

QField

QGIS[®] on the field

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C++, Python, Web, QGIS, Android, ...

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Why QField?

- Millions of Tablets, Phablets an Smartphones
 - Request is big
 - Some countries “skipped” the desktop
- Geodata are “outside” , the desktop is “inside”
- QGIS for android is OK, but too cluttered for simple use
- Simplicity of use in the field
 - Specific UI needs
 - Offline capabilities
 - GPS



Field work optimized

- Project preparation on desktop ✓
- GPS centric (✓)
- Fully working when offline
- Synchronization capabilities
- Few and large buttons ✓
- Modal paradigm ✓

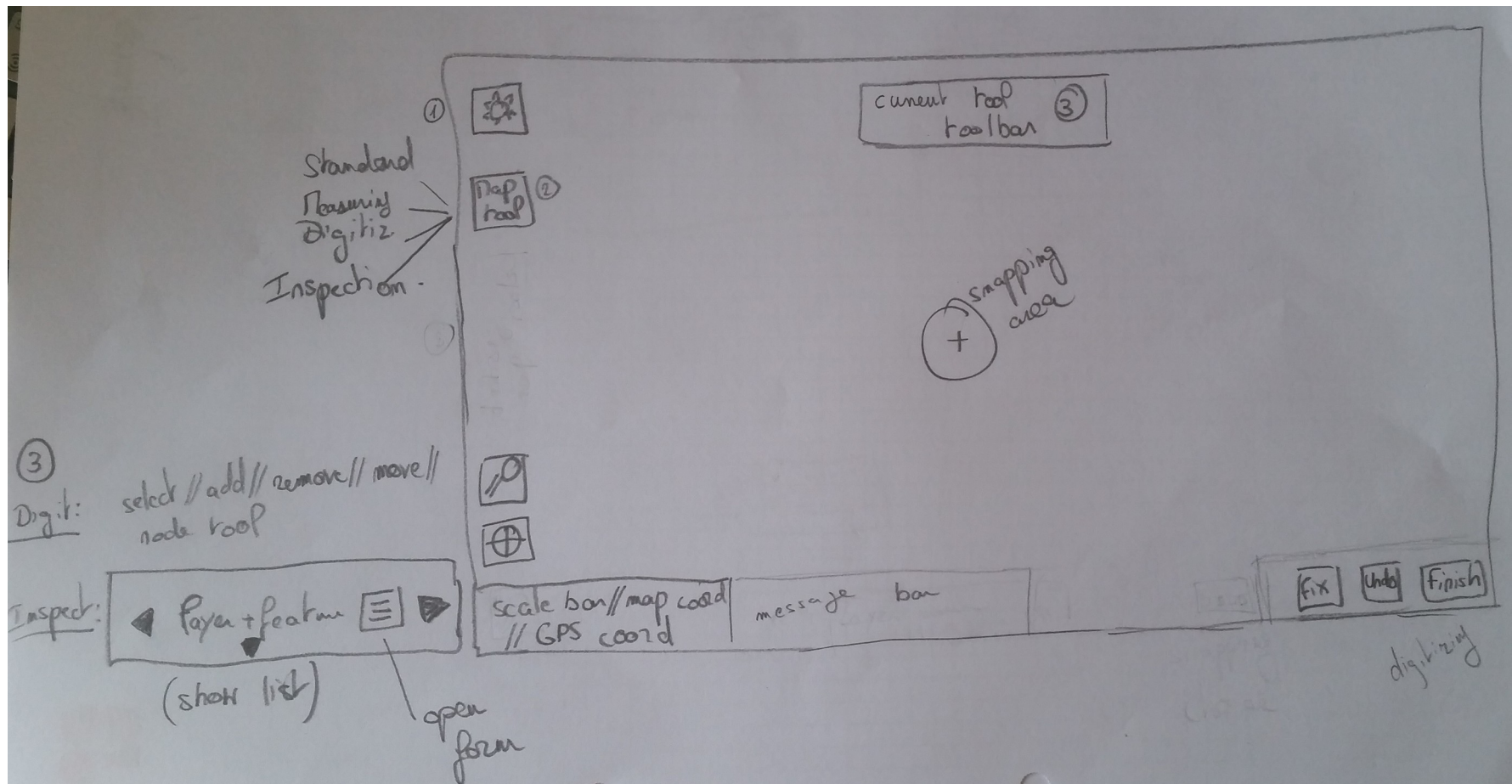


Modal paradigm

- Switchable working mode
 - Display, Inspection ✓
 - Digitizing, Measuring
- Cross mode tools
 - Pan, zoom, identify ✓
 - GPS coordinates ✓
 - Scalebar
 - Central crosshair with snapping



