

Smart Data Collection and Real-time Digital Cartography

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The development of the Global Navigation System and wireless networking technologies have changed the way we live, communicate, share information and even the collection of geospatial data in the field. Along with wireless networking technologies, the improvement in computational power of handheld devices such as smartphones, tablet PCs, ultra-mobile personal computers (UMPCs) and netbook computers allow field users to connect, store and stream large amounts of geospatial data from the web-server. We are now more flexible and able to collect geospatial data in a timely and convenient manner. In this paper we discuss field data collection using a smartphone and Web-based GIS system, which collects, integrates, visualizes and analyzes the collected data in real-time. We built a Web-GIS system for creating a user account, acquiring coordinates from GPS embedded devices or wireless access points, and providing a user-friendly survey form. The collected data can be instantly visualized and analyzed, such as by thematic mapping, labeling, symbolizing, querying and generating a summary report. We have tested this system on a university campus and management system, in which we collected information on illegal disposal sites and parking events within the university campus.

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