



25 – 29 MAY 2015

LISBON CONGRESS CENTRE, PORTUGAL

Open geospatial data and technologies for eliciting Slow and Smart Tourism: the Via Regina case

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Politecnico di Milano (DICA) – Laboratorio di Geomatica, Polo Territoriale di Como



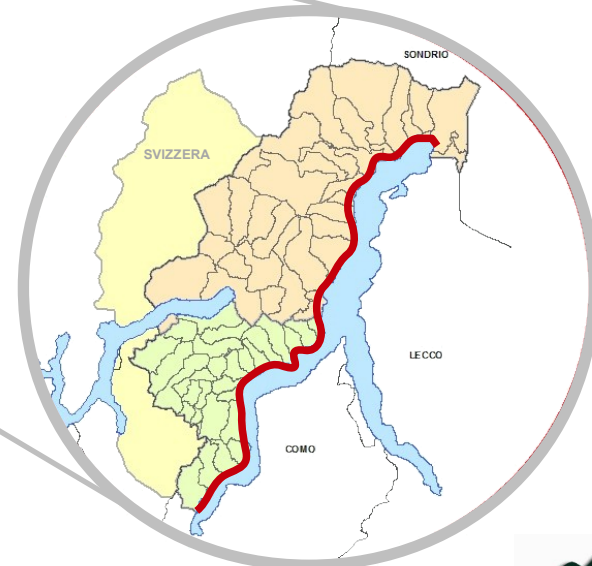
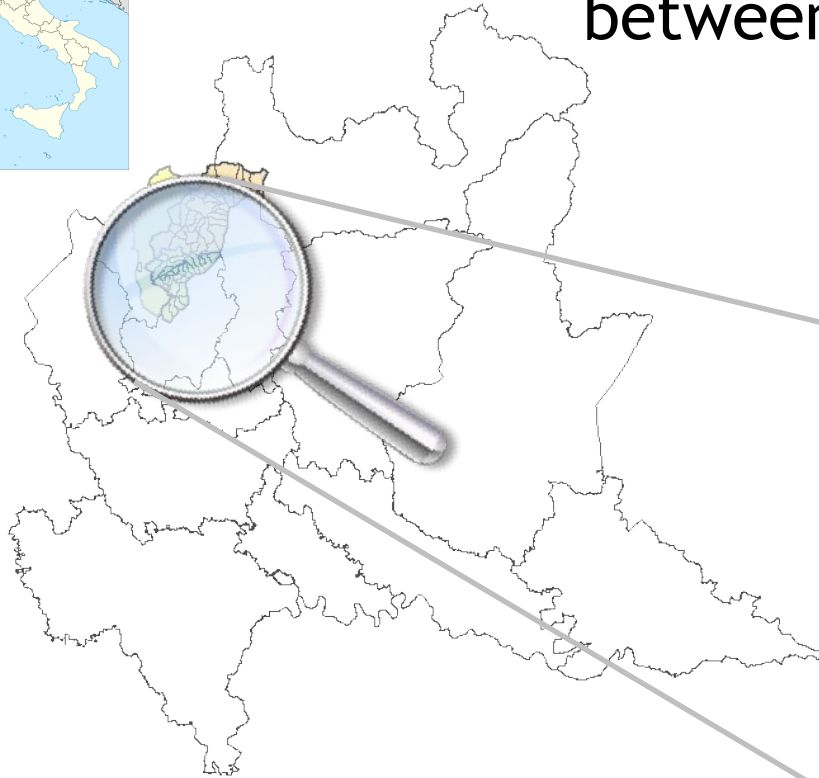
**POLITECNICO
MILANO 1863**



Via Regina

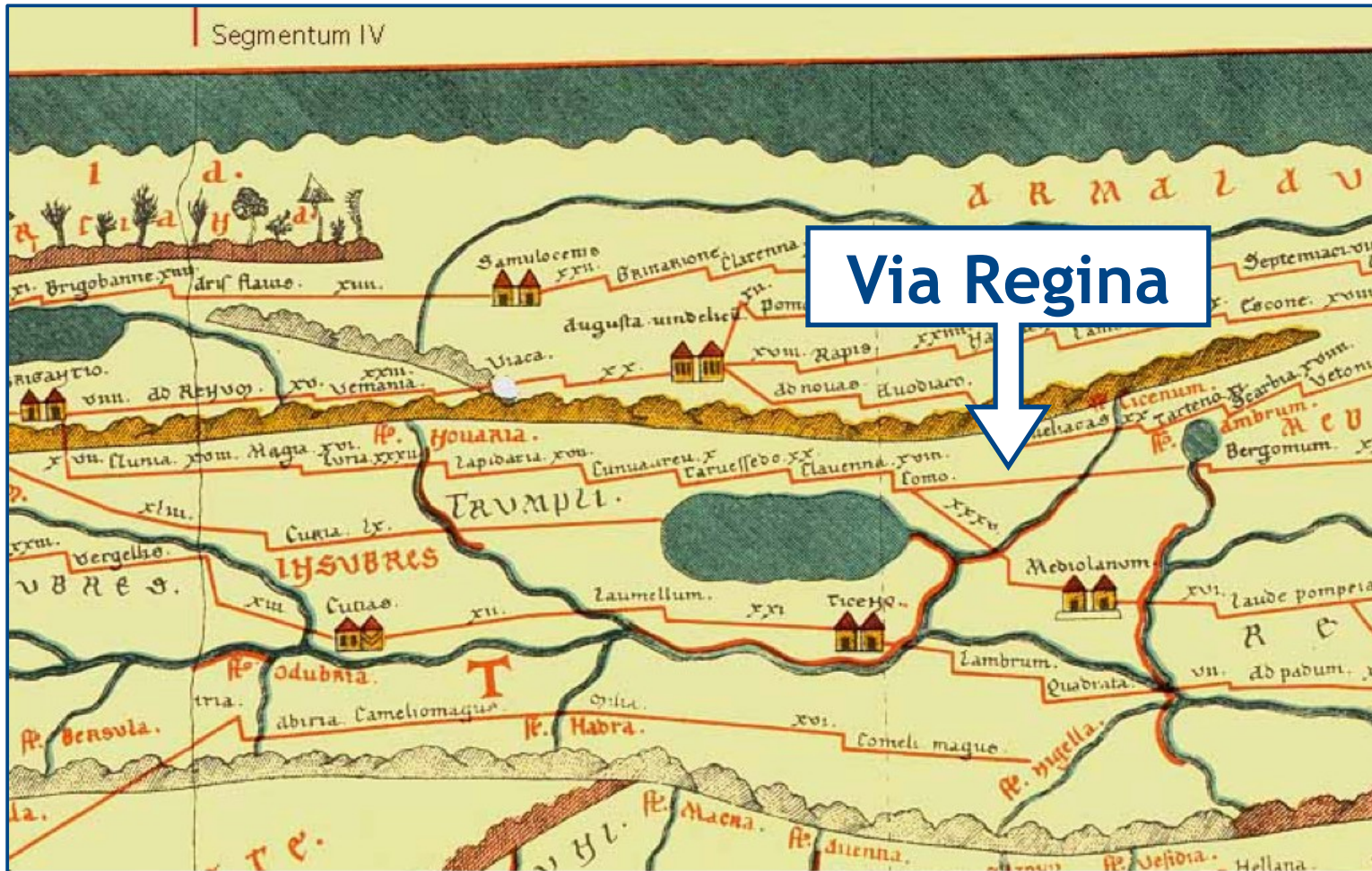
❖ Via Regina defines a **cross-border area** between Italy and Switzerland

- trade and **cultural route** since Roman times
- transalpine system of **soft mobility links**



