

AREA BASED ROUTING

An Off-Road Approach

CONTENT

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- State of the art
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INTRODUCTION



CALIN  **OTO**
NO MORE STRAIGHT ROADS

INTRODUCTION

- calimoto: motorcycle sat nav app



CALIMOTO
NO MORE STRAIGHT ROADS

INTRODUCTION

- calimoto: motorcycle sat nav app
- Founded in March 2016



CALIMOTO
NO MORE STRAIGHT ROADS

INTRODUCTION

- calimoto: motorcycle sat nav app
- Founded in March 2016
- Based on OSM, GraphHopper



CALIMOTO
NO MORE STRAIGHT ROADS

STATE OF THE ART

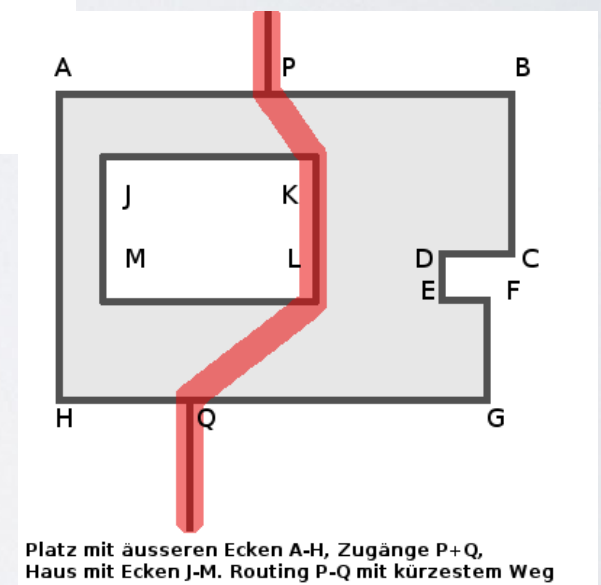
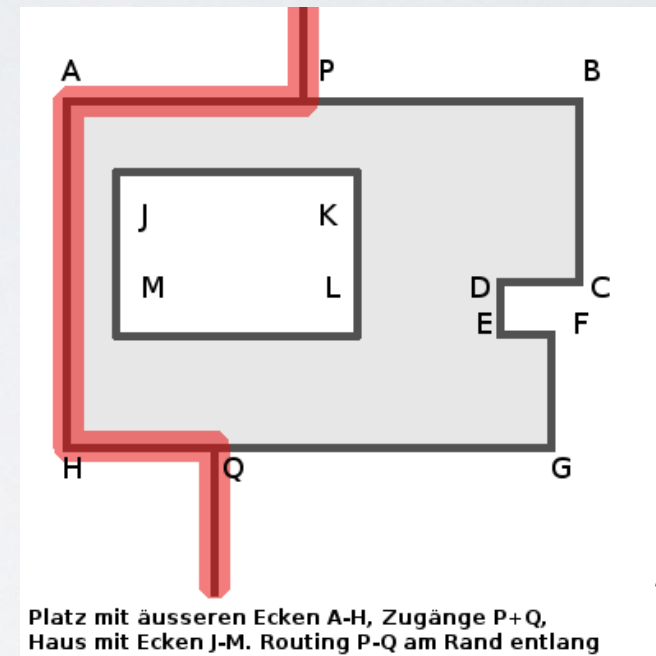
STATE OF THE ART

