An Open Source Application for Gamification in Cadastral Surveying

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SUMMARY

This paper is part of an on-going research that investigates the development of a methodology for reliable 2D crowdsourced cadastral surveying introducing the use of new IT tools and increased citizen participation. The methodology is supported by m-services and gamification elements. Right holders or other local citizens may be enabled to use Internet and mobile devices, such as smartphones or tablets, using an open source application for the identification of land parcel units and declaration of property rights during a cadastral survey. Citizen participation may be enabled in various phases such as the back-office preparatory procedure for initial compilation of the draft cadastral basemaps that support the declaration collection phase, or for the formal data collection phase of declarations of property rights by the right-holders, or for the editing of the collected data. A different methodology may be used to determine the extent of involvement of the volunteers in terms of number, duration of involvement and qualifications/reliability. Gamification tools may be used for the evaluation of volunteers in terms of commitment, reliability and performance. Trusted volunteers may be enabled to participate in more advanced activities.

For this new procedure an open-source, self-developed android application, is developed in which gamification elements have been introduced. The paper gives a description of this open source application improved with gamification elements that are designed for implementation in Cadastral projects.

A pilot case study which is held in an urban area in Greece is, also, presented. This pilot case study is conducted in order to evaluate the developed application. The new procedure is assessed in terms of usableness participation, time, quality, accuracy and gross errors avoidance. The ability to integrate citizen e-participation and gamification tools in cadastral surveying is investigated. A comparison of the derived results with the formal cadastral diagrams of the Hellenic Cadastral

Mapping Agency is made in order to draw conclusions and proposals. Legal matters related to the adoption of the proposed amendments by the National Cadastral Agency of Greece are also taken into account.