Via Regina

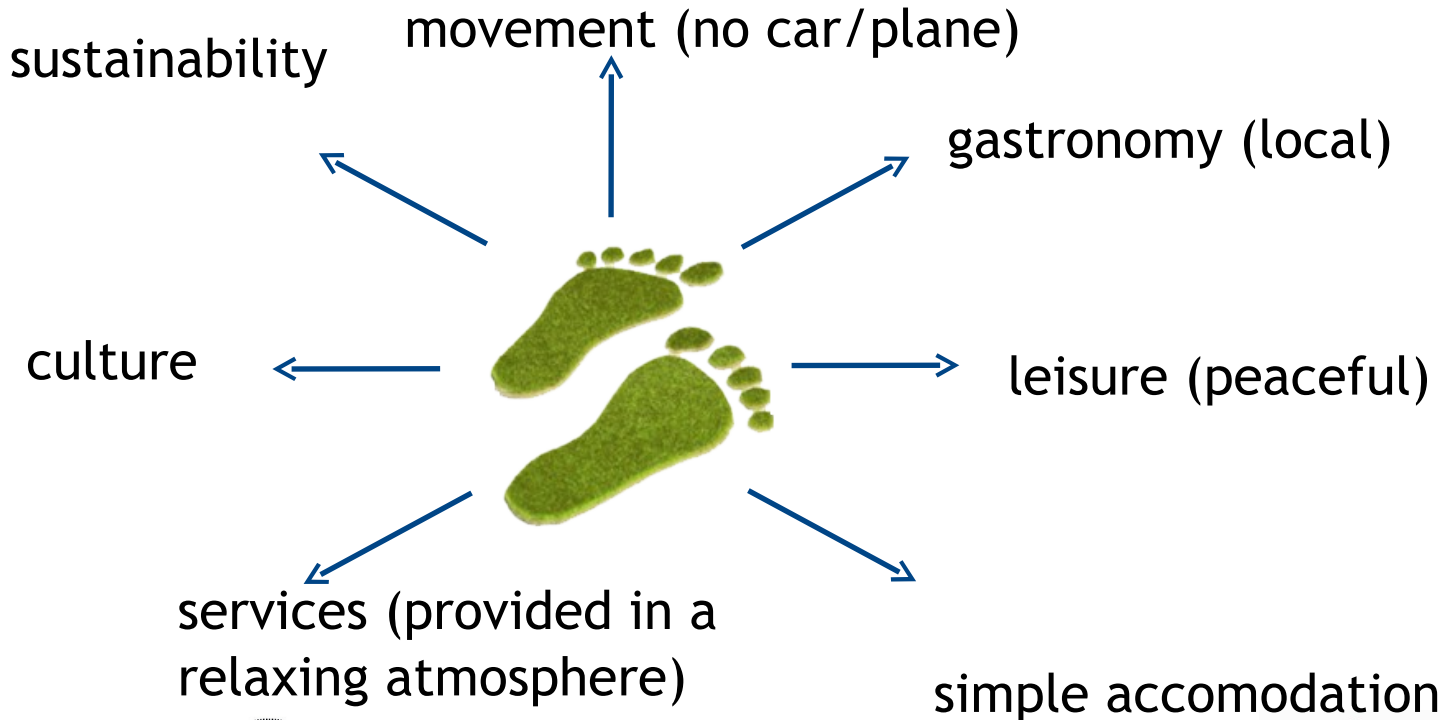
- ❖ Via Regina defines a cross-border area between Italy and Switzerland



Slow tourism at a glance



- ❖ A special case of **sustainable tourism** focused on:
 - environmental friendliness
 - rediscovery of **local traditions** and **cultural knowledge**



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❖ Allows everyone to report interesting elements using an Android device

- historical and cultural elements
- morphological elements
- tourist elements
- critical elements
- warnings



❖ Based on the suite of tools



➤ management of mobile data collection through a set of related applications

FORM CREATION



We are now
Implementing
a crossplatform
App

Apache Tomcat

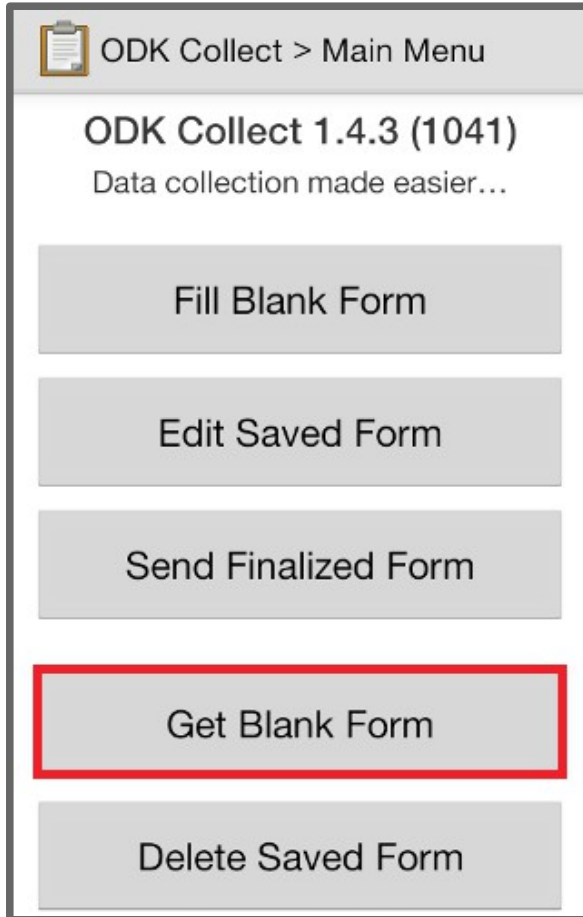


FORM STORAGE

FORM COMPILATION



❖ Form download



ODK Collect > Main Menu

ODK Collect 1.4.3 (1041)
Data collection made easier...

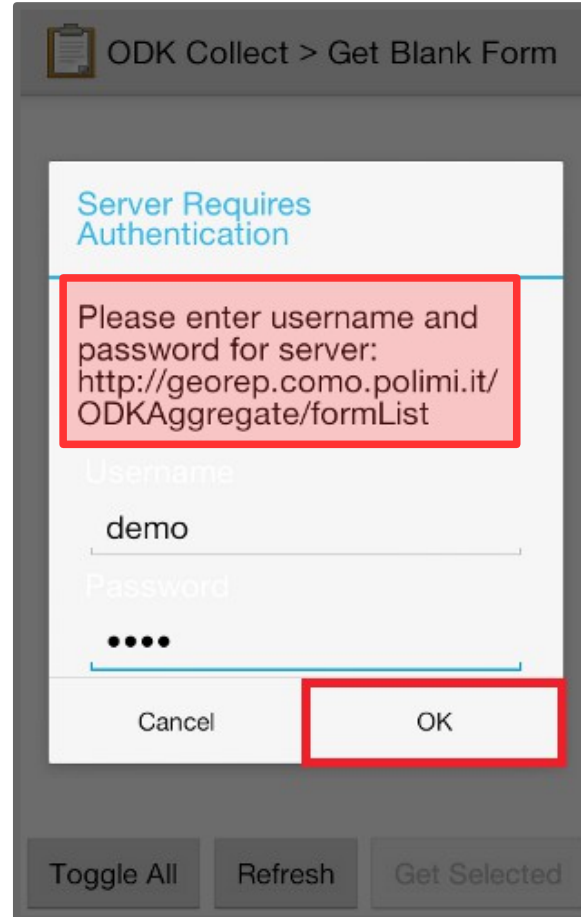
Fill Blank Form

Edit Saved Form

Send Finalized Form

Get Blank Form

Delete Saved Form



ODK Collect > Get Blank Form

Server Requires Authentication

Please enter username and password for server:
<http://georep.como.polimi.it/ODKAggregate/formList>

Username
demo

Password
.....

Cancel OK

Toggle All Refresh Get Selected



ODK Collect > Get Blank Form

I Cammini della Regina

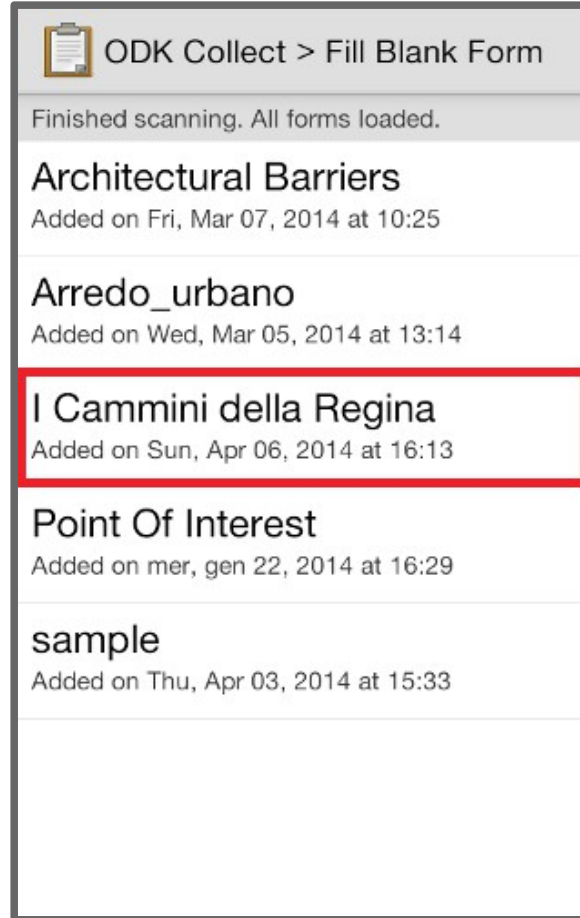
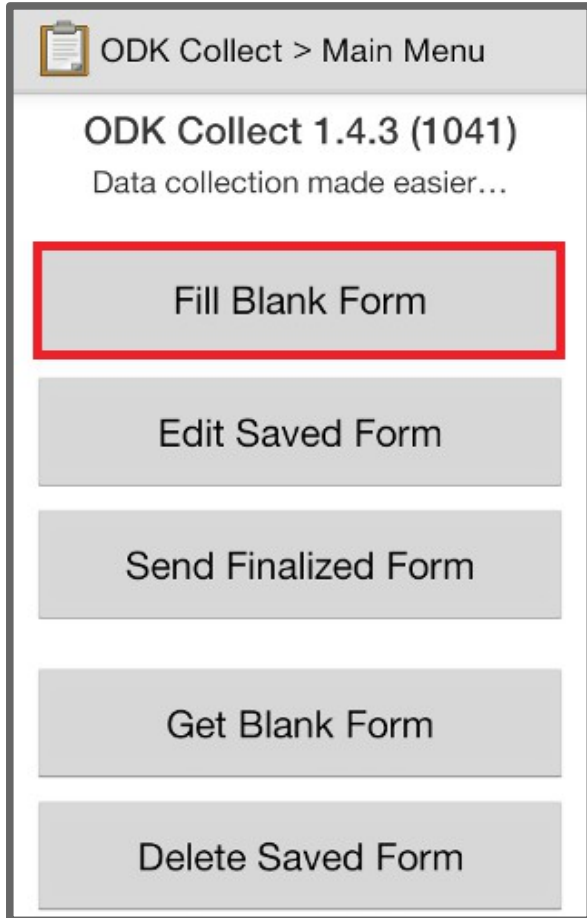
ID: regina_v9