Modal paradigm

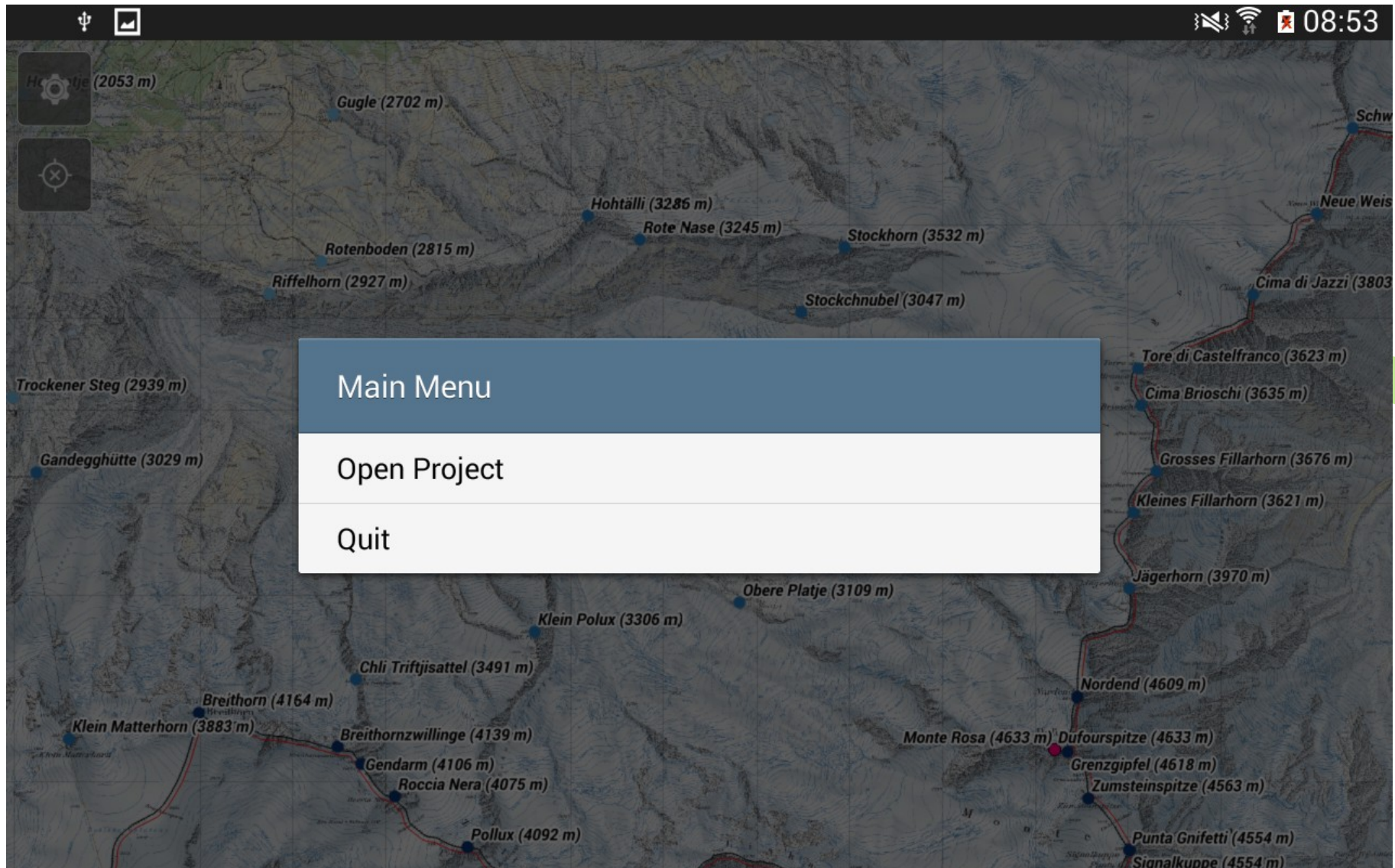


Touch optimized UI

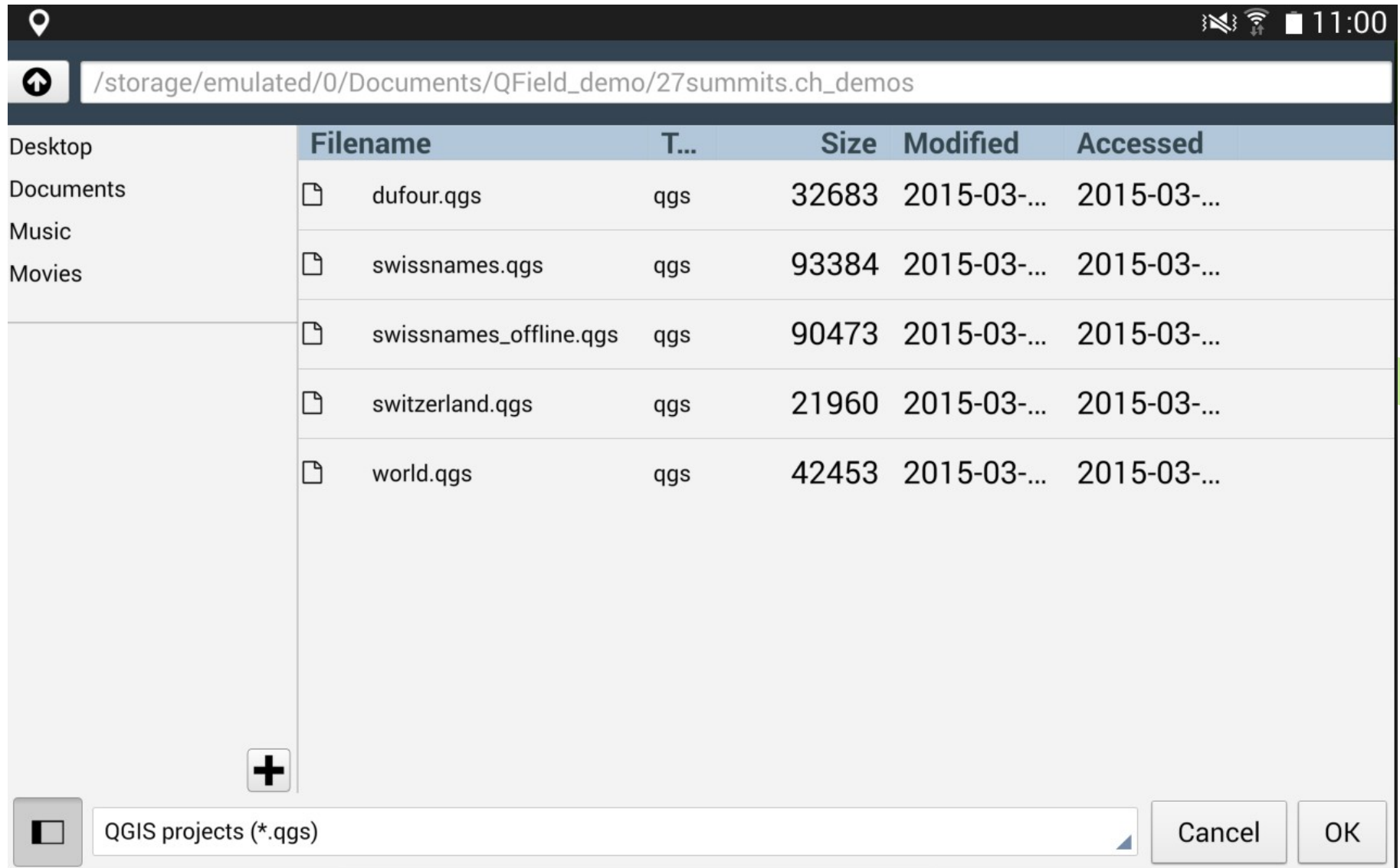
- Build from ground for Touch devices
- Stripped to the minimal needs
- Large buttons
- Few buttons
- Modal paradigm



