

Mobile Data Collection Using ODK

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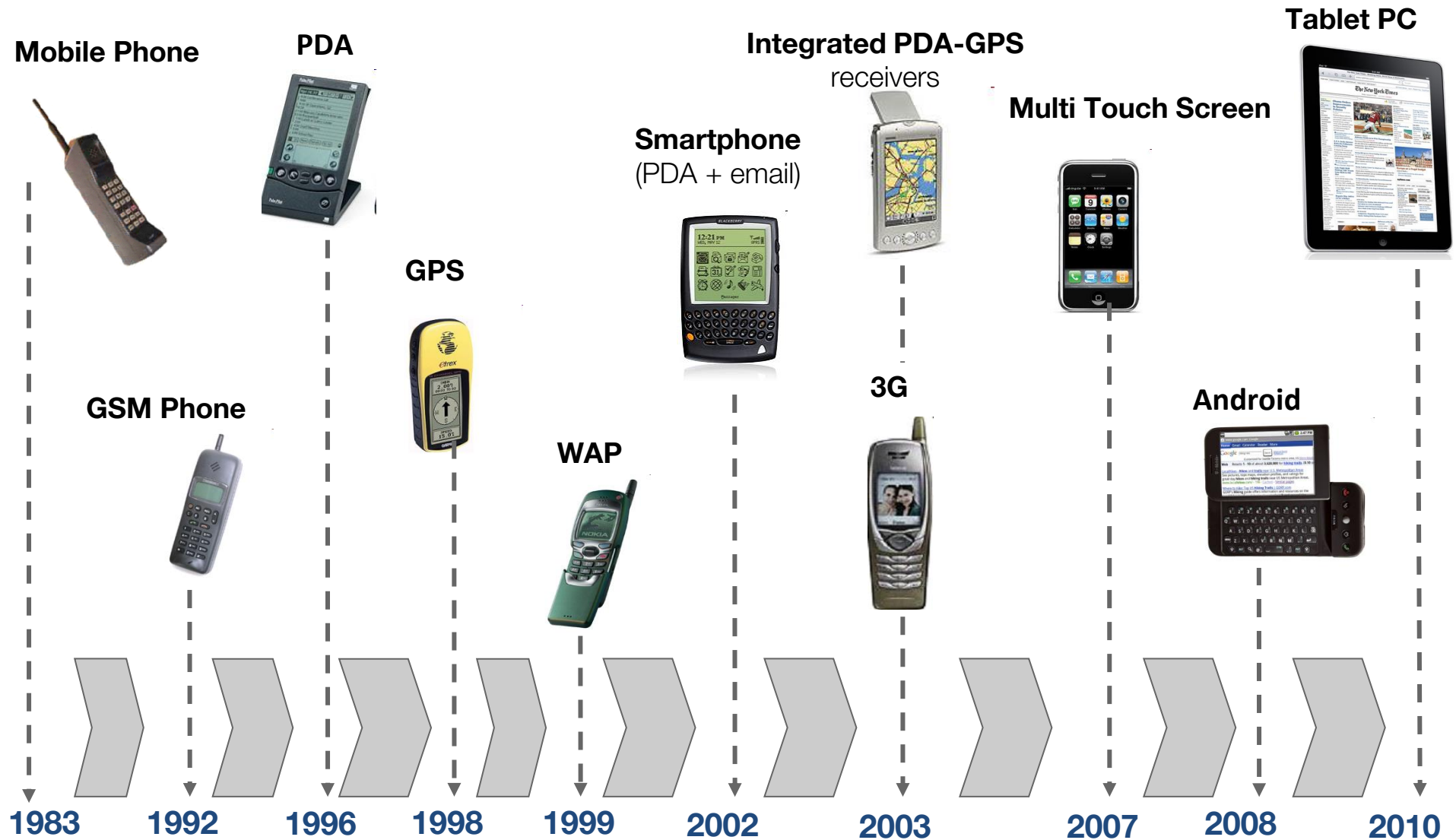
Outline