Toggle All Refresh Get Selected

INSTRUCTIONS

http://www.viaregina.eu/files/documenti/2014/istruzioni_eng.pdf

❖ Form compilation



❖ Form compilation

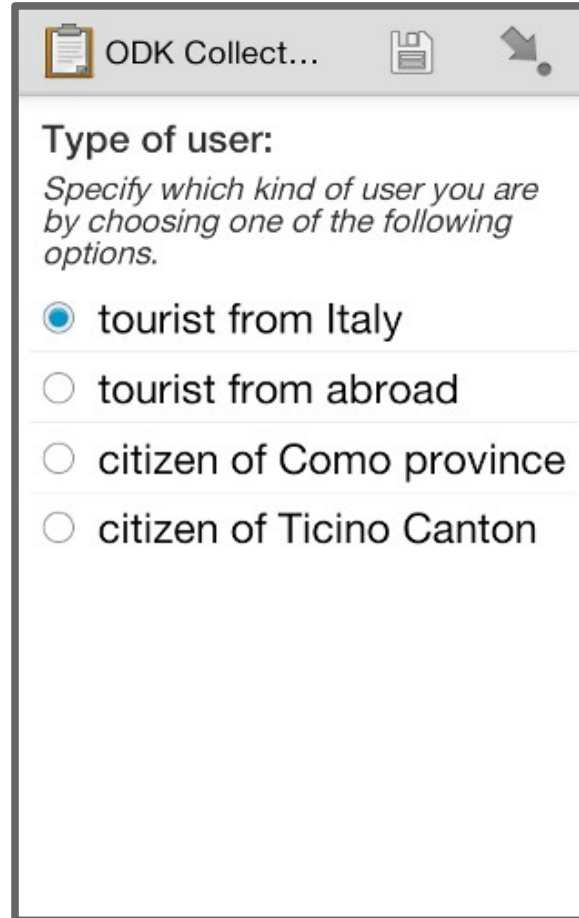


ODK Collect...

Date of report

Aprile 2014

D	L	M	M	G	V	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10

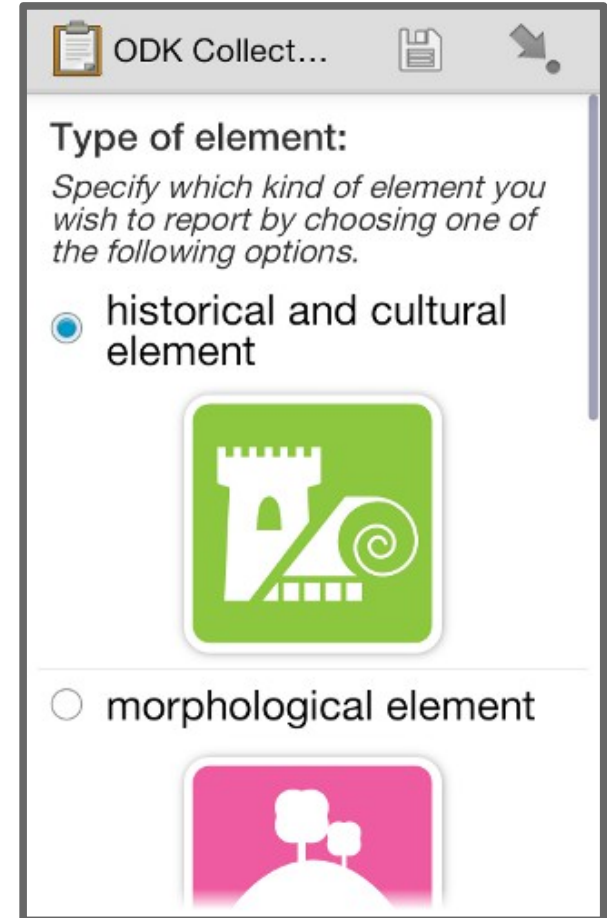


ODK Collect...

Type of user:

Specify which kind of user you are by choosing one of the following options.

- tourist from Italy
- tourist from abroad
- citizen of Como province
- citizen of Ticino Canton





ODK Collect...

Type of element:

Specify which kind of element you wish to report by choosing one of the following options.

- historical and cultural element
- morphological element



❖ Historical and cultural elements

➤ Museum

- x ethnographic
- x thematic
- x gallery
- x collections

➤ Religious building

- x church
- x oratory
- x sanctuary
- x chapel
- x via crucis
- x fresco
- x abbey

➤ Civil building

- x historical building
- x contemporary building
- x traditional building
- x monument

➤ Rural building

- x pasture/shed
- x snow deposit
- x graa/metato (chestnuts drier building)
- x roccolo (system designed to catch birds)
- x casello/turbino (buildings for the storage of perishable foods)
- x hydraulic structures
- x masseria (farm)

❖ Historical and cultural elements

- **Archaeological element** 
 - ✗ archaeological element
 - ✗ archaeological site
 - ✗ element inside a building
 - ✗ single element
- **Military building** 
 - ✗ castle
 - ✗ tower
 - ✗ defensive wall
 - ✗ fort
 - ✗ trench
 - ✗ redoubt (secondary fort)
 - ✗ bunker
- **Factory** 
 - ✗ furnace
 - ✗ trip hammer
 - ✗ mill
 - ✗ sawmill
 - ✗ quarry
 - ✗ mine
 - ✗ rural factory

❖ Morphological elements

➤ Surface

- x pavement
- x natural material
- x gravel
- x asphalt
- x steps
- x ford

➤ Bounding escarpment

- x rock
- x ground escarpments
- x rock escarpments
- x support walls
- x boundary walls and railings
- x tree-lined aven

- x fence/barrier
- x vertical plate

➤ Traffic support and manufactured products

- x kilometric stone
- x border stone
- x stone marker
- x isolated tree
- x inscription
- x fountain
- x ancient laundry
- x bridge
- x rest of bridge
- x tomb
- x underpass
- x tunnel
- x panoramic viewpoint

❖ Tourist elements

➤ Accommodation

- x hotel
- x hostel
- x B&B
- x hut/shelter
- x camping
- x private accommodation
- x free accommodation
- x agritourism
- x apartment

➤ Transport

- x bus stop
- x dock/ferry
- x train station
- x funicular and ski lift

➤ Services

- x pharmacy
- x parking
- x school
- x public safety
- x spring
- x city hall
- x post office
- x wc
- x bank
- x park area
- x ATM
- x info point
- x wifi hotspot
- x bike sharing
- x electric car charging point
- x hospitals/emergency room
- x hiking signs