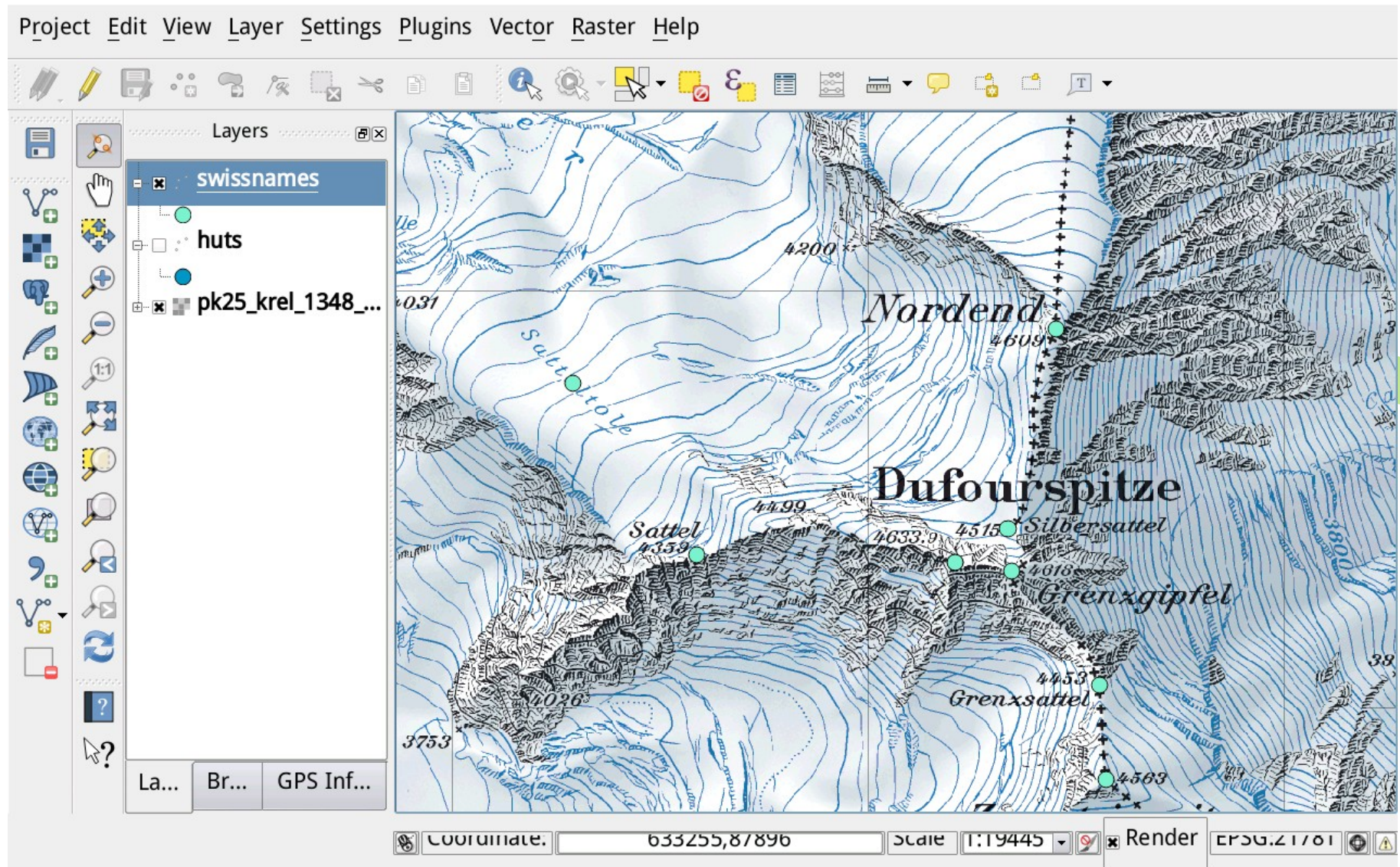
Touch optimized UI – Open Project



Touch optimized UI – File dialog



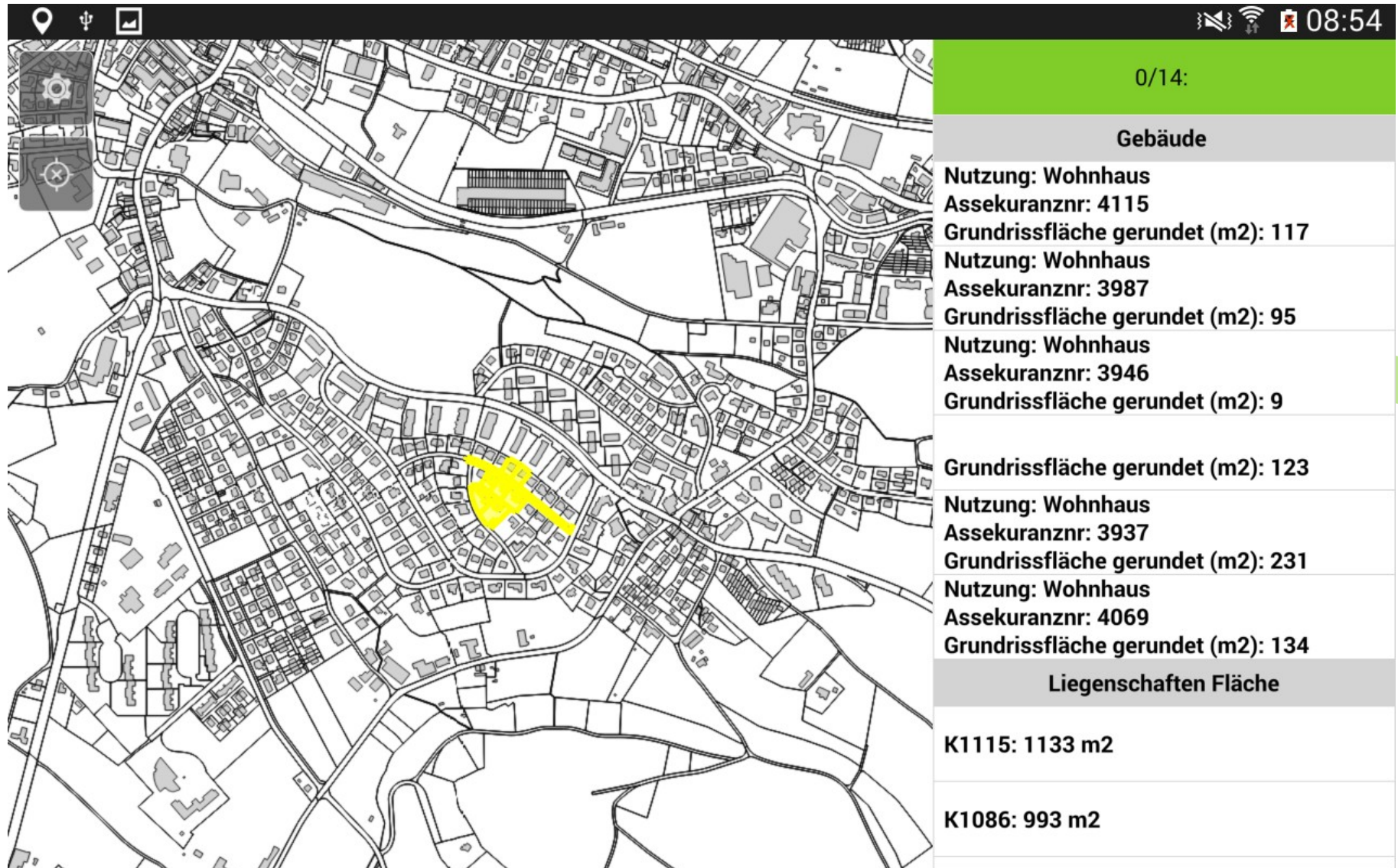
QGIS for Android – Many buttons



Touch optimized UI – Few buttons



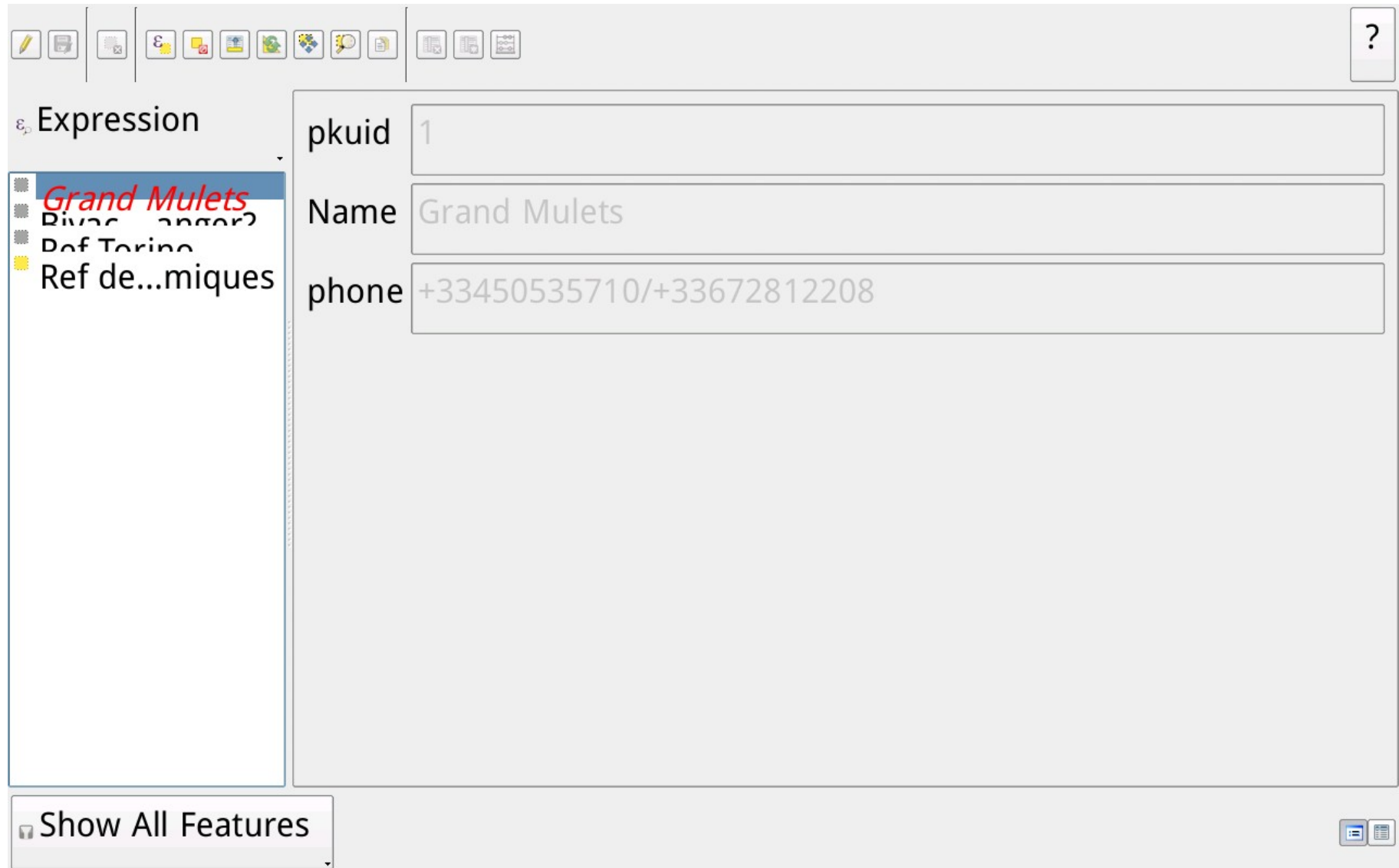
Touch optimized UI – Identify



The screenshot displays a mobile GIS application interface. On the left, a map shows a street grid with a yellow highlight on a specific building. On the right, an information panel provides details for the selected building and surrounding areas. The panel is organized into sections: a green header with '0/14:', a grey header for 'Gebäude', a list of building details, a grey header for 'Liegenschaften Fläche', and two rows of area data.