- Motivation
- ODK Architecture
- Implementation
- Areas of application
- Conclusion

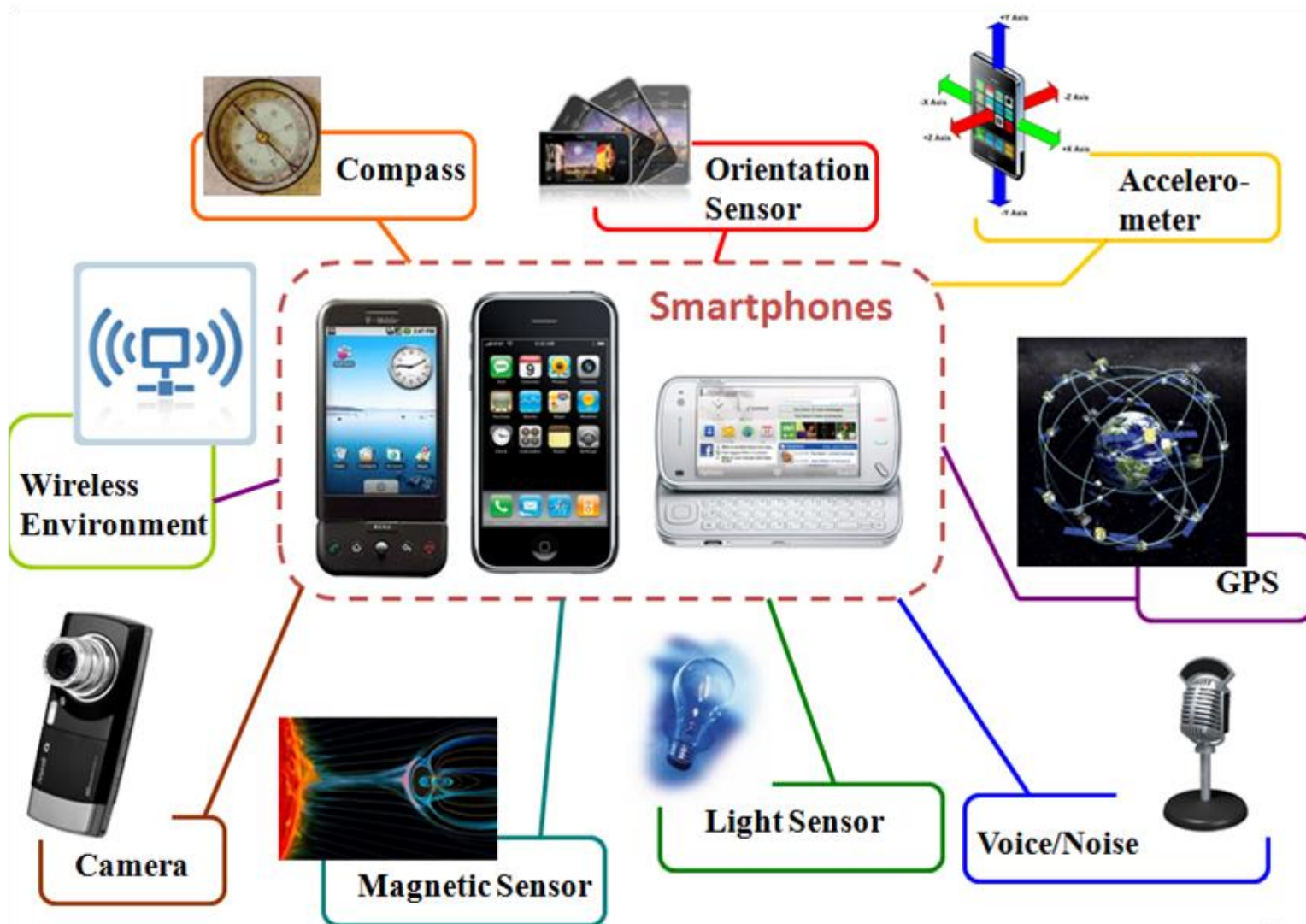
Motivation



Motivation



Motivation



‘smart’ apps for GI



UTM Area Measure
ThSoft Co.,Ltd



GPS Essentials
mictale.com



Google Earth
Google Inc.



