

Summary

This thesis designs and develops a system of delimitation of property registration which includes the field measurement with known accuracy from each boundary, and all interior elements. Each boundary is associated with a document of agreement signed of the adjacent. All information is managed by a computer system using only free software.

It is intended that these boundaries and documentation generated are registered in the Land Registry, and similarly, that the Cadastre can use this information to update their maps.

In order to achieve this goal the following sections have been developed:

- Designing a topographic demarcation process.
- Design and development of a dynamic data model capable of storing all the information generated. The chosen database is PostgreSQL 9.1 + PostGis 2. Geographic data can be found in any reference frame, where they are projected. It makes that the system can be used in any country. The model has the following parts:
 - System access permission to the users.
 - System storage and retrieval of all documents used for the performance of work.
 - Personal data of the parties involved: surveyor, owners, adjacent ...
 - Accuracy of each geographic feature measured and sent to the database.
 - Images of boundarys and interior constructions.
 - Geometric checks on the elements introduced: validity, overlap, inclusion, etc.
- Plugin Implementation on Qgis desktop GIS, in the Python language, which allows you to enter data into the model in a fast and safe way.
- Generation of an agile work methodology, to make the process as advantageous as possible for all parties, combining CAD, Qgis and PostGIS technologies.

Keywords:

Land registry, cadastre, data model, database, free software, geographical information system, demarcation, boundary, surveying, accuracy, land administration, cartography