➤ Products

- x wine shop
- x craft
- x food/typical products
- x clothing shop

Mobile data collection



➤ Food Service

- ✗ restaurant
- ✗ crotto (cellar inside a natural curve)
- ✗ bar
- ✗ food shop

❖ Critical elements

➤ Morphological

- ✗ ford
- ✗ landslide

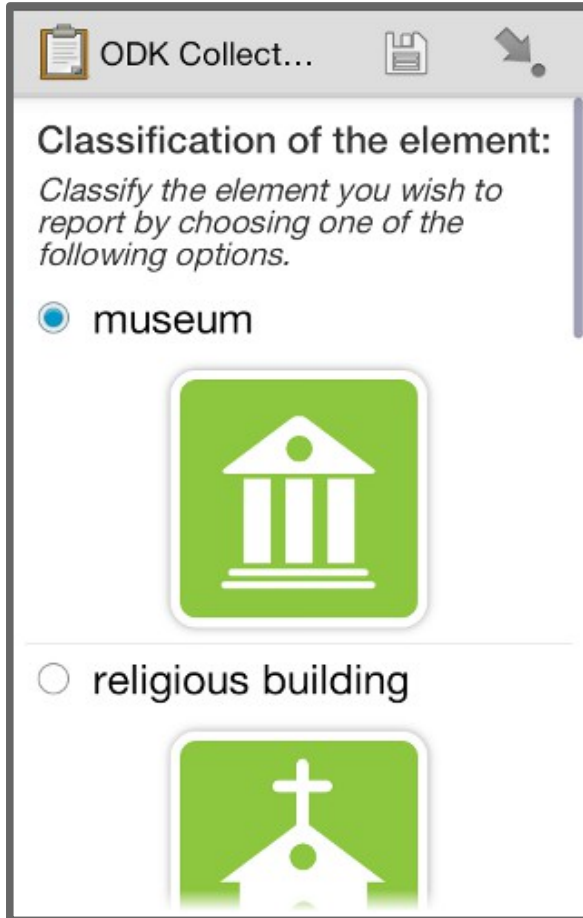
➤ Structural

- ✗ crossing with traffic light
- ✗ crossing without crossing stripes
- ✗ crossing with crossing stripes

❖ Warning

- [whatever kind of warning the user specifies]


❖ Form compilation



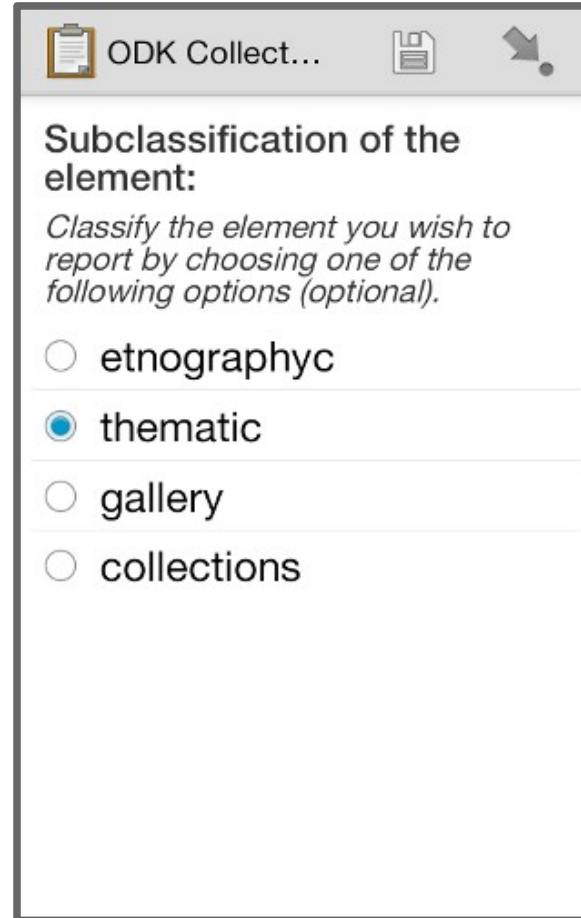

ODK Collect...

Classification of the element:
Classify the element you wish to report by choosing one of the following options.

museum



religious building



ODK Collect...

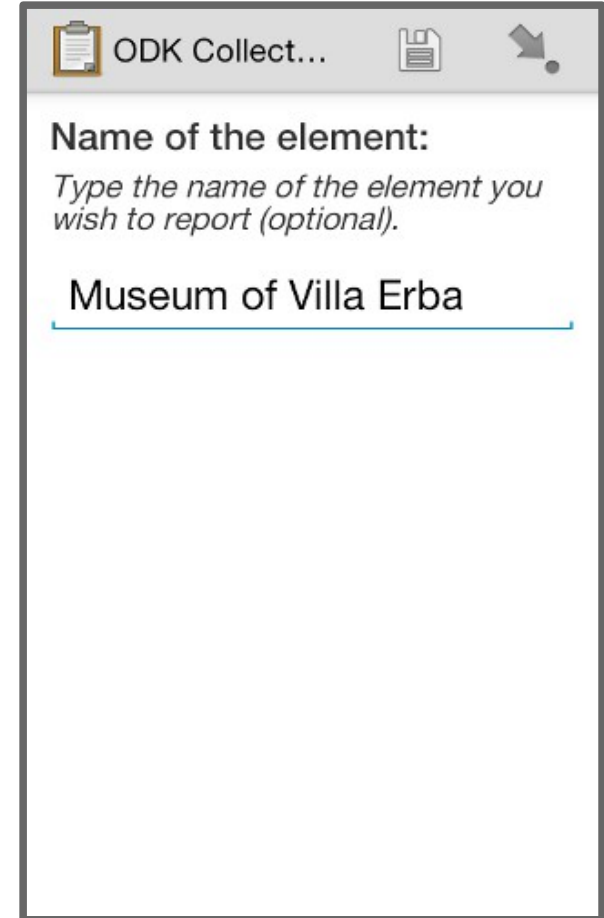
Subclassification of the element:
Classify the element you wish to report by choosing one of the following options (optional).

ethnographic

thematic

gallery

collections

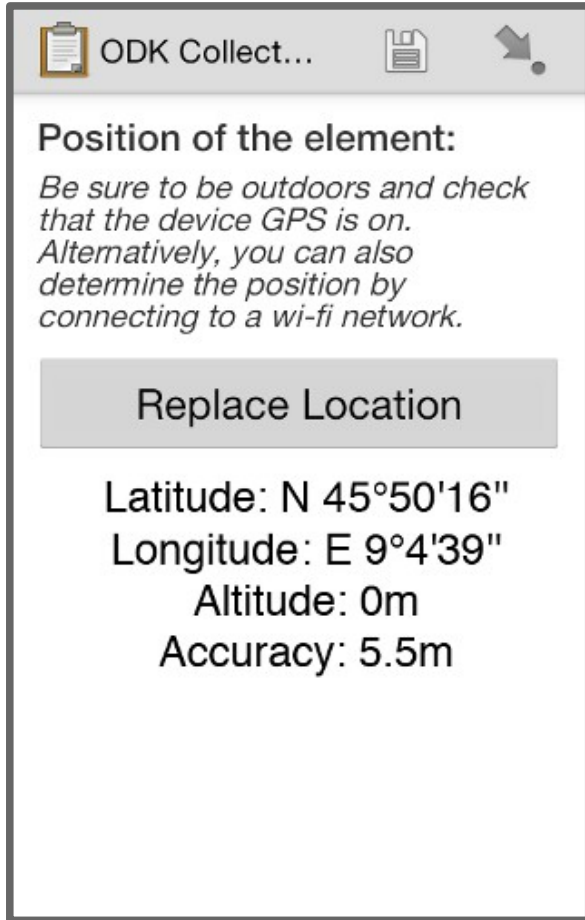


ODK Collect...

Name of the element:
Type the name of the element you wish to report (optional).