Connected Farm Sc
Trimble Navigation



KMLZ to Earth
WrightRocket



MAPS.ME - GPS Na
My.com B.V.



GeoODK Collect
GeoODK



Ushahidi
Ushahidi



Why Mobile data collection

- Eliminates transcription errors
- Immediate access to data from server- rapid data aggregation and analyse
- Enhanced options of data types; Form + GPS + pictures + videos + string + numeric + audio + barcodes
- Cleaner data-standardization of data
- Real-time monitoring

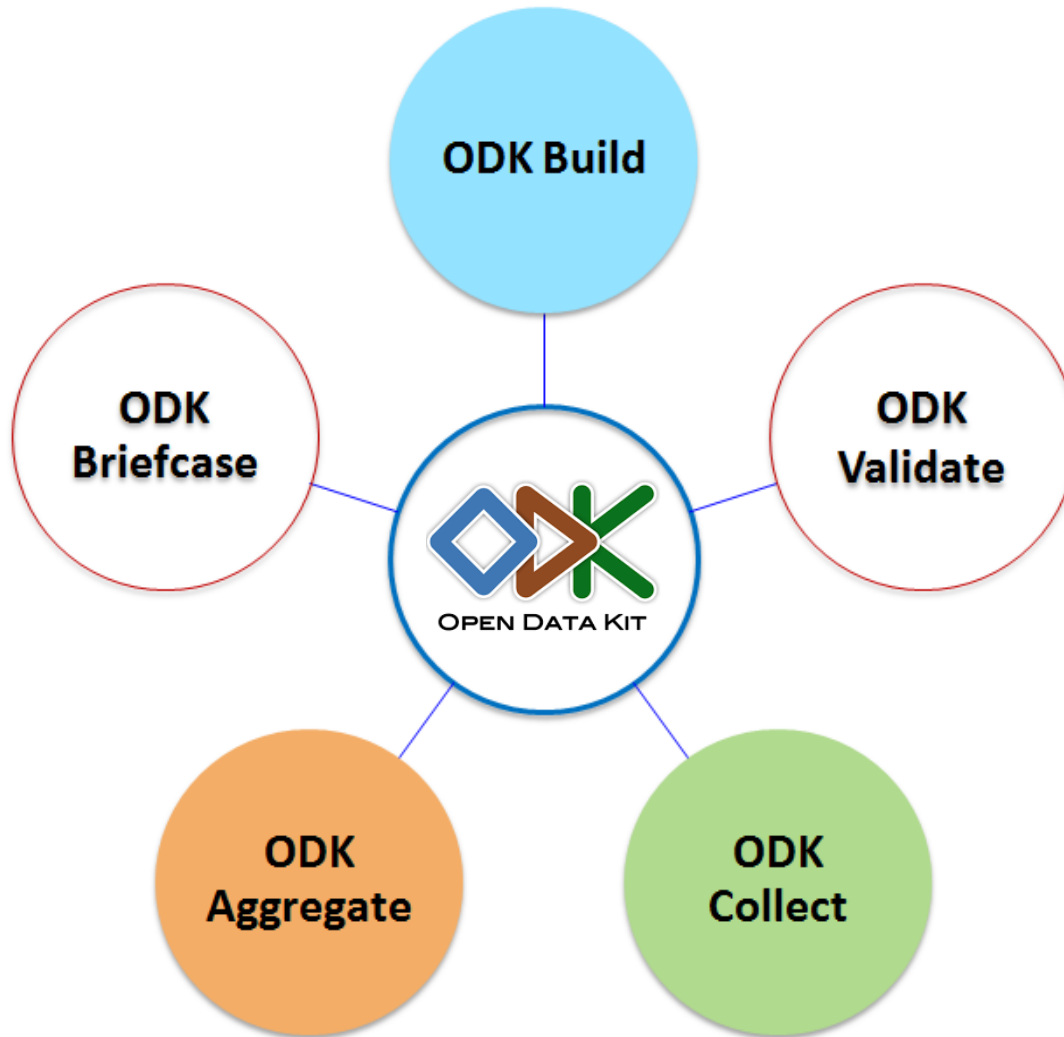
Background of ODK

- Open Data Kit (ODK) is an open-source suite of tools that helps organizations **author**, **field**, and **manage** mobile data collection solutions
- Core developers of ODK are researchers at the Department of Computer Science and Engineering, University of Washington

Philosophy

- ODK is designed as an **open-source and standard-based** tool that is easy to use, easy to modify and easy to scale
- As such ODK is a modular and extensible android based up that allows for **design, capture and management** of mobile based surveys

Core Components


























ODK Build

- Is the component that **allows users to design survey questions as XLForms**
- ODK build was **originally designed to allow uses to design simple forms through drag and drop interface**
- More advanced forms can be created via XLS2Forms, KOBO, Vellum, PurcForms

ODK Build (XLSForm)

