

# Input:

A touch friendly  
mobile app for data  
collection

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# Overview

Of the presentation

- Introduction
- Why Input?
  - Optimisation for mobile devices
  - Configurability
  - Multi-platform support
- Data transfer and sync

# Introduction

Who are we?

- Lutra Consulting
  - Software development
  - Consultancy
  - Migration to Open Source GIS
  - Training

# Why Input?

Optimised for all devices

- Simplified interface
- Designed for all screen sizes
- Limited functionality by design

The image displays three screenshots of a mobile application interface for surveying objects. The left screenshot shows a map view with several streets labeled in Romanian, including Calea Victoriei, Splaiul Independenței, Bulevardul, Strada Bărătiei, Calea Rahovei, and Calea Ferentarii. A red cross icon is visible on the map. The middle screenshot shows a satellite view of the same area, with a red location pin indicating the survey point. The right screenshot shows the 'Object' detail screen with the following fields:

- Name: [Empty text input field]
- Type: Hotel
- Access to public: true (with a toggle switch)
- Survey date: 2019-08-28 (with a calendar icon)
- Photo:
  - Take a photo (with a camera icon)
  - Add from gallery (with a photo album icon)
- Next survey: 2020 (with a slider bar)

At the bottom of the right screenshot, there are three buttons: Delete, Save (with a checkmark icon), and Edit geometry.

**Left Screenshot (Map View):**

- Streets labeled: Calea Victoriei, Splaiul Independenței, Bulevardul, Strada Bărătiei, Calea Rahovei, Calea Ferentarii.
- Red cross icon on the map.
- Bottom navigation bar with icons: Projects, GPS, Record.

**Middle Screenshot (Satellite View):**

- Street names: Calea Victoriei, Splaiul Independenței, Bulevardul, Strada Bărătiei, Calea Rahovei, Calea Ferentarii.
- Red location pin on the satellite map.

**Right Screenshot (Object Detail Screen):**

- Back button and Object title.
- Name, Type, Access to public, Survey date, Photo, and Next survey fields.
- Save, Delete, and Edit geometry buttons at the bottom.

# Why Input?

Based on QGIS

- QEP for QGIS Quick
  - <https://github.com/qgis/QGIS-Enhancement-Proposals/issues/109>
  - Easy to make your own app
- Rendering is based on QGIS
- Forms are based on QGIS Quick
- Available for Android and iOS

# Data synchronisation

# Problems to solve

Problem...what problem?!

- Changelog
    - Geometry
    - Database
  - Audit trails
    - Source of changes
  - Managing data
    - Avoid duplication
  - Collaborative work
  - Data conflict resolution
-

# Geodiff

<https://github.com/lutraconsulting/geodiff>

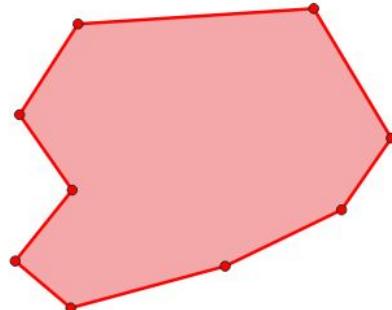
1. Start with a base vector
2. Modify data (geometry + database)
3. Changes:

```
geodiffinfo createChangeset  
vector2 vector1 changeset.json
```

