

# Mobile Data Collection Using Smart Devices

*Bishwa Pandey*  
*Sr. Data Management Specialist*  
*The World Bank*

*[bpandey@worldbank.org](mailto:bpandey@worldbank.org)*





A new frontier in (GIS) data collection?

# What is wrong in these pictures?



# Post Processing of Data

**EMERGENCY DAMAGED STRUCTURAL SERVICE & ASSESSMENT**

**Building Data**

1. Name of Building: \_\_\_\_\_

2. Type of Building: \_\_\_\_\_

3. Year of Construction: \_\_\_\_\_

4. Material: \_\_\_\_\_

5. Number of Floors: \_\_\_\_\_

6. Location: \_\_\_\_\_

**Physical Characteristics of Building**

1. Total Area: \_\_\_\_\_

2. Number of Rooms: \_\_\_\_\_

3. Number of Floors: \_\_\_\_\_

4. Number of Columns: \_\_\_\_\_

5. Number of Beams: \_\_\_\_\_

6. Number of Walls: \_\_\_\_\_

7. Number of Doors: \_\_\_\_\_

8. Number of Windows: \_\_\_\_\_

9. Number of Stairs: \_\_\_\_\_

10. Number of Elevators: \_\_\_\_\_

11. Number of Other Features: \_\_\_\_\_

+



+



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Matching and downloading

Desktop post-processing

Upload to Server

# Mobile Data Collection - What is it?

- \* Create you own data collection form
- \* Collect (real time) data using smartphone
- \* Store data (offline) on smartphone and/or send it to server for publishing/sharing

# From fieldwork to your server



## ODK Collect 1.2.2 (1023)

Data collection made easier...

Fill Blank Form

Edit Saved Form

Send Finalized Form

Get Blank Form

Delete Saved Form



Use of Smartphone in capturing real time data

# Why do we need it?

- \* Real time data
- \* Efficiency in data collection
- \* Complete integration
- \* Data driven application

- \* Any
- \* Every
- \* And more

- \* Traditional attribute data
- \* Photos
- \* Location (X, Y, Z)
- \* Audios
- \* Videos
- \* Barcode
- \* Fingerprint?

### Today's Date

+	+	+
Feb	17	2013
-	-	-

Replace Location

Latitude: N 38°52'54"  
Longitude: W 77°24'9"  
Altitude: 85m  
Accuracy: 5m

### Number of Stories

<input type="radio"/> 1	<input type="radio"/> 4
<input type="radio"/> 2	<input type="radio"/> 5
<input checked="" type="radio"/> 3	<input type="radio"/> More than 5



# How it works?

- \* Custom survey forms can be developed for any type of data collection
- \* Smartphones has mobile application (app) development platform
- \* Has GPS, digital compass
- \* Camera/voice recorder/barcode reader

# Live demo

Collect data using building survey form

# Open Source Solution

- \* ODK toolkit

<http://opendatakit.org/>

- \* Formhub

<http://formhub.org/>

And there are more.. Both open source and commercial application

# ODK toolkit

- \* Custom build your form

<http://build.opendatakit.org/>



**Name of the school**  
Name

**School Type**  
Type

**Date**  
Date

**Photo**  
Photo

**Video**  
Video

**Properties**

**Data Name**  
The data name of this field in the final exported XML.  
Barcode

**Caption Text**  
The name of this field as it is presented to the user.  
English  
Barcode

**Hint**  
Additional help for this question.  
English

**Default Value**  
The value this field is presented with at first.

**Read Only**  
Whether this field can be edited by the end user or not.

**Required**  
Whether this field must be filled in before continuing.

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**Advanced**

**Relevance**  
Specify a custom expression to evaluate to determine if this field is shown.

**Constraint**

# Save the Form

- \* Save the form
- \* Export the form as XML
- \* Directly save the form on your server

# Forms can also be built on Excel

Excel forms can then be converted into  
XLSform

<http://formhub.org/syntax/>



\* Get the App from Google Marketplace

Playstore - ODK Collect

Or from the Web:

<http://code.google.com/p/opedatakit/downloads/list>



# Ready to go?

- \* Install ODK Collect
- \* Get the form from your Server

Or

Copy the form saved earlier on your mobile device

# Deploying your own data Server

- \* Google App Engine
- \* GeoNode server?
- \* PostGIS + PostgreSQL Database server?

# Google App Engine – Cloud Hosting

- \* Create a Google Account
- \* Create App Engine
- \* Deploy open data kit server on your app engine
- \* Google allows upto 5 million hits /month

# Future Integration

- \* Push data directly to GeoNode
- \* Get real time data into GeoNode (like weather, natural disasters)

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- \* Exposure assets
  - \* Environment
  - \* Mapping
  - \* Incidents
  - \* Post disaster

Involving Community in data capturing