	A	B	C	D	E	F	G
1	type	name	label	relevant	constraint	appearance	required
2	deviceid	device					
3	today	surveyDate					
4							
5	text	enumerator	What is the enumerator's name?				yes
6	date	surveyDate2	Enter date of survey?				
7	text	farmer_name	Farmer name?				
8	integer	farmer_age	Farmer age?		.>0 and .<120		
9	select one from gender	farmer_gender	Gender				
10	geopoint	gps	Capture field coordinates				
11	select_multiple crop_type	crop	Which crops are currently in the field?			minimal	
12	text	crop_other	If Other crop in the field, specify?	selected(\${crop}, 'Other')			
13	select one from yes_no	fertilizer_use	Did you apply inorganic fertilizer in this field?				
14	select_multiple fertilizer_type	fert_type	Which fertilizer did you apply?	\${fertilizer_use}='1'			
15	image	field_photo	Take a photo of the field				
16	image	sign	Please sign			signature	
17							

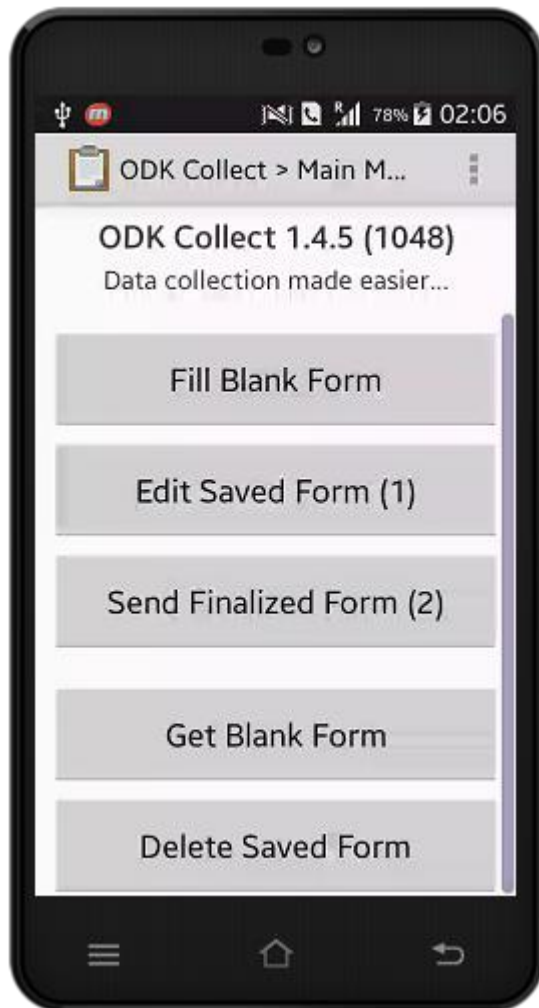
ODK Build (Drag and Drop)

abc	What is the name of the place?	   
	Record GPS Coordinates	   
	Take a photo?	   
	► Type of place?	   
abc	If other place type, specify	   

ODK Collect

- Renders forms into a sequence of input prompts that **apply form logic, entry constraints, and repeating sub-structures**.
- Users work through the prompts and can save the submission at any point.
- Finalized submissions can be sent to (and new forms downloaded from) a server.

