A mobile app for delivering in-field soil data for precision agriculture

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In the last decade precision agriculture has grown from a concept to an emerging technology, largely due to the maturing of GPS and mobile mapping. We investigated methods for reliable delivery and display of appropriate and context aware in–field farm data on mobile devices by developing a prototype android mobile app. The 3D app was developed using OpenGL ES 2.0 and written in Java, using the Android Development Tools (ADT) SDK. The app is able to obtain GPS coordinates and automatically synchronise the view and load relevant data based on the user's location. The intended audience of the mobile app is farmers and agronomists. Apps are becoming an essential tool in an agricultural professional's arsenal however most existing apps are limited to 2D display of data even though the modern chips in mobile devices can support the display of 3D graphics at interactive rates using technologies such as webGL. This project investigated the use of games techniques in the delivery and 3D display of field data, recognising that this may be a departure from the way the field data is currently delivered and displayed to farmers and agronomists. Different interactive 3D visualisation methods presenting spatial and temporal variation in yield values were developed and tested. It is expected that this app can be used by farmers and agronomists to support decision making in the field of precision agriculture and this is a growing market in UK and Europe.