# Detecting changes

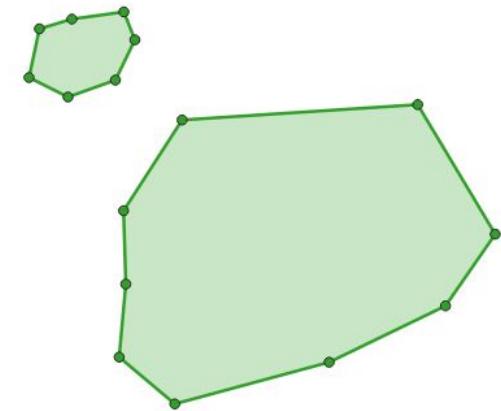
Polygon 1

Name
poly1



Polygon 2

Name
poly1b
poly2

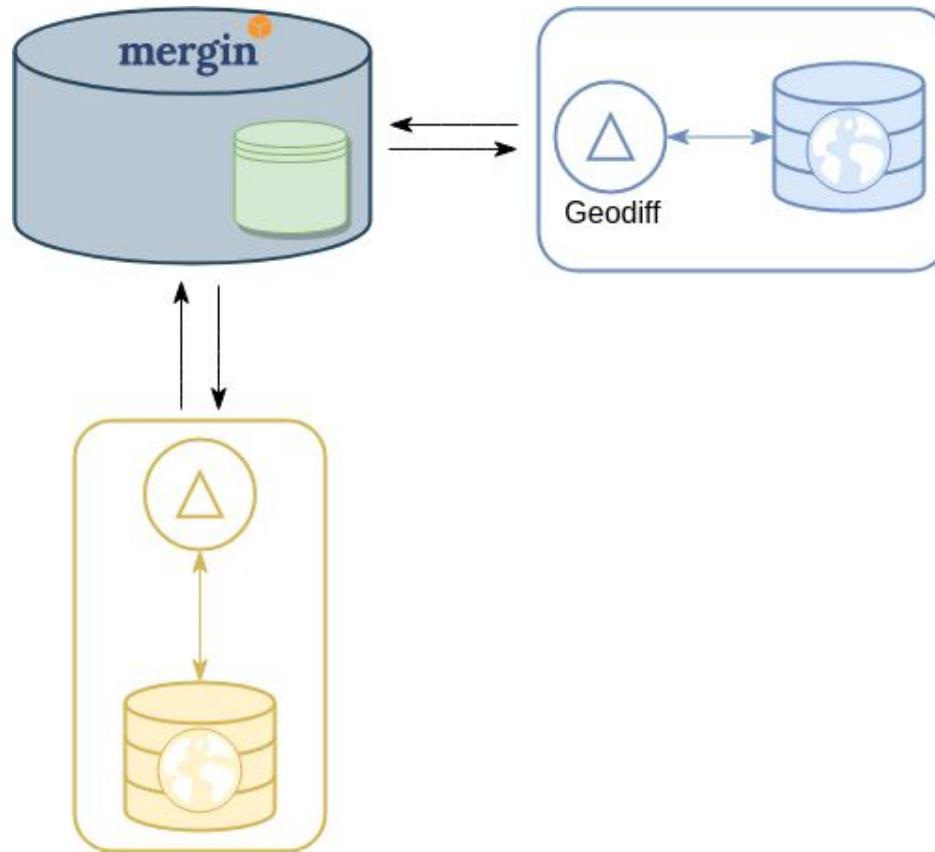


# Detecting Changes

```
"table": "vector1",
"type": "update",
"changes": [
  {
    "column": 0,
    "old": "1",
    "new": null
  },
  {
    "column": 1,
    "old": "MultiPolygon (((547334.3077 166204.2467, 544773.8624
169867.1059, 547618.8017 174276.7618, 559069.6821 175023.5583,
562839.2266 168729.1302, 560421.0283 165244.0797, 554766.7115
162505.8256, 547263.1843 160478.8064, 544560.492 162754.7578,
547334.3077 166204.2467)))",
    "new": "MultiPolygon (((544882.5701 166301.1835, 544773.8624
169867.1059, 547618.8017 174276.7618, 559069.6821 175023.5583,
562839.2266 168729.1302, 560421.0283 165244.0797, 554766.7115
162505.8256, 547263.1843 160478.8064, 544560.492 162754.7578,
544882.5701 166301.1835))}"
  },
  {
    "column": 2,
    "old": "poly1",
    "new": "poly1B"
  }
]
```

```
"table": "vector1",
"type": "insert",
"changes": [
  {
    "column": 0,
    "old": null,
    "new": "2"
  },
  {
    "column": 1,
    "old": null,
    "new": "MultiPolygon (((542262.4611 179180.7554, 540684.0822
178707.2417, 540179.001 176339.6733, 542073.0557 175392.646,
544377.4889 176213.403, 545324.5162 178170.5929, 544787.8674
179527.9987, 542262.4611 179180.7554)))"
  },
  {
    "column": 2,
    "old": null,
    "new": "poly2"
  }
]
```

# Geodiff: client and server side



# Mergin

<https://public.cloudmergin.com/>  
<https://github.com/lutraconsulting/mergin-py-client>

- Handle changes (server-side)
- Storage
- Authentication/authorization
- User-friendly interface
- Data sharing

## Data usage

Currently using 363.92 MB / 1000.00 MB



36%

Need more storage?

## Projects (11)

 CREATE

Name	Last Update	Size
bike ride - 2018		1 day ago 42.16 MB
CABFAS Saber		1 month ago 0.11 MB

Projects &gt; saber &gt; foss4g public



## Project History

Version	Created	Author				
v7	Wed, 28 Aug 2019 18:28:05	saber	2	0	1	0
v6	Wed, 28 Aug 2019 12:25:11	saber	1	0	2	0
v5	Wed, 28 Aug 2019 09:43:46	saber	0	0	1	0

Projects &gt; saber &gt; test-foss4g

 Public Access

## Members:

User	Owner	Write	Read	Remove
saber	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
martin	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
peter.petrik	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