ODK Collect (Interface)



- **Configure server settings** to access blank survey forms and to transfer completed surveys
- **Get blank forms:** Access blank ODK forms
- **Fill Blank Forms:** Actual data entry using ODK forms
- **Edit Saved Form:** before sending
- **Send Finalized form**

ODK Aggregate

- Provides a **ready-to-deploy server and data repository to:**
 - avail blank forms to ODK Collect (or other OpenRosa clients),
 - accept finalized forms (submissions) from ODK Collect and manage collected data,
 - visualize the collected data using maps and simple graphs,

ODK Aggregate

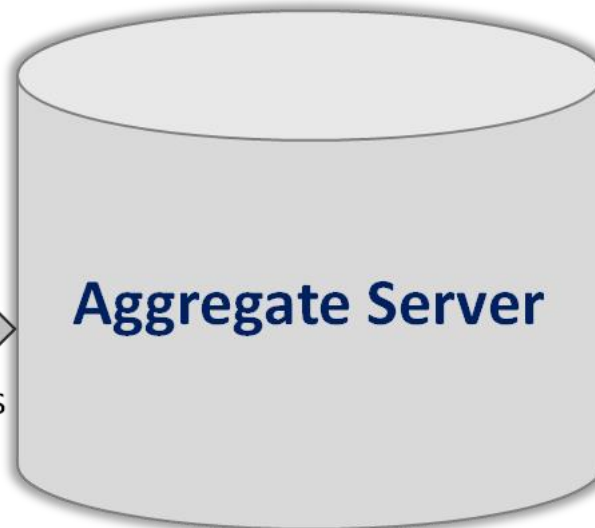
- export data (e.g., as CSV files for spreadsheets, or as KML files for Google Earth), and
- publish data to external systems (e.g., Google Spreadsheets or Google Fusion Tables).

ODK System Architecture

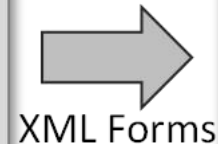
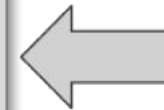
Form Authoring