Museum of Villa Erba

❖ Form compilation

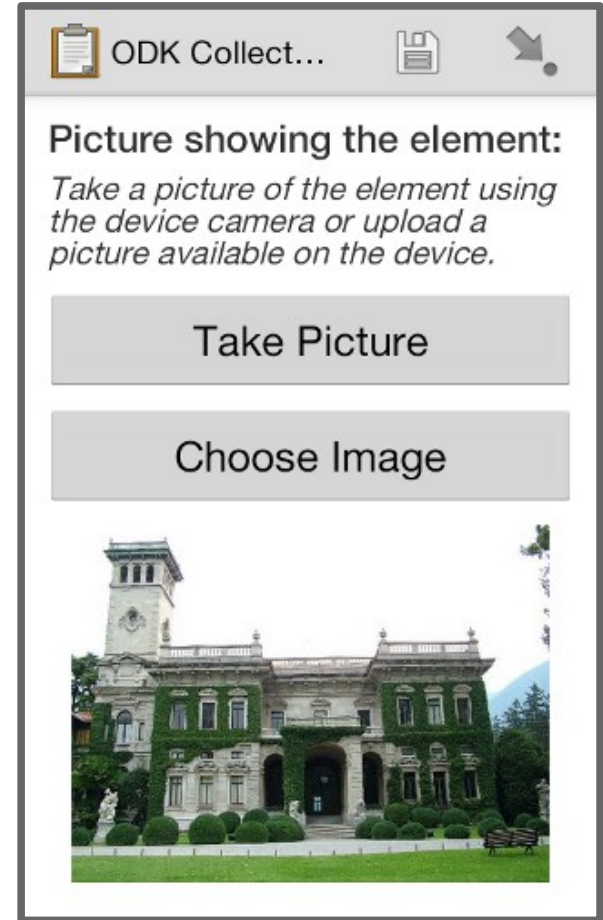
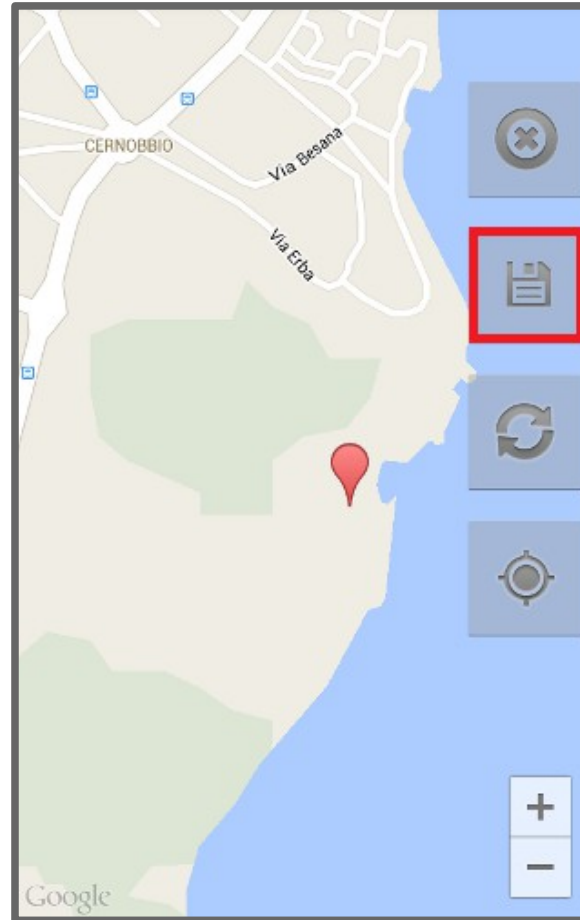


ODK Collect...

Position of the element:
Be sure to be outdoors and check that the device GPS is on. Alternatively, you can also determine the position by connecting to a wi-fi network.

Replace Location

Latitude: N 45°50'16"
Longitude: E 9°4'39"
Altitude: 0m
Accuracy: 5.5m




ODK Collect...

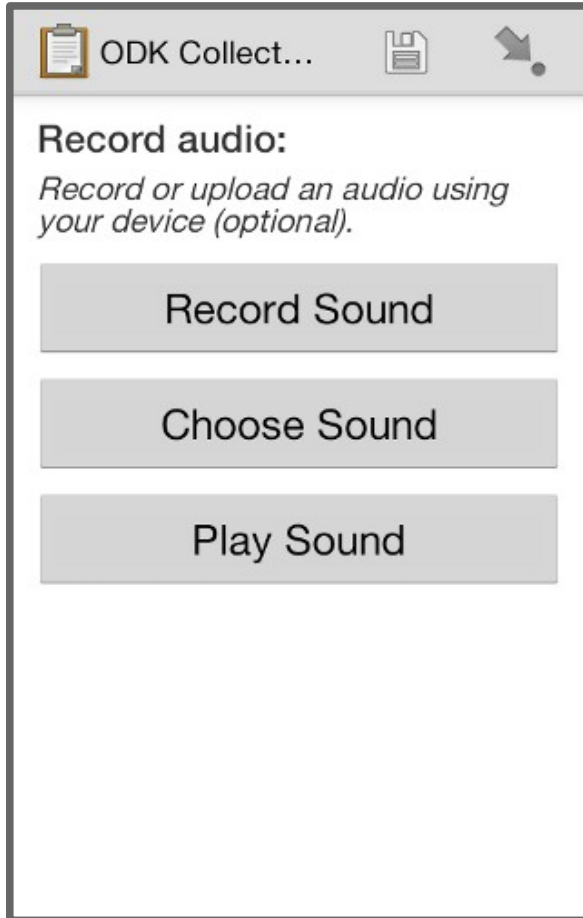
Picture showing the element:
Take a picture of the element using the device camera or upload a picture available on the device.

Take Picture

Choose Image



❖ Form compilation



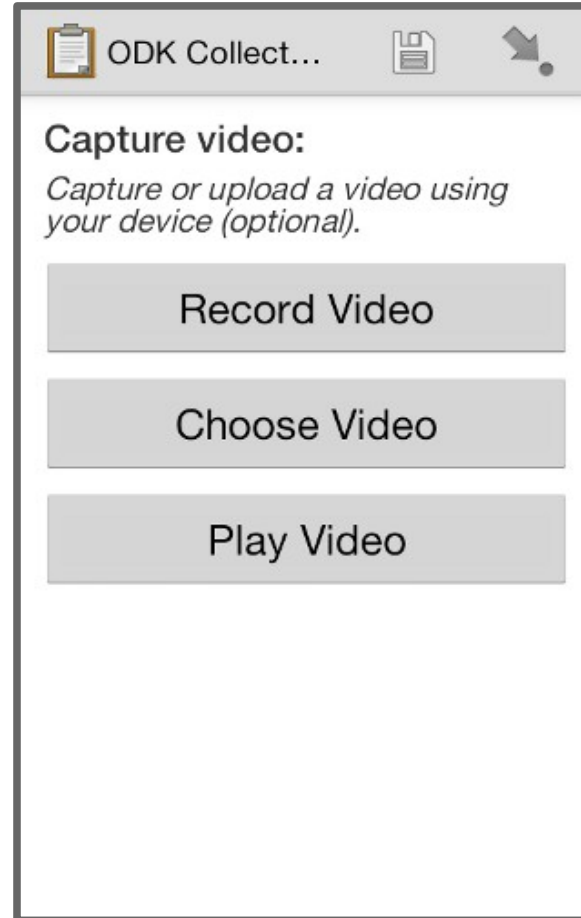
ODK Collect...

Record audio:
Record or upload an audio using your device (optional).

Record Sound

Choose Sound

Play Sound




ODK Collect...

Capture video:
Capture or upload a video using your device (optional).

Record Video

Choose Video

Play Video



ODK Collect...

You are at the end of I Cammini della Regina.

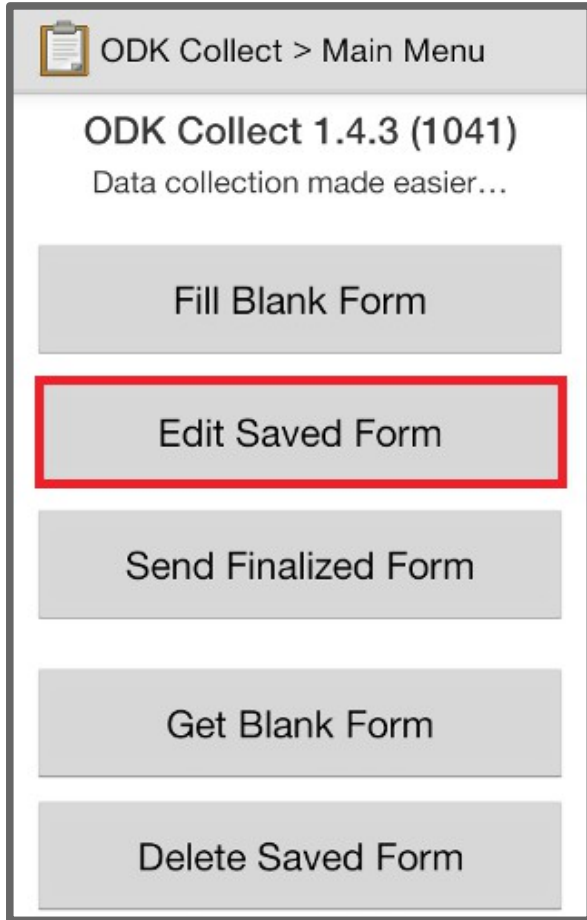
Name this form

I Cammini della Regina

Mark form as finalized

Save Form and Exit

❖ Form compilation



ODK Collect > Main Menu

ODK Collect 1.4.3 (1041)
Data collection made easier...