- Talk on FOSSGIS 2016



STATE OF THE ART

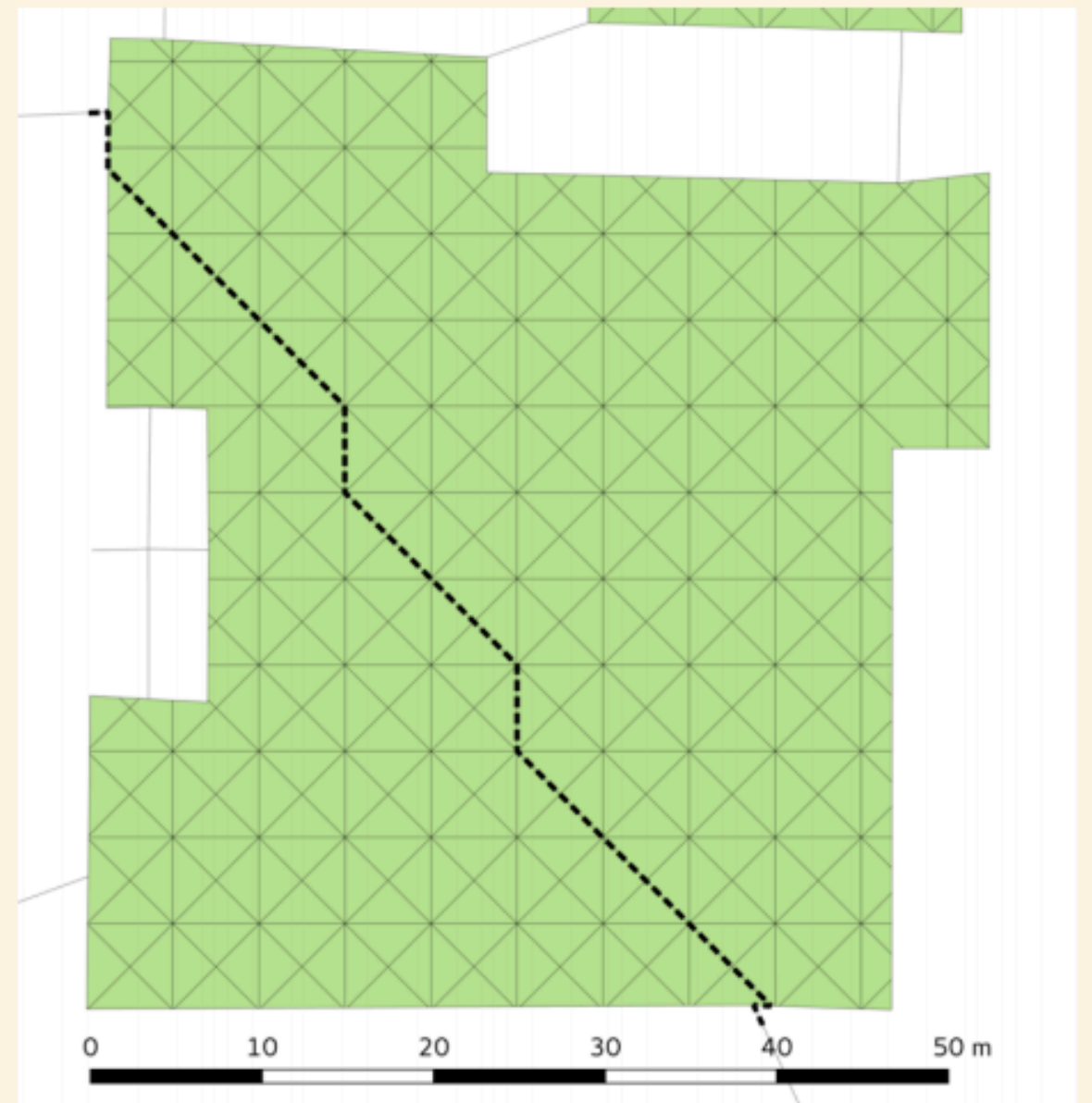
- Talk on FOSSGIS 2016
- Area Routing



STATE OF THE ART

- Talk on FOSSGIS 2016
- Area Routing
- A set of different algorithms to introduce edges where there are none

