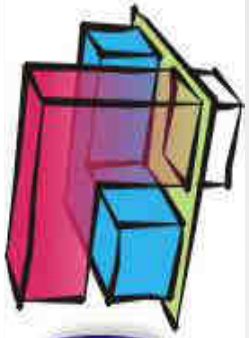
5th International Workshop, Athens, Greece
18th-20th October, 2016

3D Cadastres



THE ROLE OF VOLUNTEERED GEOGRAPHIC INFORMATION TOWARDS 3D CADASTRAL SYSTEMS (2):

A PURPOSE DRIVEN WEB APP

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Motivation

- VGI is a wide research topic. Key questions – like reputation, trust, quality, engagement of citizens,… – are still open.
- VGI has not proved to be an appropriate source to contribute to fundamental spatial data infrastructures (SDE), such as 3D cadastral systems.
- Even so, VGI has been widely acknowledged to be a sound source of geospatial data.
- Therefore, it is argued that:
  - VGI can be considered an interim step until full 3D surveyed cadastre is achieved;
  - VGI should not be seen as a threat but as a potential opportunity for mapping agencies in all domains, including property cadastre.

Framework of 2D/3D Cadastral Data Acquisition Levels

- Where geometry cadastre does not exit or is not up-to-date
- Room for VGI to be taken into consideration at local cadastral jurisdiction level.

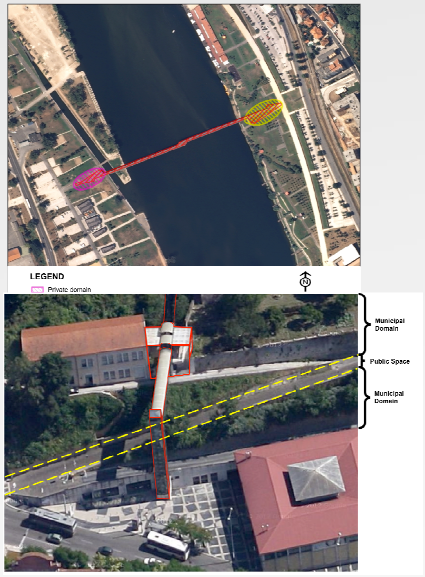
Framework of 2D/3D Cadastral Data Acquisition Levels
Level 5 – Full 3D geometry survey promoted by the national cadastral authority.
Level 4 – 3D geometry survey undertaken by non-official cadastral entities (either private or public).
Level 3 – Private initiatives (including developers' project plans).
Level 2 – Volunteered geographic information (VGI).
Level 1 – Owners.

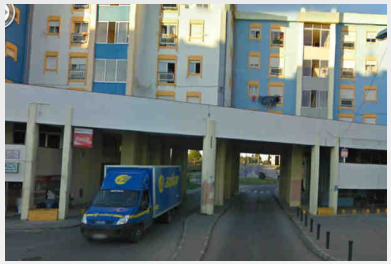
Initial exploratory work

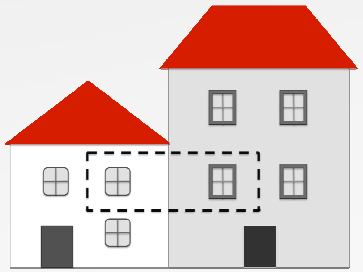
- To review the technical requirements of the official cadastral process in Portugal in order to identify:
  - Cadastral entities and their types;
  - Which cadastral data are potentially acquirable through VGI;
  - Which cadastral data are not acquirable through VGI.

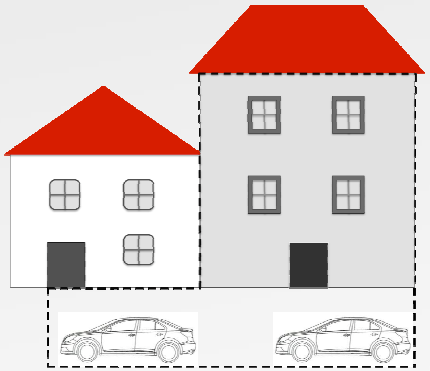
Design of a web-based application…

- To locate users' properties on a 2D index map.
- To identify whether users' properties happen to match any of the 3D cadastre prototypes (complex/common) implemented in App.