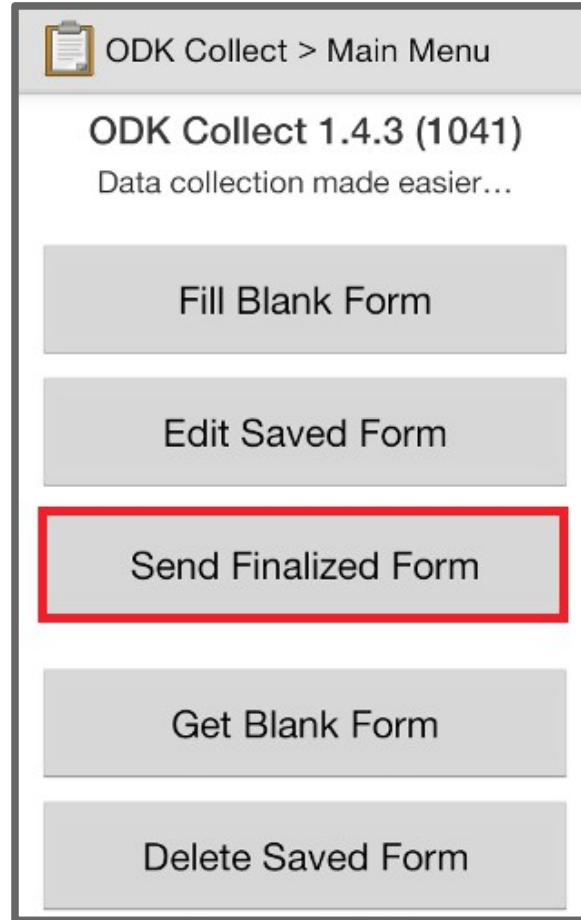
Fill Blank Form

Edit Saved Form

Send Finalized Form

Get Blank Form

Delete Saved Form



ODK Collect > Main Menu

ODK Collect 1.4.3 (1041)
Data collection made easier...

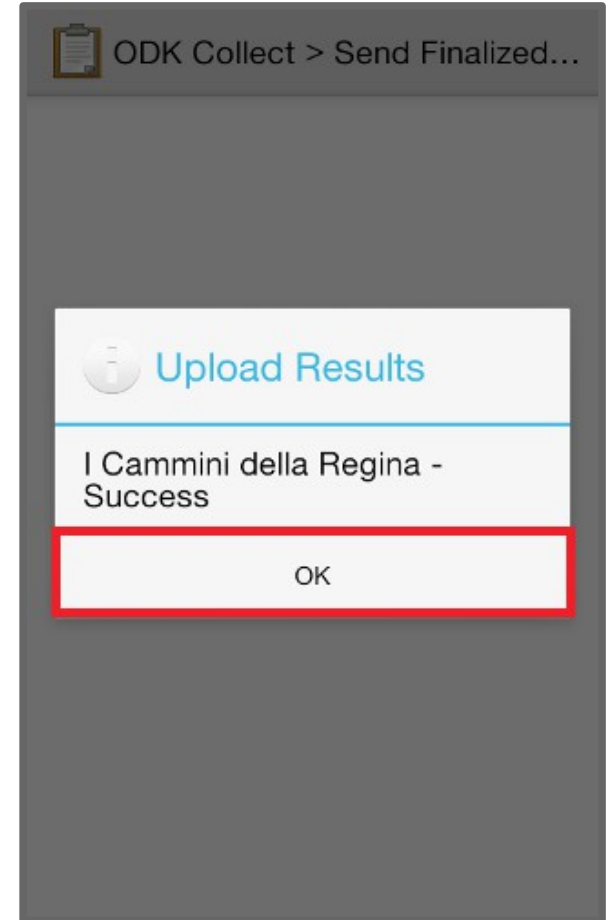
Fill Blank Form

Edit Saved Form

Send Finalized Form

Get Blank Form

Delete Saved Form



ODK Collect > Send Finalized...

Upload Results

I Cammini della Regina -
Success

OK

Mapping parties

SABATO 3 MAGGIO 2014

MapParty!



