust bright and contrast, highlight, etc.
  - the SEXTANTE Extension of gvSIG is already available to download,

including functions oriented to morphology and hydrology fields,

- Advanced functionalities like
  - Scripting support
  - Powerful reprojection engine (PROJ4 wrapper)
  - 3D visualization
  - Network analysis

- New raster analysis features like classification, rectification,...
- gvSIG for mobile devices

gvSIG OA Digitial Edition

OA Digital

Parent company Oxford Archaeology [one of the largest independent archaeology and heritage practices in Europ (UK and France)]

gaSIG is easy to learn, yet versatile and efficient enough for demanding GIS tasks.

we believe that gvSIG has matured into a powerful application that can be used productively in many working environments, especially when used in combination with other open source solutions such as GRASS GIS.

We have used the software in a number of our own projects and made a number of modifications to it that we feel could also benefit other users of gvSIG; including a restructuring of the program menus, an easier installer that includes everything needed in one package and integrated GRASS GIS modules.

Portable GIS

http://www.archaeogeek.com/blog/portable-gis/

To provide beginners with a ready-installed and configured stack of open source GIS tools that would run in MSwindows.

The current set of software includes:

- Desktop GIS packages QGIS (with GRASS plugin), uDIG and gvSIG,
- FWTools (GDAL and OGR toolkit)
- XAMPPlite (Apache2/MySQL5/Php5)
- PostgreSQL / Postgis
- Mapserver, OpenLayers, Tilecache, Featureserver, and Geoserver web applications.

mapfish

Rich web-mapping framework.

- Extends geospatial-specific functionality of Pylons (Python web framework)
- Provides specific tools for creating web services that allow querying and editing geographic objects.
- MapFish also provides a complete RIA-oriented JavaScript toolbox, a

JavaScript testing environment, and tools for compressing JavaScript code.

It uses

- GeoAlchemy for reading/writing geographic objects from/to spatial databases,
- Shapely for manipulating geometries,

- ExtjS, GeoExt and OpenLayers for creating UIs.

SQLAlchemy database toolkit, the Mako template engine, the repoze.who and repoze.what security frameworks.

With MapFish, web-mapping application developers combine general-purpose web technologies with geospatial-oriented libraries in their applications; for example, this makes it possible to

leverage general-purpose web security frameworks to secure geographic feature web services.

India: IT Super power

How to accept it?

What is the percentage of Indian software on our Computer?

Be developers, not only users.

There are plenty of software in many fields, including GIS, which can be used to solve problems pertaining to respective fields. If students are not exposing themselves to OS, they are missing a big opportunity to get excellent training.

If any company is not using Opensource, then it is not taking a well informed decision. Company is not getting value on his return.

Thanks

Suggestions / Questions / Comments at: hsrai@gndec.ac.in