Demo: Open Data Kit 2.0 Tool Suite

Waylon Brunette, Samuel Sudar, Gaetano Borriello
University of Washington
Box 352350
Seattle, WA 98195
{wrb, sudars, gaetano}@cse.uw.edu

ABSTRACT

Open Data Kit (ODK) is an open-source, modular toolkit that enables organizations to build application-specific mobile information services in resource-constrained environments. Feedback from users and developers about limitations experienced with the ODK 1.x set of tools led to a redesign of the system architecture and the creation of new tools. This demonstration presents a revised tool suite called ODK 2.0. This expanded ODK toolkit aims to increase an organization's data collection and management capabilities by supporting data synchronization, adaptable workflows, more configurable presentation screens, and increasing the diversity of input types by enabling new data input methods on mobile devices.

1. DESCRIPTION

Building information systems in resource-constrained environments can be challenging because of the limited and diverse infrastructure available in different deployment contexts. Open Data Kit (ODK) [2] is designed to assist organizations in these challenged settings by enabling domain experts (e.g., doctors, foresters) to deploy mobile information systems with minimal assistance from IT professionals. ODK is an open-source toolkit that enables organizations to build application-specific (e.g., public health, environmental monitoring) information services for use in resource-constrained environments. ODK has been used by a wide variety of organizations, from small NGOs to large government ministries, with thousands of users in dozens of countries. While ODK lacks self-tracking usage statistics, other metrics such as the ODK's website receiving 180,000+ unique visitors from 217 different countries/territories (current average 15,000+ hits a month) help to show ODKs global usage. Additionally, over 40 companies offer ODK based products or consulting services located in a variety of countries.

While many organizations successfully leveraged ODK 1.x to build mobile information systems, other organizations struggled to adapt the tools to an increasingly diverse set of use cases. Feedback from users about their struggles adapting their use case to the JavaRosa's XForm standard demonstrated that ODK 1.x was not malleable enough for certain classes of applications. This revelation led to a redesign of the ODK system architecture to create new more customizable tools. This demonstration features the redesigned ODK tool suite, which is being released as "ODK 2.0". This demonstration showcases working implementations of the revised toolkit proposed in ODK's HotMobile 2013 paper [1]

that outlined the redesign rationale and highlighted new design principles. The expanded ODK toolkit aims to increase an organization's data collection and management capabilities by supporting: data synchronization, adaptable workflows, and increasing the diversity of input types by enabling new data input methods on mobile devices. Additionally, ODK 2.0's user interface widgets are implemented using JavaScript/HTML; thereby, enabling organizations to have a malleable system to make runtime customizable navigation, widgets, and question data types. These new capabilities increase the diversity of deployments that ODK supports and improves an organization's ability to build customized domain specific applications by: providing interactive, non-linear navigation capabilities; enabling users to curate data on the mobile device; and simplifying the process of collecting information from sensors.

This demonstration highlights the revised ODK 2.0 tools including: 1) *Tables* –customizable data viewer that includes synchronization and viewing and manipulating data in a simple row format. 2) *Survey* - flexible questionnaire-rendering with a customizable presentation layer that expands user-directed navigation and allows form designers to express non-linear workflow logic. 3) *Sensors* – simplifies the process of connecting sensors over both wired and wireless communication channels, thereby reducing the amount of manual data transcription from sensors into survey forms, and 4) *Scan* - facilitates the automatic conversion of information recorded on paper forms to a digital format using the camera of a mobile device.

While ODK's architecture was redesigned, the goals of ODK remain focused on the concept that for computing tools to address information gaps in developing regions, information services must be composable by non-programmers and be deployable by resource-constrained organizations (limited by either financial and/or technical resources) using commodity devices and cloud services. This demonstration showcases various ODK tools allowing conference attendees to experience and inquire about an academic open-source project that has successfully made it easier for organizations to utilize mobile devices to collect and aggregate data in resource-constrained environments.

2. ACKNOWLEDGMENTS

3. REFERENCES

[1] W. Brunette, et al. "Open Data Kit 2.0: expanding and refining information services for developing regions." Proc. of the 14th Workshop on Mobile Computing Systems and Applications, 2013.

[2] C. Hartung, et al. "Open Data Kit: tools to build information services for developing regions," Proc. 4th ACM/IEEE Intl. Conf. on Information and Communication Technologies and Development (ICTD), 2010.