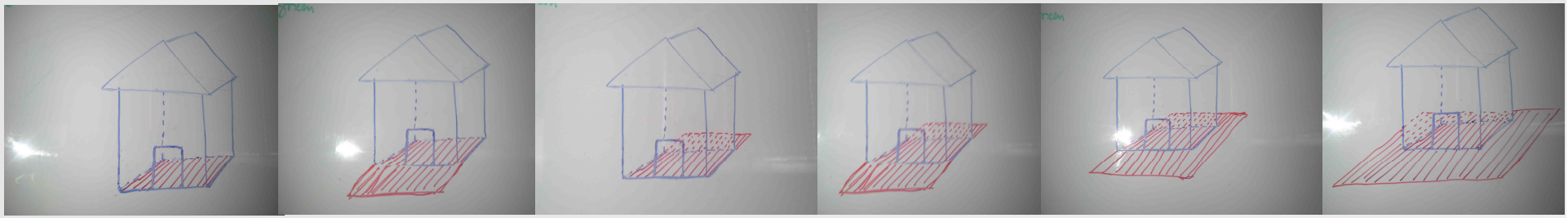


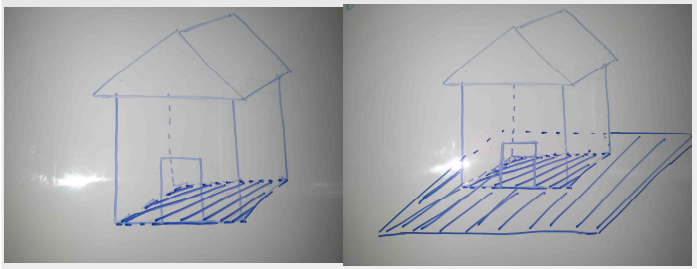






3D sketching…





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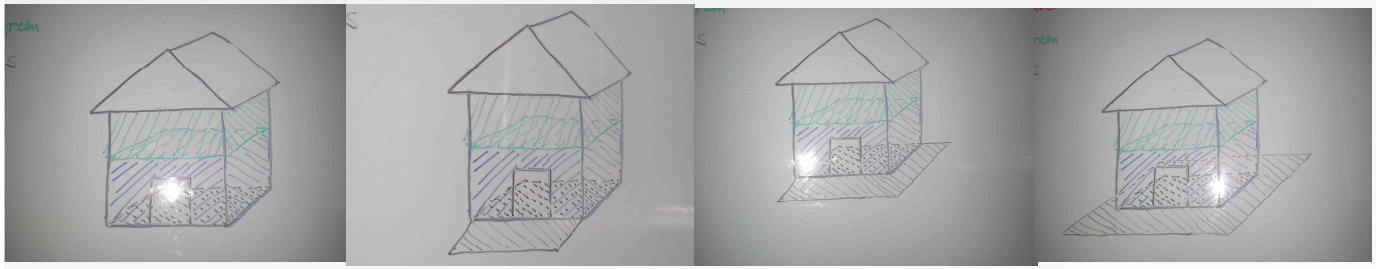

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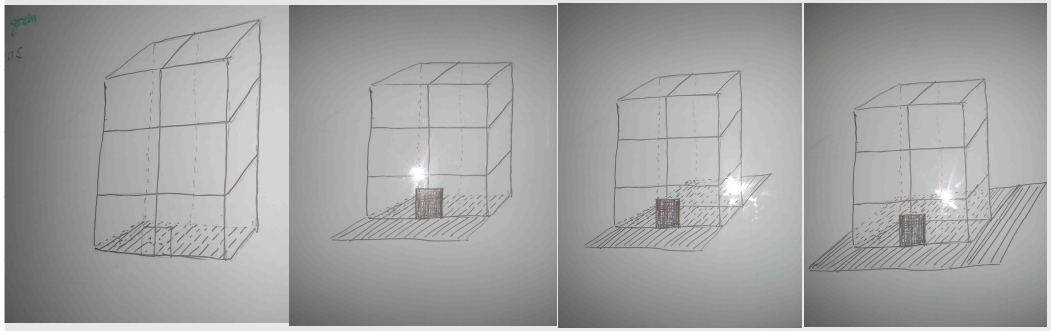