CAMMINARE, OSSERVARE, DISEGNARE, MAPPARE
LUNGO I CAMMINI DELLA REGINA PER UN'ESPERIENZA
CULTURALE, SENSORIALE E GIOCOSA

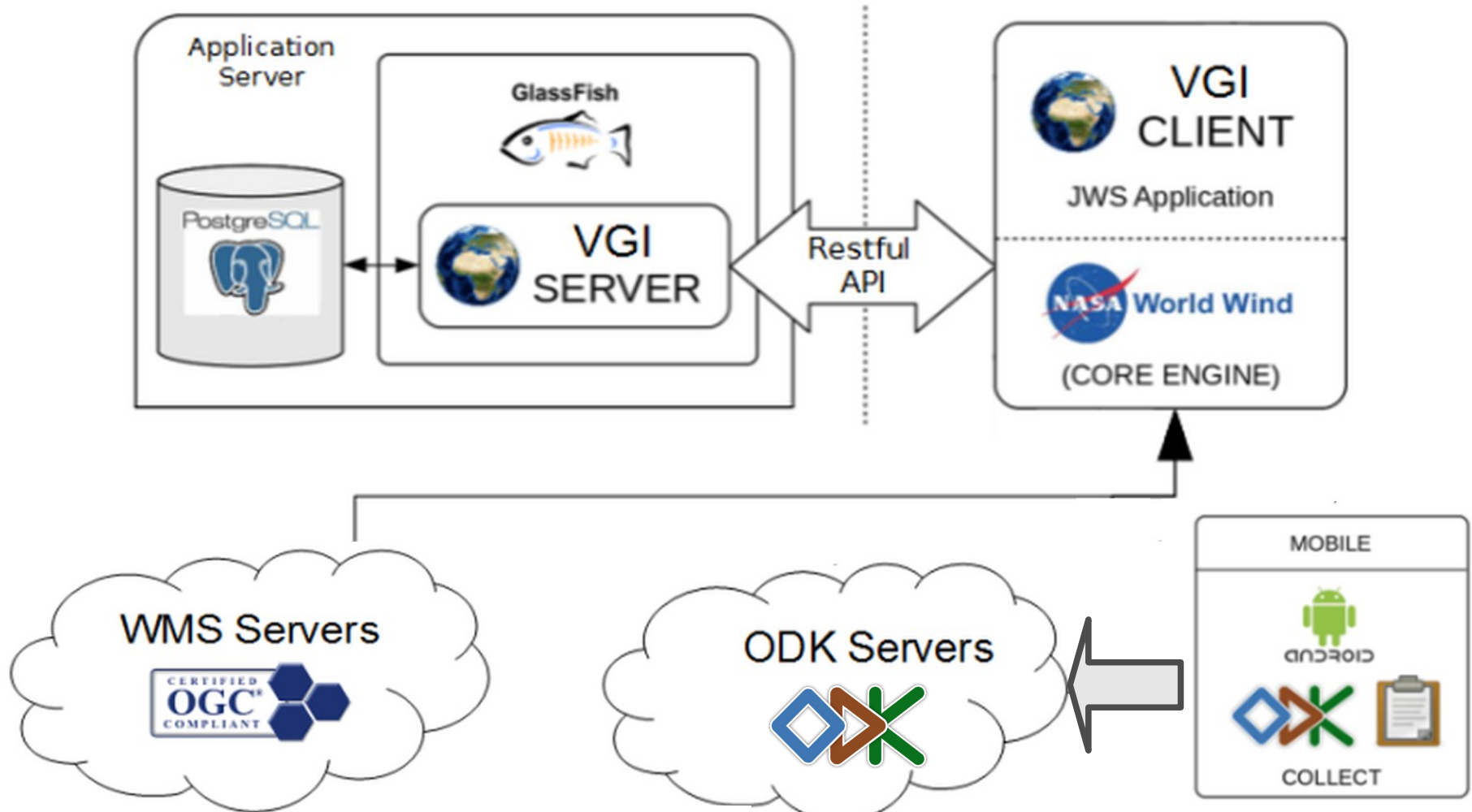


❖ Cernobbio-Piazzola – May 3, 2014



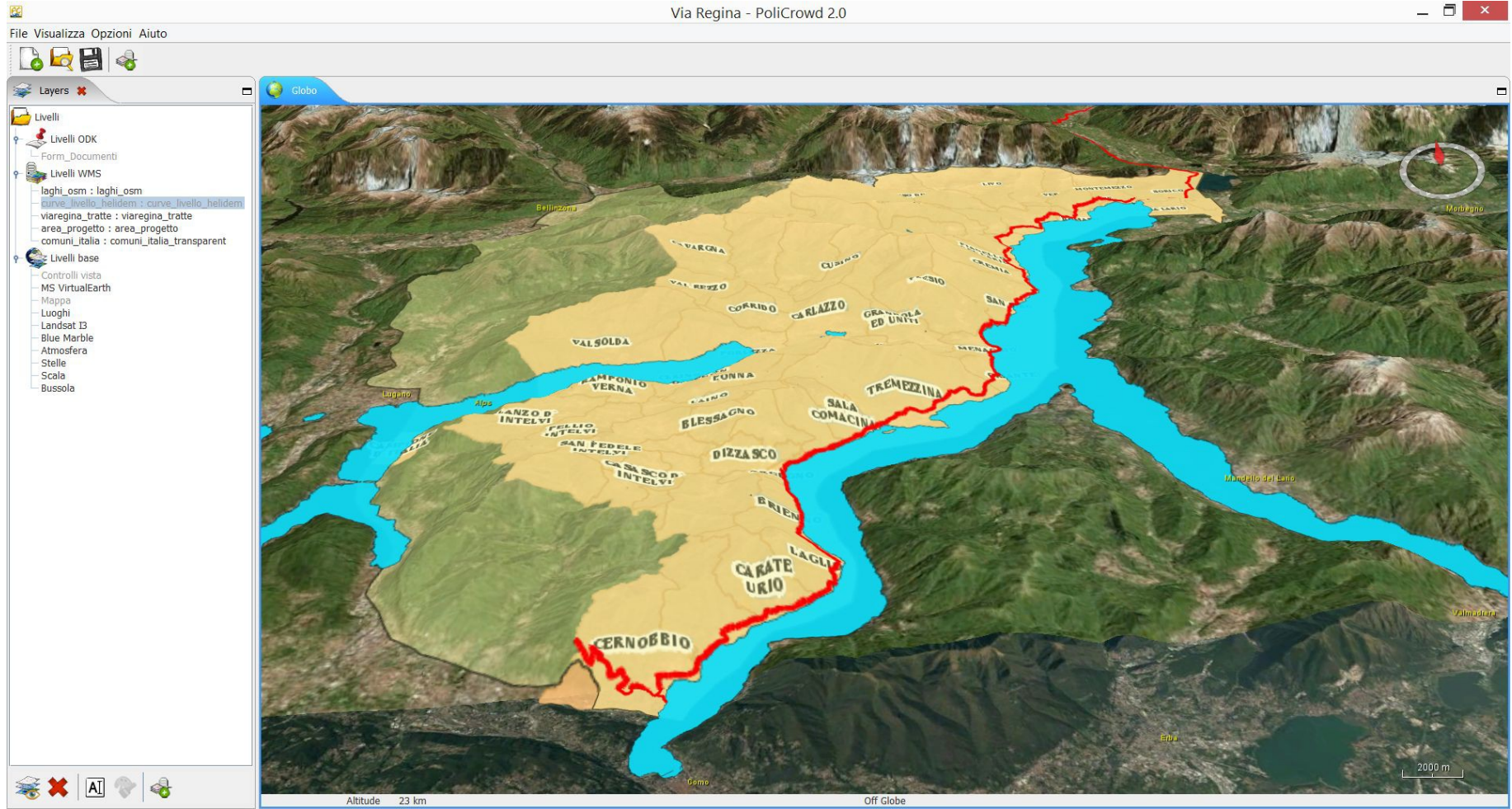
<http://viaregina.como.polimi.it/mapparty>

A 3D social platform: architecture



3D viewer

❖ Connection to WMSs (among them those of the project)



3D viewer

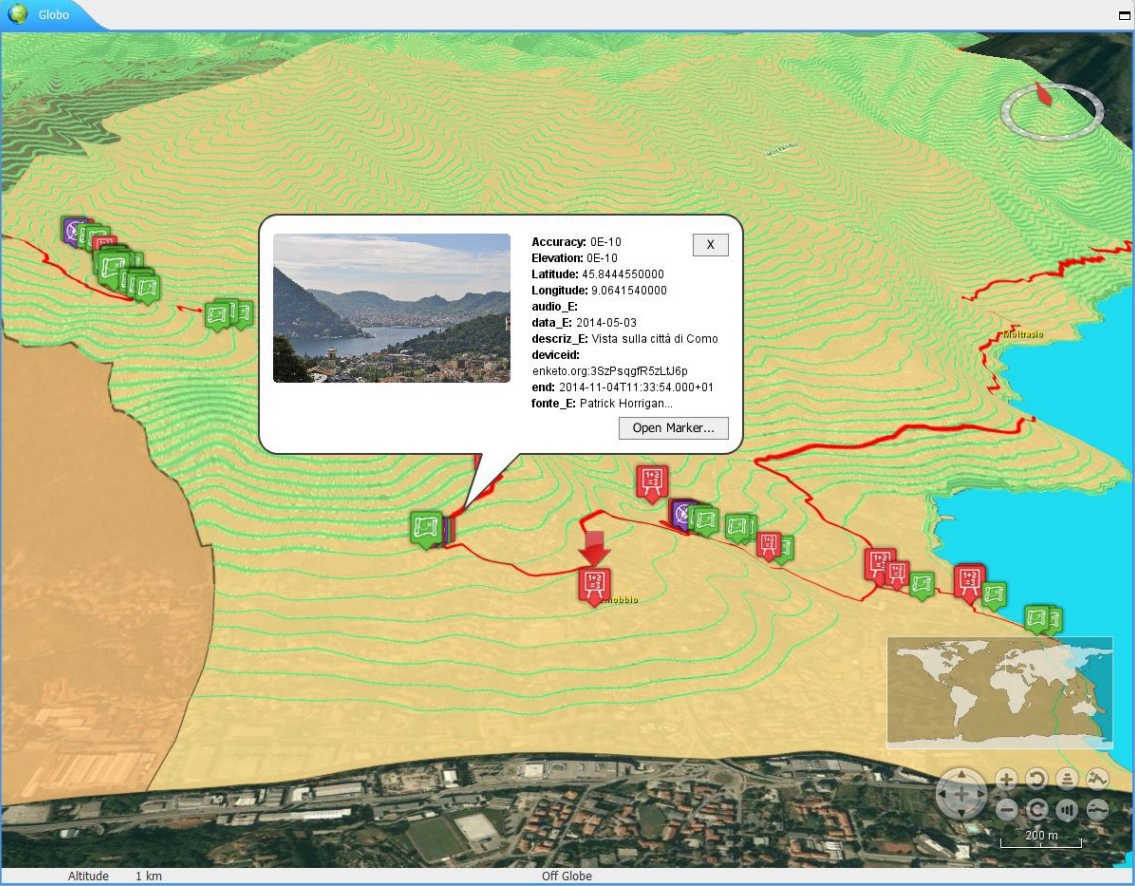
- ❖ Connection to ODK servers (among them those of the project)

Via Regina - PoliCrowd 2.0

File Visualizza Opzioni Aiuto

Layers

- Livelli
- Livelli ODK
 - Form_Documenti
- Livelli WMS
 - laghi_osc : laghi_osc
 - curvelivello_helidem : curvelivello_helidem
 - viaregina_tratte : viaregina_tratte
 - area_progetto : area_progetto
 - comuni_italia : comuni_italia_transparent
- Livelli base
 - Controlli vista
 - MS VirtualEarth
 - Mappa
 - Luoghi
 - Landsat I3
 - Blue Marble
 - Atmosfera
 - Stelle
 - Scala
 - Bussola



Markers

- Facciata della Chiesa di Santo Stefano

Accuracy: 0E-10
Elevation: 0E-10
Latitude: 45.8409000000
Longitude: 9.0664000000
audio_E:
data_E: 2014-05-03
descriz_E: Facciata della Chiesa di Santo Stefano
deviceid: enketo.org:3S2PsgqR5zLU6p
end: 2014-10-28T15:07:25.000+01
fonte_E: Massimiliano Mandarini