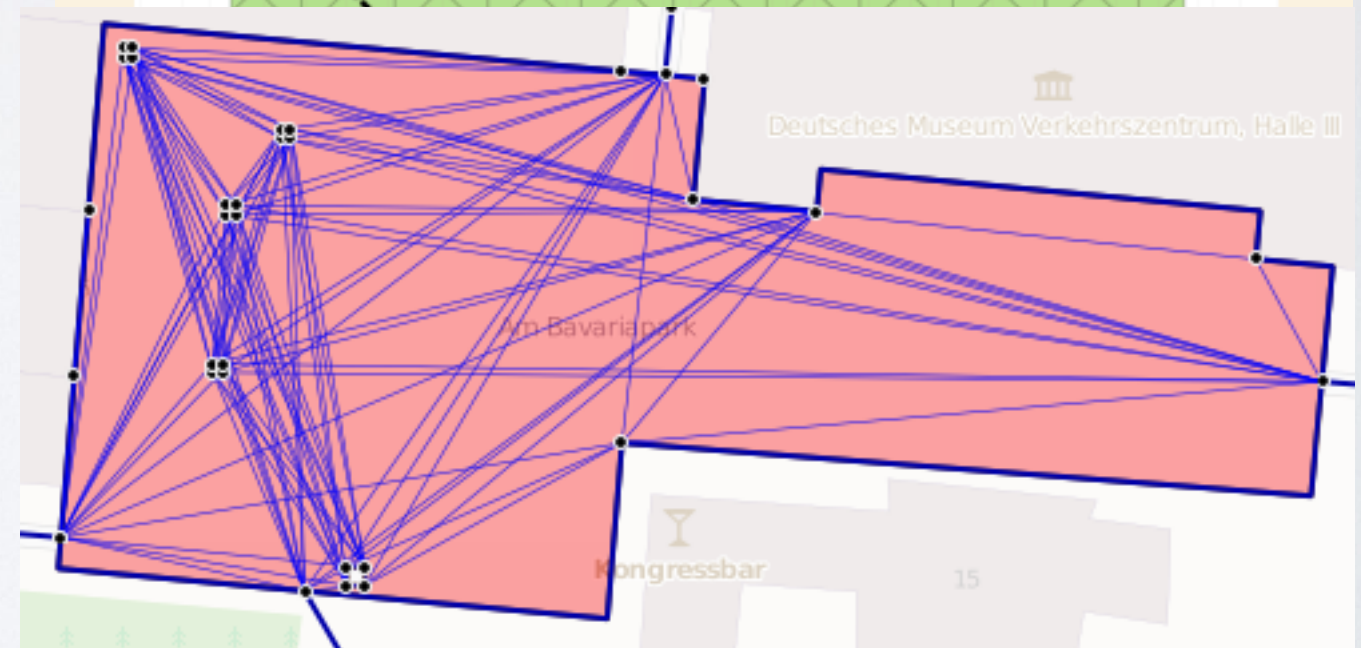
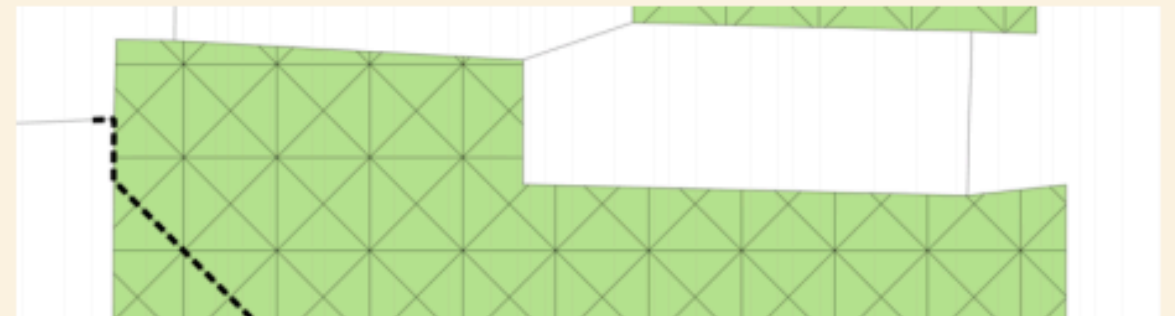
Spider-Grid



STATE OF THE ART

- Talk on FOSSGIS 2016
- Area Routing
- A set of different algorithms to introduce edges where there are none

Spider-Grid



Bavariapark mit allen möglichen Verbindungen. Die Löcher im Platz entstehen durch 2 Fahrradständer oben, 2 Papierkörbe in der Mitte und eine Skulptur im Süden.