0/14:	
Gebäude	
Nutzung:	Wohnhaus
Assekuranznr:	4115
Grundrissfläche gerundet (m2):	117
Nutzung:	Wohnhaus
Assekuranznr:	3987
Grundrissfläche gerundet (m2):	95
Nutzung:	Wohnhaus
Assekuranznr:	3946
Grundrissfläche gerundet (m2):	9
Grundrissfläche gerundet (m2):	123
Nutzung:	Wohnhaus
Assekuranznr:	3937
Grundrissfläche gerundet (m2):	231
Nutzung:	Wohnhaus
Assekuranznr:	4069
Grundrissfläche gerundet (m2):	134
Liegenschaften Fläche	
K1115:	1133 m2
K1086:	993 m2

QGIS for Android – Identify

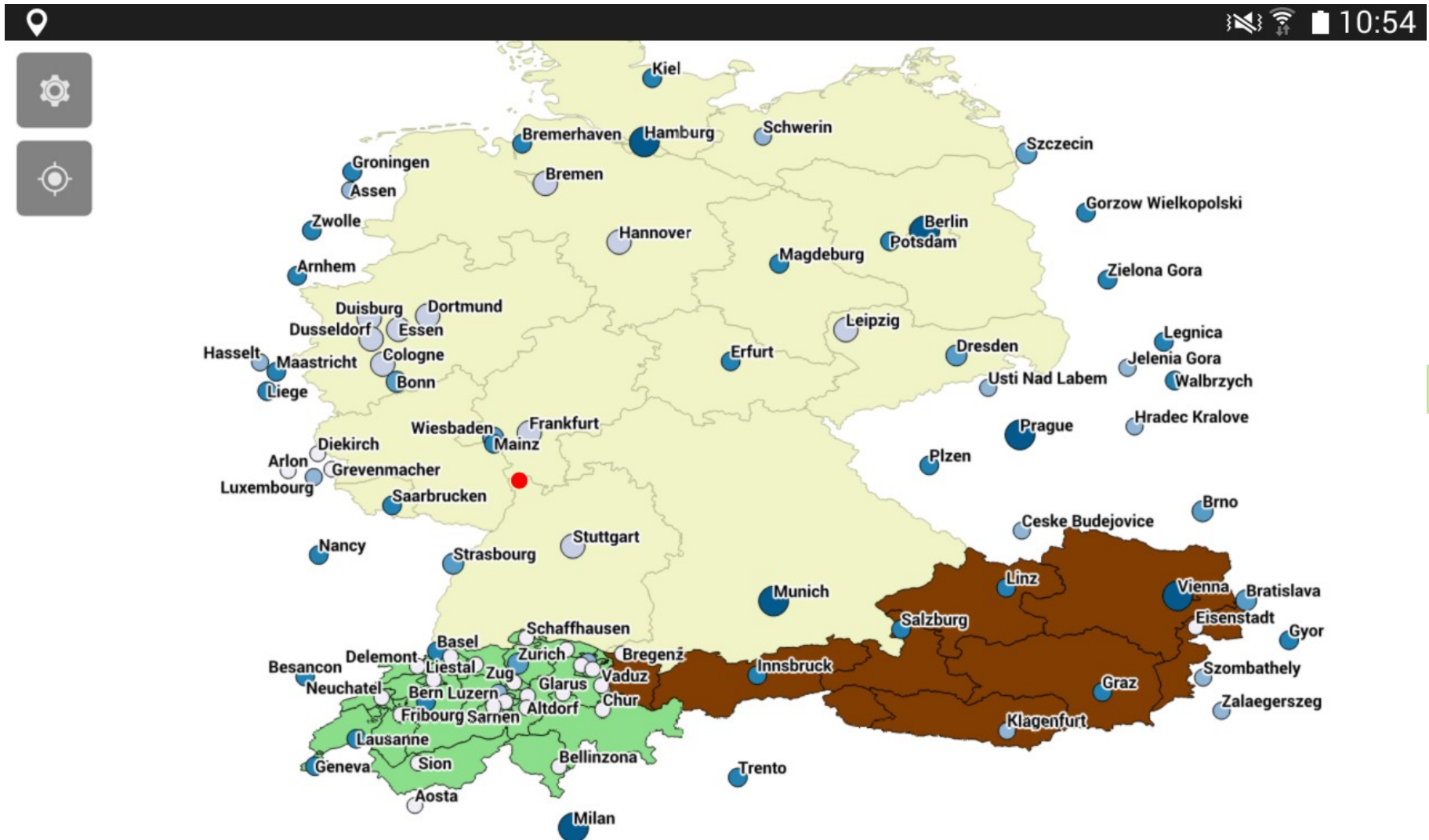


Touch optimized UI – Identify single

The screenshot displays a mobile GIS application interface. At the top, there is a black status bar with icons for location, USB, and battery, along with the time 08:54. Below the status bar is a green navigation bar with a back arrow, a location pin icon, the text '1/14:', and a search icon. The main area shows a map with yellow buildings. One building, labeled '4115', is highlighted with a red border. To the left of the map are two grey buttons: a settings gear and a location pin with an 'x'. A data popup is visible on the right side of the screen, displaying the following information:

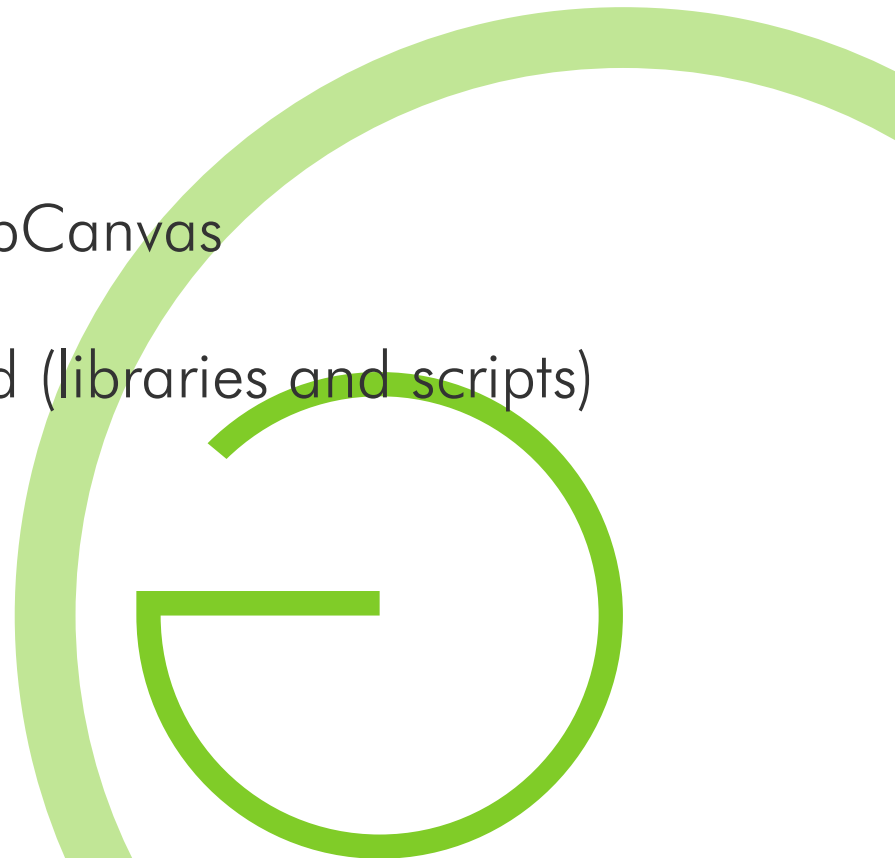
OGC_FID	256
tid	255000543
gemeinde	198
centx	697064.528
centy	244179.028
qualitaet	AV93
artnr	1
nutzung	Gebäude: Wohngebäude
nummer	4115
nutzungscode	2020
nutzung_detaill	Wohnhaus
grundrissflaect	117
tooltip	Nutzung: Wohnhaus Assekuranznr: 4115 Grundrissfläche gerundet (m2)

Touch optimized UI – GPS location



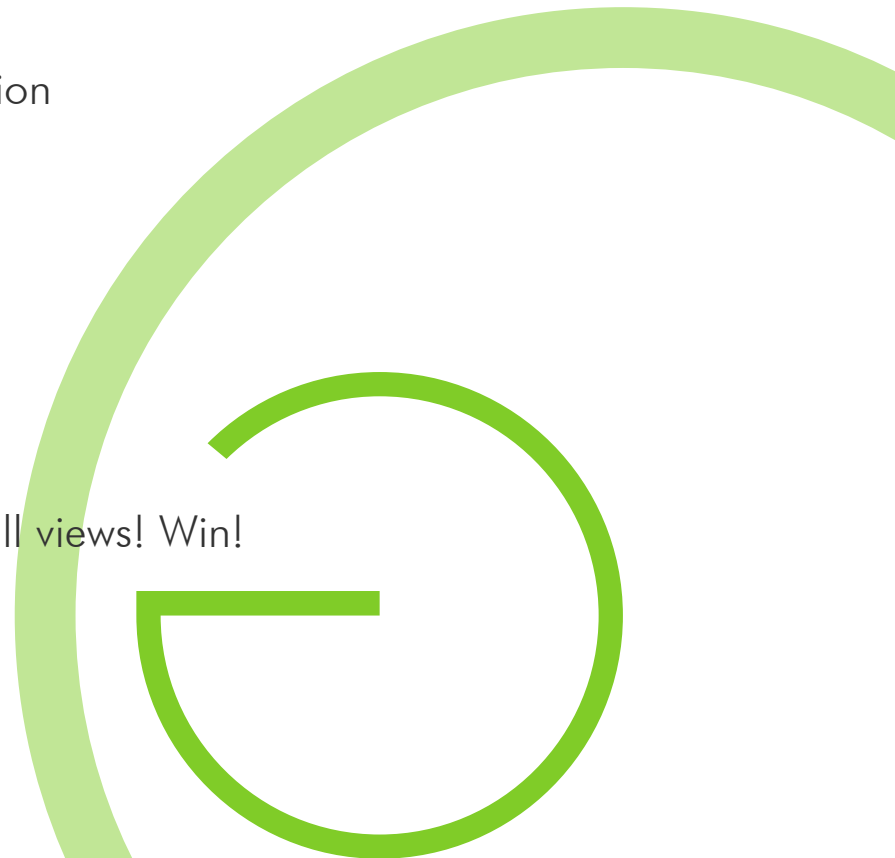
The one tech slide :)