## Projects

+ CREATE

Name

abdihakim / Hakim trieste p

albertino / Albertino test

AldoGessa / Prova2

AlessandroCattapan / WSE\_Fieldword\_Staff

Almax / provamario

ataul / Maowa

## New project

name

Template project

Trieste Template

IHE\_Fieldwork\_TEMPLATE

CABFAS

Tree survey

Tags

QGIS

Input

Mappin

QGIS, Input

QGIS, Input

QGIS, Input

QGIS, Input

# Input and Mergin in action



# Typical workflow

Data administrator

- Prepare QGIS project
- Set up forms
- Set up survey layers
- Create themes
- Upload the project to Mergin
- Share it with users

# Typical workflow

Surveyor

- Download the project in Input
- Collect/edit data
- Upload data

# Mergin in action

For data collection from  
surveyors

Sources of changes:

- Desktop application (QGIS)
- Mobile  
(<https://inputapp.io>)

# Using Mergin - data collection



QGIS

QGIS

# Mergin client: QGIS

The image shows the QGIS Mergin client interface. On the left, the 'Browser' panel is open, displaying a list of data sources. The 'Mergin' section is expanded, showing options like 'My projects', 'Shared with me', 'Explore', and 'GeoPackage'. On the right, the 'Mergin Settings' dialog is open, prompting for account information ('saber') and a custom server URL ('https://public.cloudmergin.com').

Browser

- XYZ Tiles
- WCS
- WFS
- OWS
- ArcGisMapServer
- GeoNode
- ArcGisFeatureServer
- Mergin
  - My projects
  - Shared with me
  - Explore
  - GeoPackage
  - SpatiaLite
  - PostGIS
  - MSSQL
  - DB2

Mergin Settings

saber

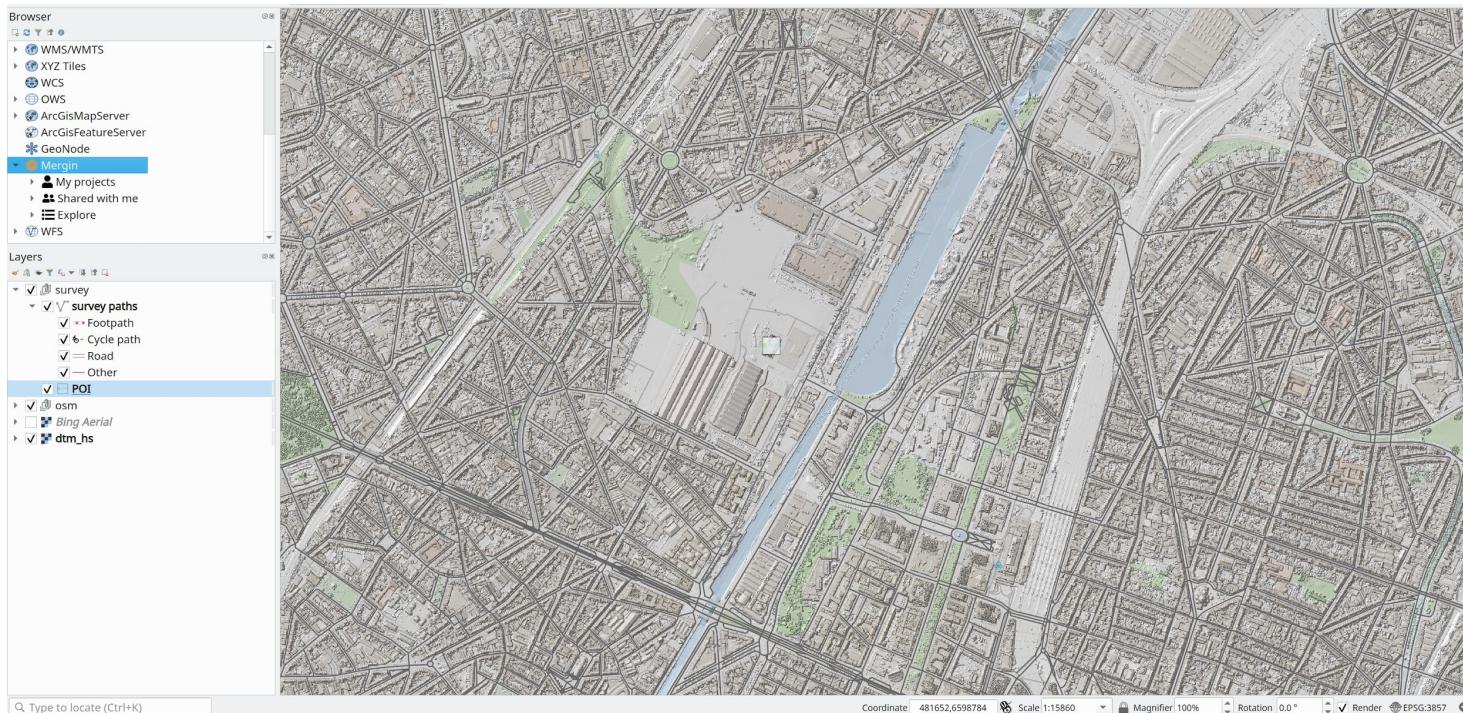
Custom Mergin server  https://public.cloudmergin.com