OUR APPROACH

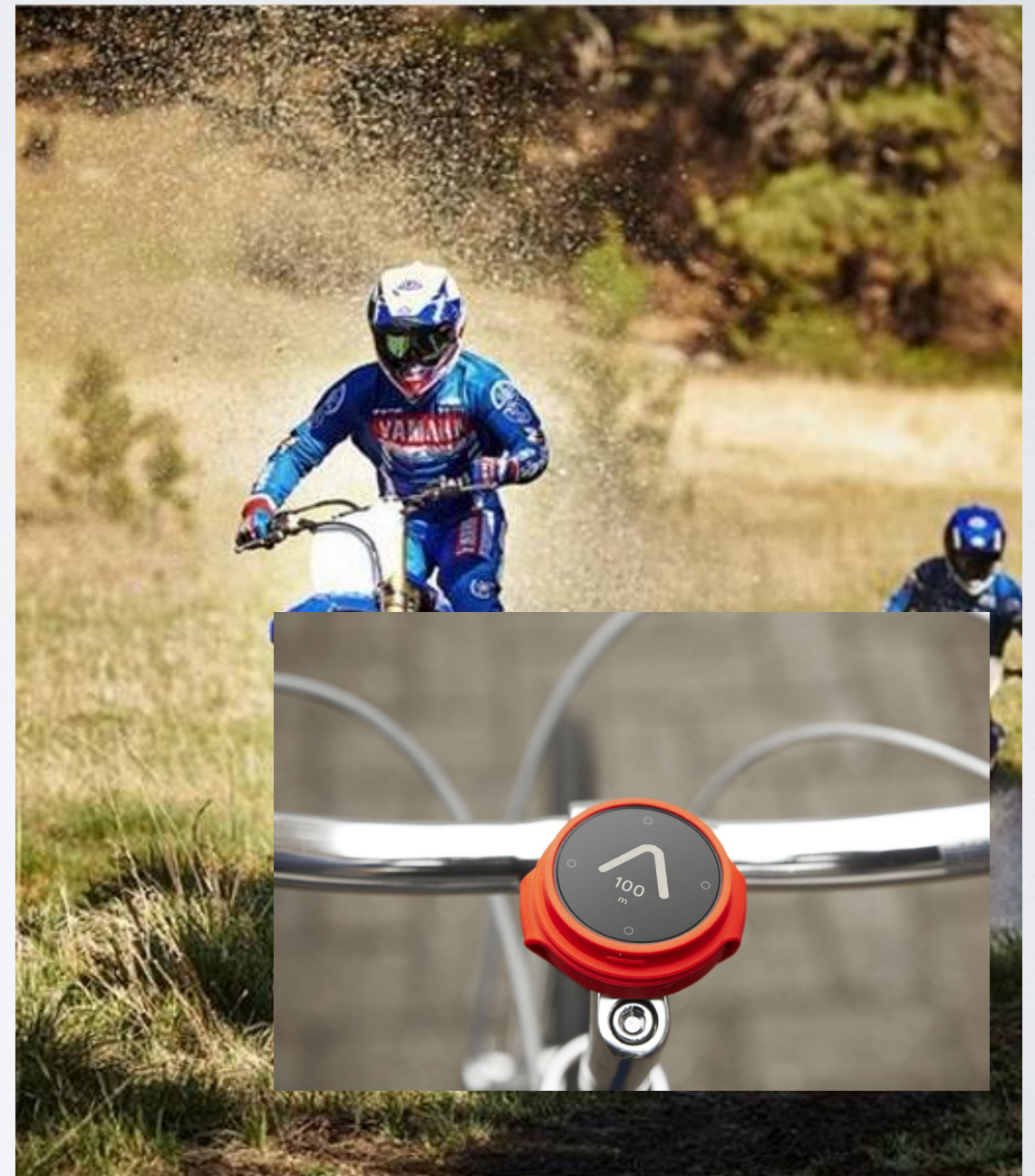
OUR APPROACH

- We want to navigate off road