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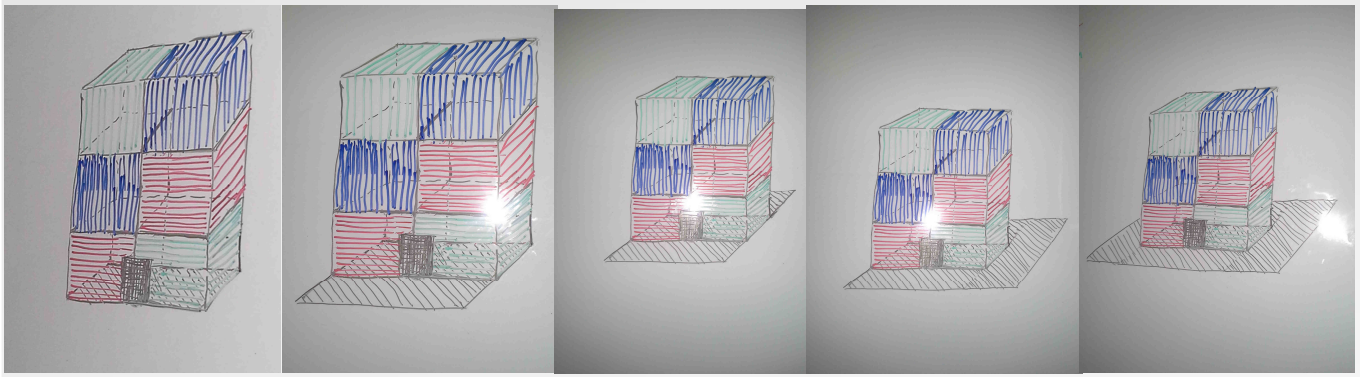

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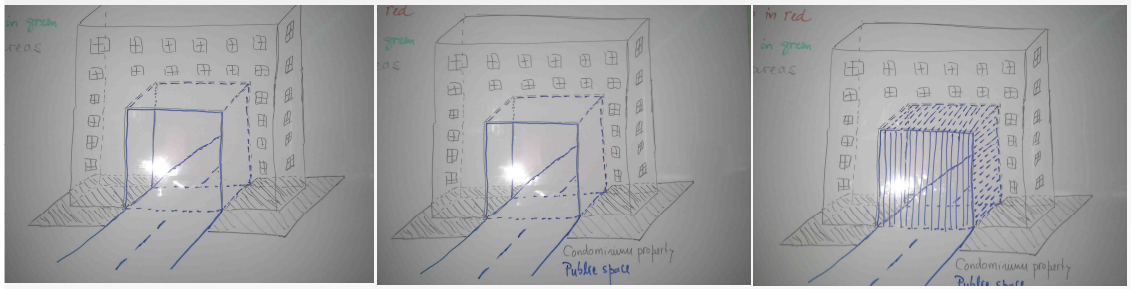