Video Audio Immagini Commenti

Data di inserimento: 20/01/15 20/01/15
Data elemento: 20/01/15 20/01/15

Visualizza Aggiungi Modifica Cancella

Altitude 1 km Off Globe

3D viewer

- ❖ Query of the ODK data & point enrichment with multimedia contents

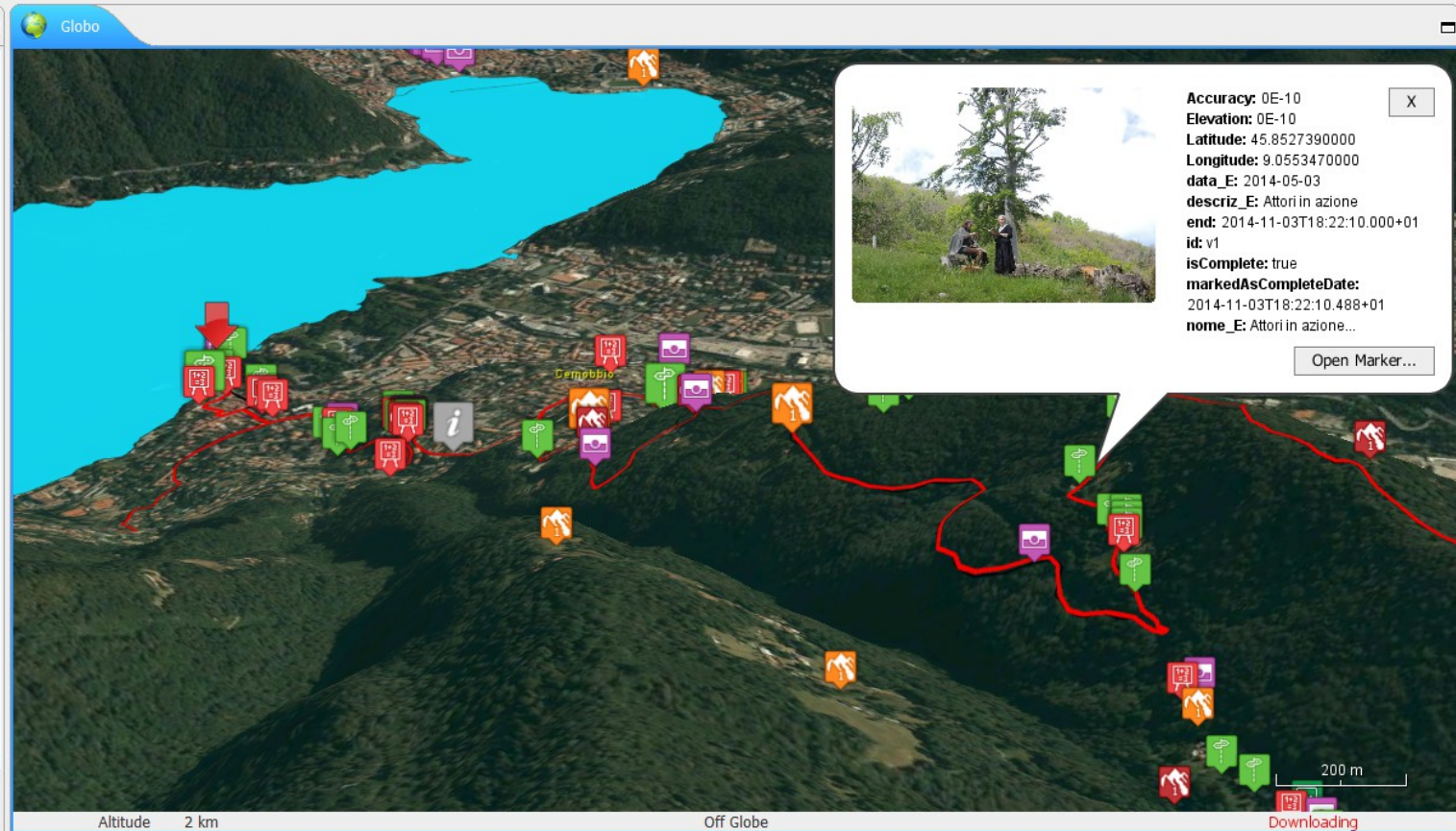
File Visualizza Opzioni Aiuto



Layers

- Livelli
- Livelli ODK
 - I Cammini della Regina
 - Form_Documenti
- Livelli WMS
 - laghi_osm : laghi_osm
 - comuni_italia : comuni_italia_transparent
 - viaregina_tratte : viaregina_tratte
 - area_progetto : area_progetto
 - curvelivello_helidem : curvelivello_helidem
 - elevation : elevation
 - Percorso della Via Regina : percorso_regina_2f
- Livelli base
 - Controlli vista
 - MS VirtualEarth
 - Mappa
 - Luoghi
 - Landsat I3
 - Blue Marble
 - Atmosfera
 - Stelle
 - Scala
 - Bussola

Globo



Altitude 2 km

Off Globe


Downloading

200 m

Accuracy: 0E-10
Elevation: 0E-10
Latitude: 45.8527390000
Longitude: 9.0553470000
data_E: 2014-05-03
end: 2014-11-03T18:22:10.000+01
descriz_E: Attori in azione
id: v1
isComplete: true
markedAsCompleteDate: 2014-11-03T18:22:10.488+01
nome_E: Attori in azione...

Open Marker...


Globo



Altitude 1 km Off Globe

Markers

elemento turistico



Accuracy: 8.0000000000
Elevation: 805.7413012501
Latitude: 45.8549619867
Longitude: 9.0635823119
audio_E:
data_E: 2014-04-11
descriz_S:
descriz_E: Bacheca a Croce dell'Uomo
deviceid: enketo.org:3SzPsgqfR5zLU6p
end: 2014-11-04T11:11:00.000+01
fonte_E:

Video Audio Immagini Commenti

Via Regina
Data di inserimento: 31 gennaio 2015 9.45
Via Regina

Paesaggio
Data di inserimento: 31 gennaio 2015 9.44
Paesaggio

Torre
Data di inserimento: 31 gennaio 2015 9.44
Torre

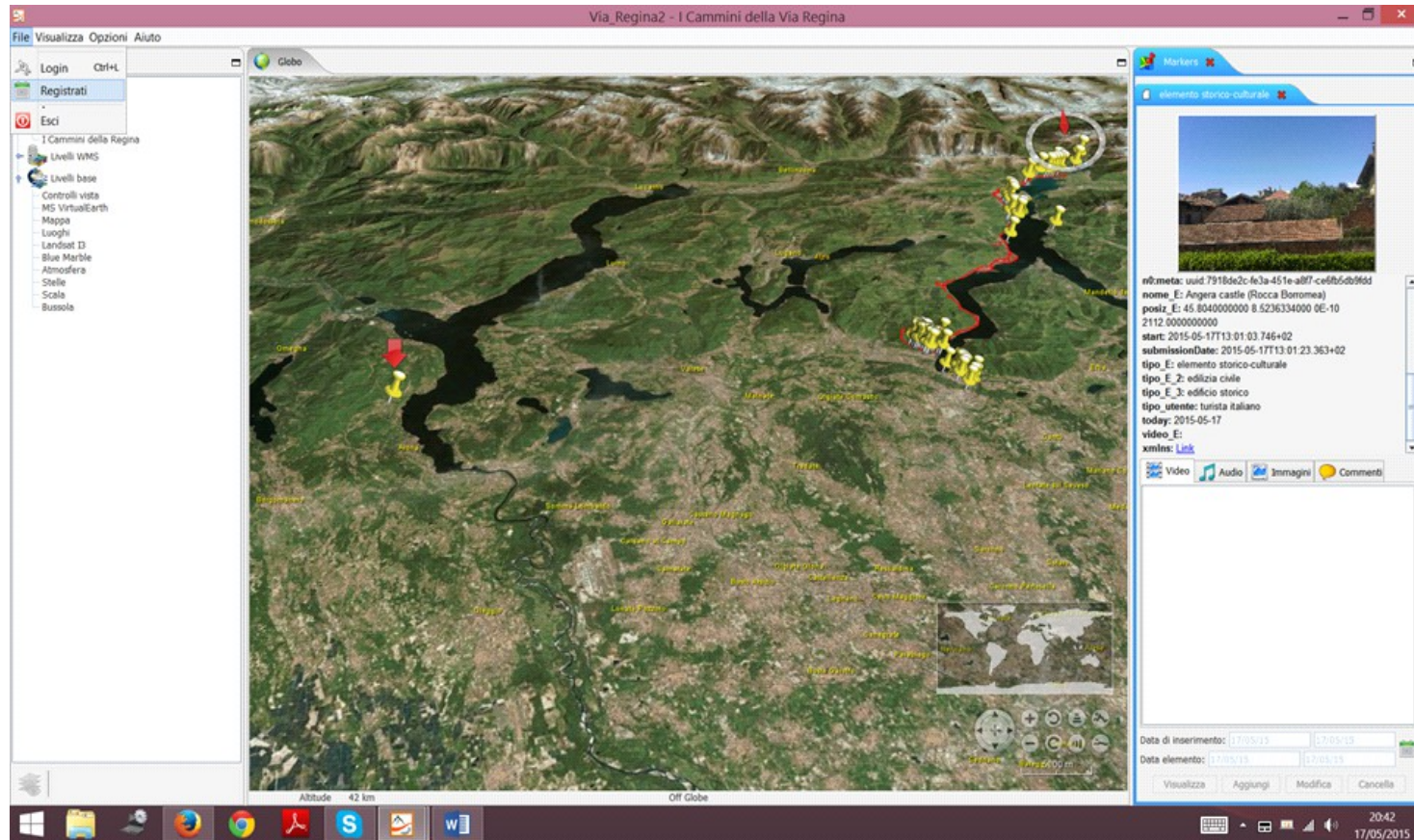
Data di inserimento: 26/04/15 26/04/15
Data elemento: 26/04/15 26/04/15

Visualizza Aggiungi Modifica Cancella

Accessing it with Java Webstart



<http://viaregina2.como.polimi.it/ViaRegina20/>



Acknowledgments

- ❖ This research has been funded by the INTERREG “I Cammini della Regina – Percorsi transfrontalieri legati alla Via Regina (The paths of Regina – Crossborder paths departing from Via Regina)” 2007-2013 project.

<http://www.viaregina.eu>

<https://www.facebook.com/viaregina2.0>

<https://twitter.com/viaregina20>

Thanks for your attention!

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