XForms



XML Data

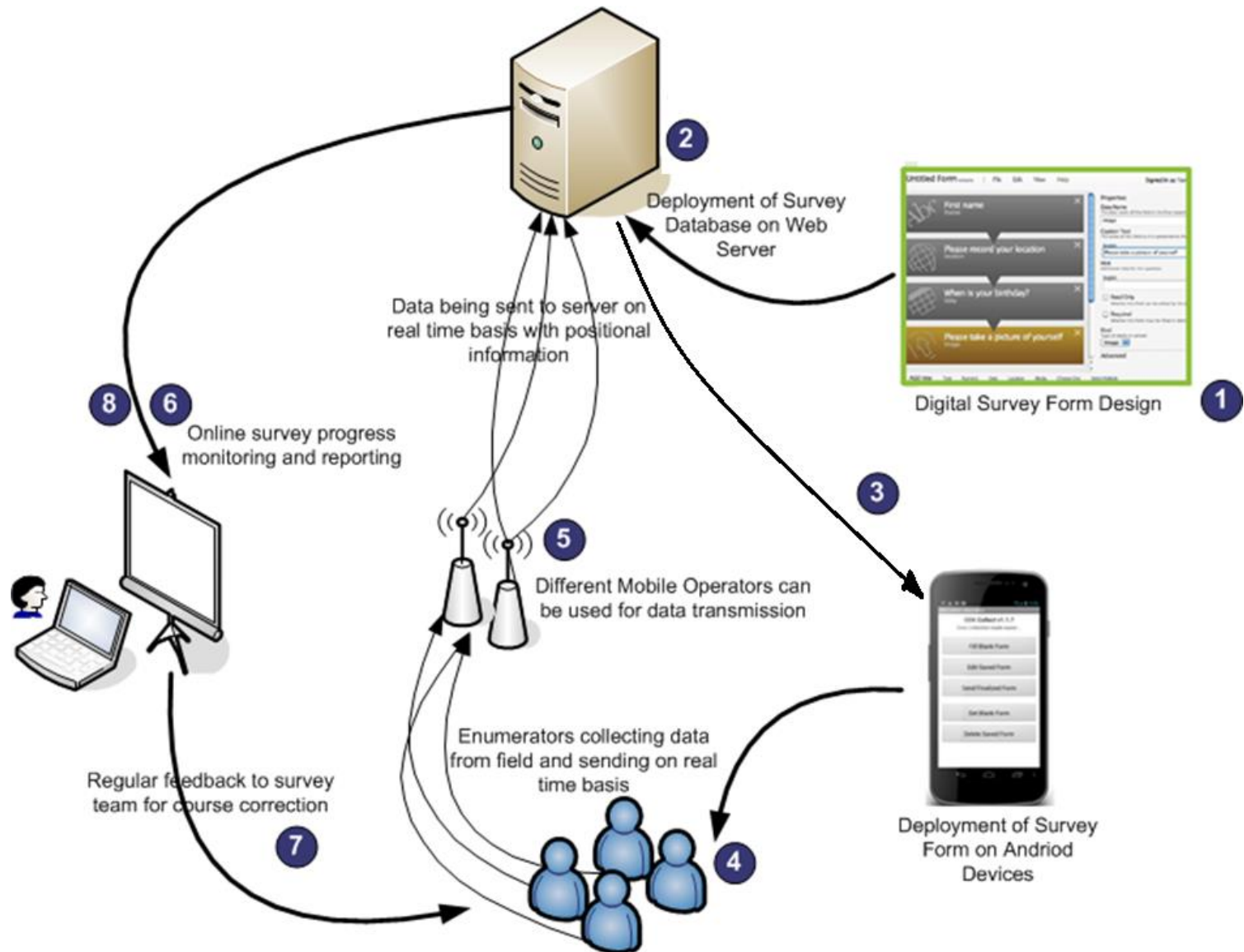


XML Forms

Mobile Engine

A screenshot of the ODK Collect mobile application main menu. The title bar reads "ODK Collect > Main Menu". Below the title, the text "ODK Collect" is displayed, followed by the subtitle "Data collection made easier...". There are five large, light gray buttons arranged vertically: "Fill Blank Form", "Edit Saved Form", "Send Finalized Form", "Get Blank Form", and "Delete Saved Form".