Test Connection

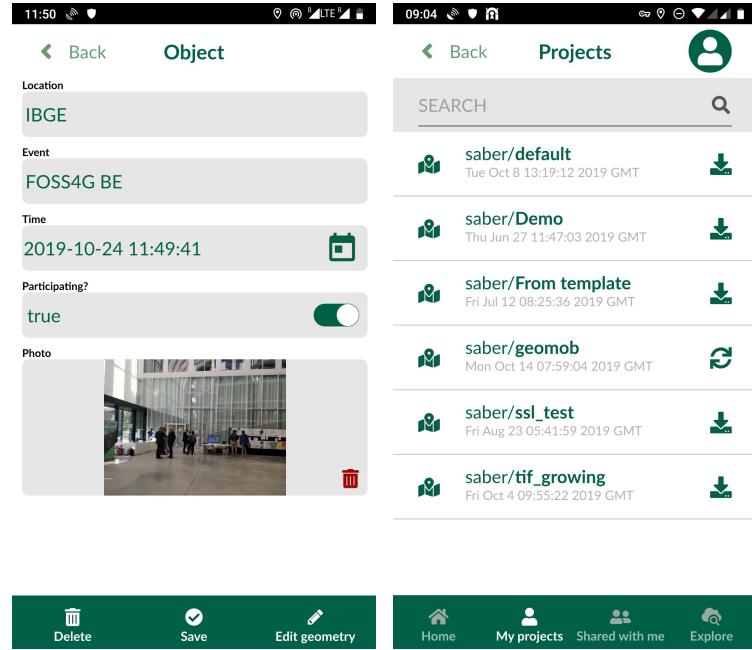
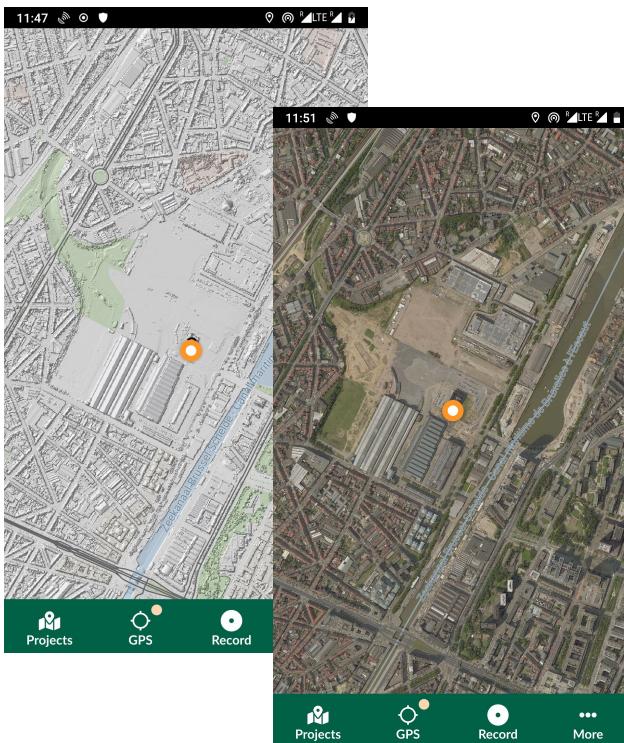
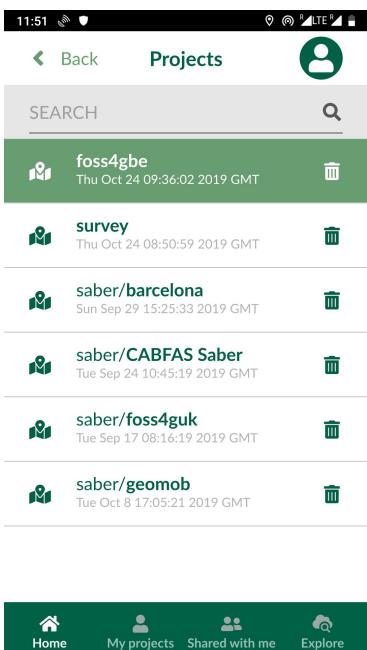
Don't have an account yet? [Sign up](#) now!

OK Cancel

# Data from QGIS desktop



# Mergin client in Input app



# Added values

Using Mergin for field work

- Offline editing
- Versioning of non-geospatial data
- Easy synchronisation of data

# Demo

# Demos

- Preparing project in QGIS
  - <https://www.youtube.com/watch?v=DQXrINUciFI&feature=youtu.be>
- Mergin
  - <https://youtu.be/RVdkXooJeFs>
- Using Input
  - <https://youtu.be/5mIT-wybgyw>

# Questions/suggestions?