- Qt5, QML and QtQuick 2
 - future proof and supported by Digia – native look and feel
 - Helping QGIS move to Qt5
- QtQuick 2 Controls UI
- One QWidget to allow use of QgsMapCanvas
- Crosspollination with QGIS for android (libraries and scripts)
- ArmV7a minimum



The other tech slide - QML

- Declarative approach (Like HTML - As opposed to Python, C++ etc.)
 - Declare connections between things instead of "if this, do this, that and that..."
 - Requires a clean separation between representation and data (MVC)
- E.g. Feature identification
 - A model "offers" identified features and a current selection
 - Several views on top of this model:
 - Overlay for highlight on the map
 - List of identified features
 - Currently selected (edited) feature
 - Changes on the model are automatically reflected by all views! Win!



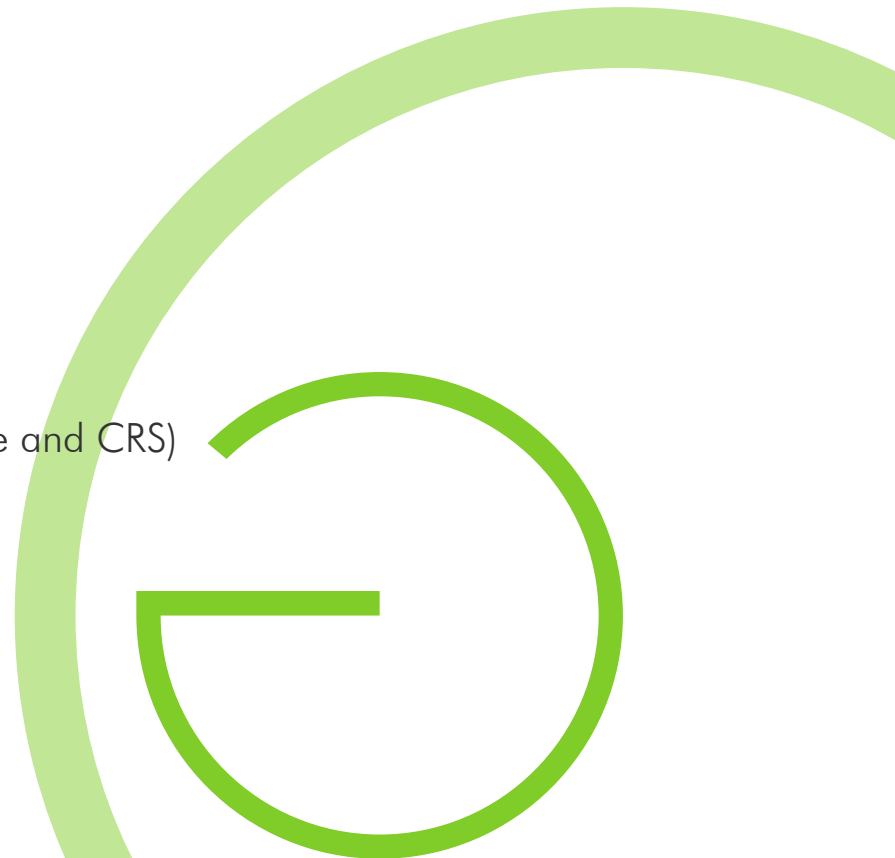
The last tech slide - QtQuick

- Alternative to QWidget
- QWidget are always rasterized using QPainter → Uses the CPU
- QtQuick uses a scene graph that works with vector data → Uses the GPU
 - Snappy interface
 - Less battery usage
- QField currently uses a wrapper
 - Map rendering based on QPainter
 - For full potential
- Geometry highlight are scene graph objects
 - Gradual upgrade for more QtQuick



Technical challenges

- ARM CPUs
- Type often default to float (vs double), Unaligned vs. Aligned access
- glibc
 - C library offering system calls
 - Minimized on Android
 - Possible cause of troubles
- OpenGL ES (for embedded systems)
 - Only offers a subset of OpenGL API
 - double vs float (precision may be crucial depending on scale and CRS)
 - Geometry Shader missing



Current status – Future focus

- Project preparation on desktop ✓
- Few and large buttons ✓
- GPS centric (✓)
- More Modi
- Fully working when offline
- Synchronization capabilities



QField - Demo

Video Demo





How to get QField

<http://qfield.opengis.ch/get>

- Currently private alpha testing
- Send us an email including:
 - Why you are interested
 - for what you would use it for
 - your playstore email address



Further financing

- YOU!?
 - Payed features development
 - Donations
 - Qfield Karma Edition (<http://qfield.opengis.ch/karma>)
- Crowdfunding



Questions?

Thank you for your attention and support

<http://qfield.opengis.ch>

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