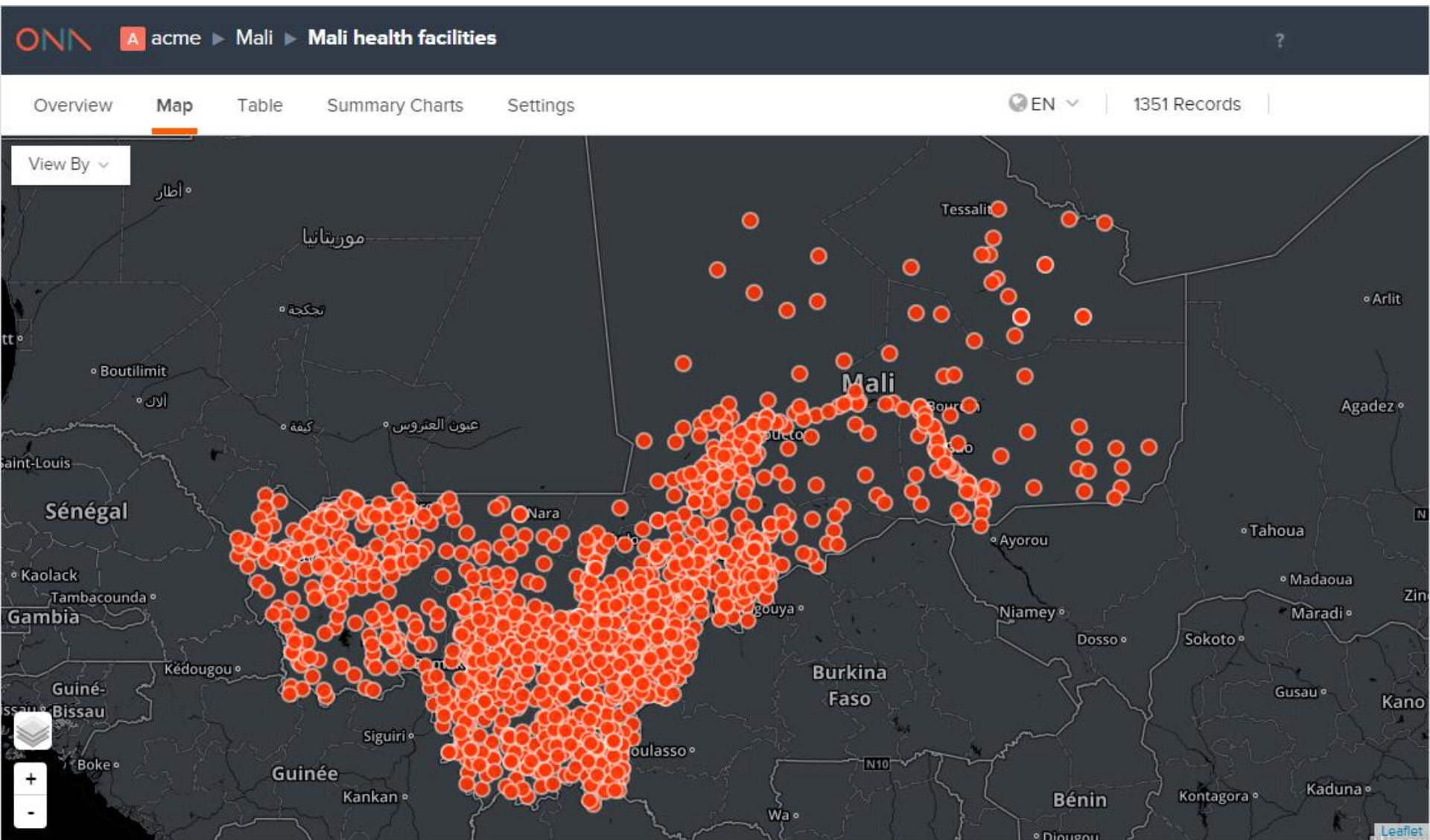
Data Collection Framework



Implementations



Implementation



Other Applications

- **Collection of epidemiological data** (Raja et al, 2014)(<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3959915/>)
- **Election monitoring**
(<https://opendatakit.org/2013/07/using-elmo-odk-in-kenyas-2013-presidential-elections/>)
- **Community engagements**
(<http://www.villagereach.org/impact/odk-open-data-kit-solutions/>)

Other Implementations



SurveyCTO Collect
Dobility, Inc.



EpiCollect
Imperial College, London



KoBoCollect
KoboToolBox



EarlySail ODK Collect
EarlySail Software Private



KRCS Collect
Kenya Red Cross Society



Ona Collect
Ona Systems, Inc



GeoODK Collect
GeoODK



Acqee ODK Collect
Mobiliaris Ltd.



Possible areas of Application

- Primary data collection
- Monitoring and evaluation
- Participatory urban and regional planning
- Ground truthing
- Crowdsourcing/ Volunteered Geographic Information
- Infrastructure management
- Disaster monitoring/ Humanitarian response

Concluding remarks

- ODK has proved to be a robust and efficient tool and provides the necessary building blocks to build reliable information services particularly in developing country
- Modular, extensible and open design provides an avenue for integration and implementation in geospatial workflows