Surveying and Mapping with Your Smartphone

When we interviewed Professor Thomas Kersten back in 2014, he predicted that the smartphone would become a valuable surveying instrument within just a couple of years – and he was not far wrong! Thanks to the rapid pace of technical advancement, smartphone photogrammetry now enables us to capture reality in 3D. Some smartphones come with a 3D scanning application already integrated, while others can be turned into a 3D scanner by simply downloading an app. And who knows what the next few years will bring. Will we soon see smartphones equipped with a Lidar sensor – a 3D laser scanner in your pocket? At '*GIM International*', we've put together an overview of the broad range of relevant functionalities already offered by today's smartphones. Read on to find out how you can use your smartphone for a multitude of surveying and mapping applications.

Apps for Land Administration

The use of community participation, mobile technologies and cloud storage services could create a new way of undertaking land administration activities, and ultimately lead to more secure land rights for all. Sparked by these grand visions – which were first promoted by Robin McLaren, amongst others, in the late 2000s – alternative land administration platforms are now emerging, such as cadasta.org, landmapp.net and mobineo.org to name but a few. Apps lie at the heart of the developments…but what do we really mean by a 'land administration app' and what must such an app be capable of? Here, the authors provide a brief overview. Read more...

With the growing mix of off-the-shelf and made-to-order land administration app offerings, the land sector and land professionals have an increasing number of options when undertaking the fit-for-purpose or pro-poor parts of their work.

Precisely Flexible Positioning

As users push for more capabilities, today's location apps for smartphones and tablets are running up against frustrating limitations. Higher accuracy can increase the performance of location-aware applications, but the costs and complexity have presented barriers to entry for many potential developers and their customers. Now, the Trimble Catalyst software-defined GNSS receiver is shifting the emphasis from hardware to software and cloud-based services, and is set to bring new users to the GNSS arena. Read more here...

Customary Cadastres and Smartphone Surveys

The complex nature of customary land administration, coupled with slow, expensive and highly centralised national land registration systems, means the registration of customary land rights is oft neglected. Estimates suggest a mere 0.5% of Ghanaian customary land holdings are registered, making land grabbing in peri-urban areas easier and land management activities, such as land consolidation, highly impeded. Read on for an article showing the results of an experiment in which a smartphone app was used to enable a participatory, faster, cheaper and a more fit-for-purpose approach to rural customary land administration. Read more here...

Point Clouds from Smartphones

Smartphones are omnipresent, and many people can no longer do without them. Smartphone cameras capture images suited for generating point clouds and 3D models. Apps running on smartphones and software running on a remote server enable easy 3D modelling from multiple images. The challenge is to train and guide laymen through a proper image capture strategy using their smartphones. The authors of this article investigated the potential use of smartphones for cheap and rapid generation of point clouds and 3D models exploiting a collaborative approach. Read more here...

Bluesky Uses Mobile Phones to Create 3D Maps

Aerial mapping company Bluesky has completed a research project backed by the UK government's innovation agency, Innovate UK, to develop the use of mobile phones for capturing accurate 3D spatial information. The nine-month investigation focused on the use of standard smartphone technology to capture and calibrate video footage, then convert it to 3D information. Accurate measurements of

essential infrastructure, such as overhead power lines and other utility facilities, could then be extracted using specially developed algorithms and workflows. Read more here...

Bluesky using mobile phones to capture geospatial data.

Light Mobile Collection Tools for Land Administration

There is an urgent need for the administration of property and land use rights worldwide as the basis for social and economic growth. Notwithstanding the enormous investments by governments and international organisations in the development of such systems over the past decades, it is still estimated that, from a global perspective, 75% of the relations between people and their land are not documented. So which methods and techniques can be used to develop land administration systems for all, and within our generation? Light mobile collection tools may offer a solution, as presented in this proof of concept from Colombia. Read more here...

Read the interview with Thomas Kersten here.

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