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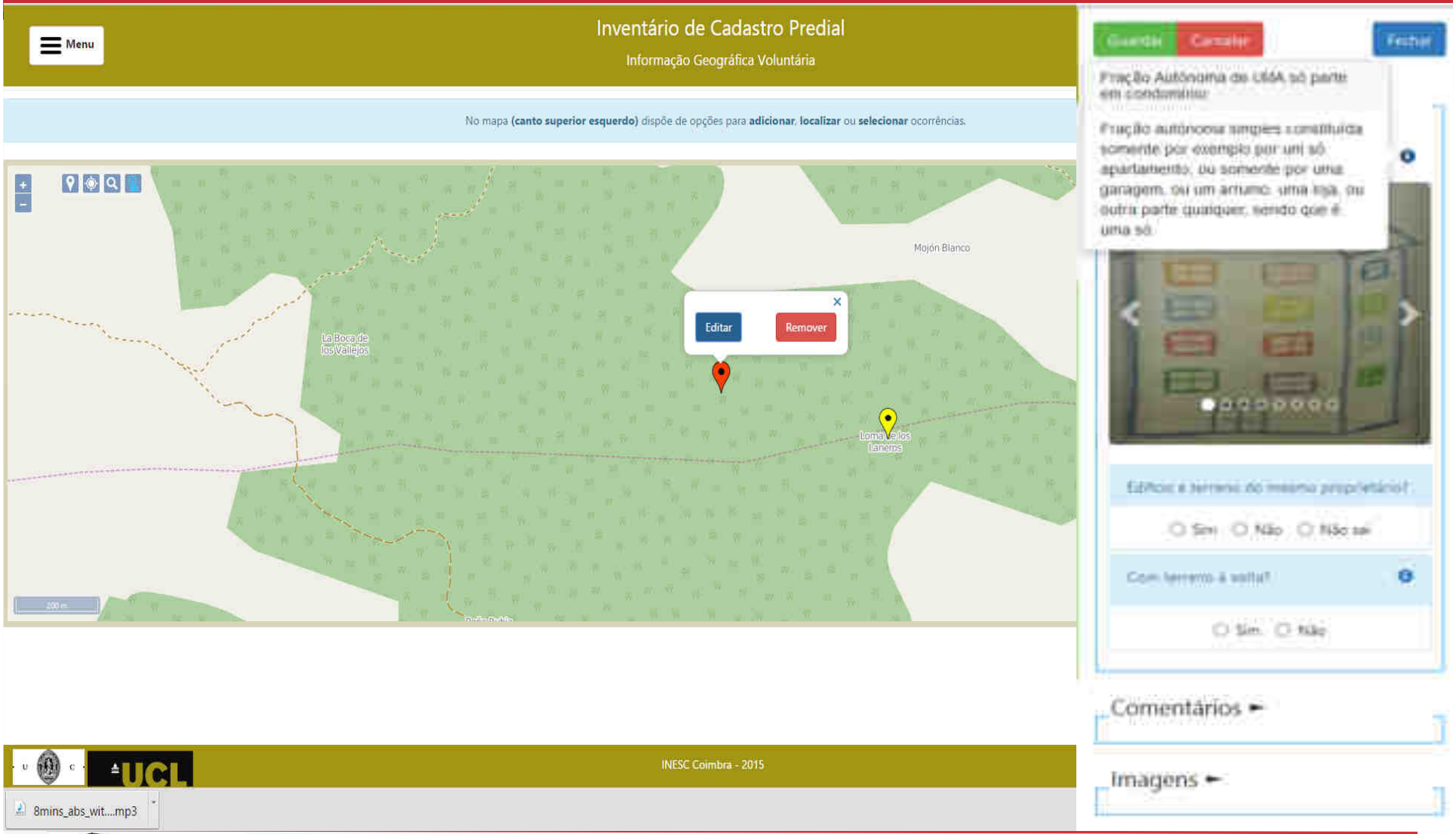
IGV3Dcad overview



Next step…

- Testing the App in a real-world context at a local jurisdictional level – e.g. local municipality.
- Although local city councils do not have the role as cadastral authority, they are potentially interested in such system:
  - To constitute a case study;
  - Towards their own purposes in dealing with land management – this may well be the basis for the implementation of local SDI on 3D cadastre.

Further step…

- How are VGI agents going to be engaged and how are they going to be kept motivated enough to contribute?
- How is VGI going to achieve the expected level of accuracy?
- Who will manage the multitudes of such data?
- How does is it checked in terms of conflict of interest?
- What does the taxpayer get out of this?
- How is a 3D cadastre going to be built from photographs? And how is it different from Google Street View?
- What is the expected timeframe from the reception of such data to cadastral representation?
- What are the legal provisions for accepting and using such data?

Ultimate goal…

- To draw conclusions on
  - To what extent VGI can actually be used towards 3D cadastre and how;
  - Whether a 3D approach is really pertinent and needed in implementing cadastral systems – and hence, to convince stakeholders about further investments towards that.