ODK Scan is an Android application that automatically digitizes data from paper forms. By combining the device's built-in camera with advanced computer vision algorithms, ODK Scan detects and processes handwritten data, allowing users to quickly verify, aggregate, and disseminate collected information.

Problem

- Transporting, aggregating, and analyzing data collected on paper forms is time- and resource-intensive.
- Manual data entry is prone to human error.
- Providing access to data is essential for resource allocation and planning.
- Large latency in data availability can delay decision-making.

Even with its obvious advantages, a transition to a paperless, strictly-digital data collection & management system is not feasible for low-resource environments with weak information communications infrastructure. These settings need a scalable bridge between hard and soft copy.

Solution

- ODK Scan allows organizations and institutions to continue to use cheap, familiar paper forms.
- Users easily scan the form using the camera on the smartphone or tablet.
- Machine-readable data is automatically digitized using computer vision running on the device.
- Form fields that are not machine-readable are displayed as image snippets to the user for easy transcription in ODK Survey.

What does ODK stand for?

ODK stands for Open Data Kit, a free and open-source set of tools that help organizations author, field, and manage data collected via Android devices. ODK tools have been used to track clean water projects in Kenya, monitor election fraud in Afghanistan, and enable epidemiological studies in Brazil, among many other projects.

The ODK Scan Process

1. User creates form with specified data fields in the form designer. Intuitive online portal allows addition of text, data fields, & custom images.
2. The form is printed and used as normal. Seamless integration with existing paper processes.
3. User scans the form using the device's built-in camera. Automatic detection & processing of fill-in bubbles, checkboxes, numbers, and QR codes. Written text saved as image snippets.
5. System aggregates data into custom reports for immediate review. User views reports, searches local database, or syncs with a server using ODK Tables. With cellular connectivity the digitized data can be uploaded to web applications.

ODK Scan in Action

- Two field tests in Mozambique with vaccine statistics and medical supply forms tested bubble and checkbox accuracy and provided essential usability feedback from community health workers.
- Development work over the past year has added handwritten number and QR code recognition, as well as improved accuracy in the detection classifiers.
- Locally-based field testing with a University of Washington Psychology Department project proved usability and technological relevance even in high-resource environments.
- Three more field deployments are planned over the next year, specifically targeting low-resource settings where other means of digitization are inaccessible.
- ODK Scan has garnered interest from a wide range of sectors, including vaccine logistics, maternal health, applied psychology, education, and capacity building.
- ODK Scan Beta will be released within the next six months as open source for public use.

Interested in using ODK Scan?

We are actively seeking additional partners and other organizations to help us field test the application. Email info@villagereach.org to connect.