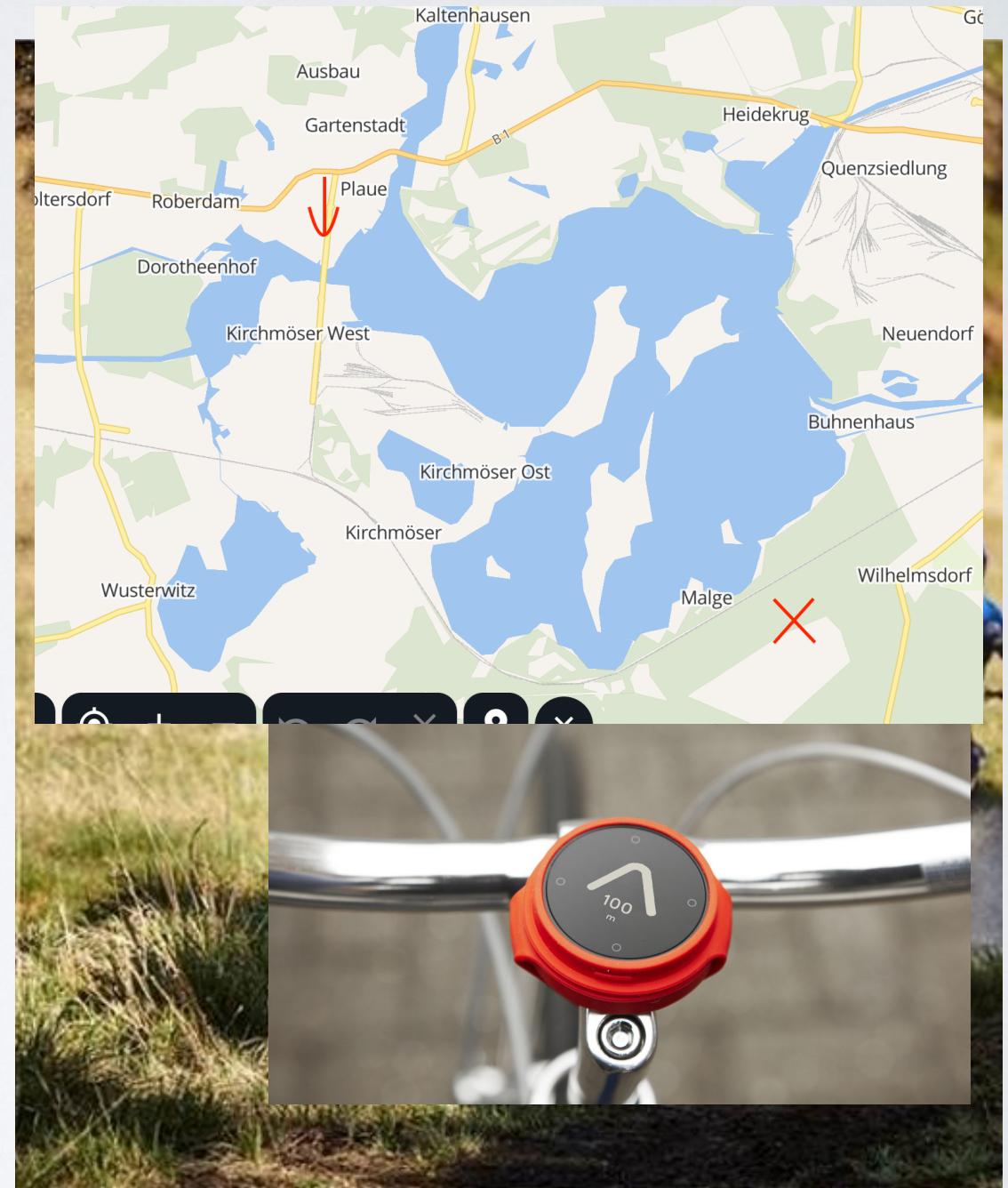
OUR APPROACH

- We want to navigate off road
- Show a reasonable indicator



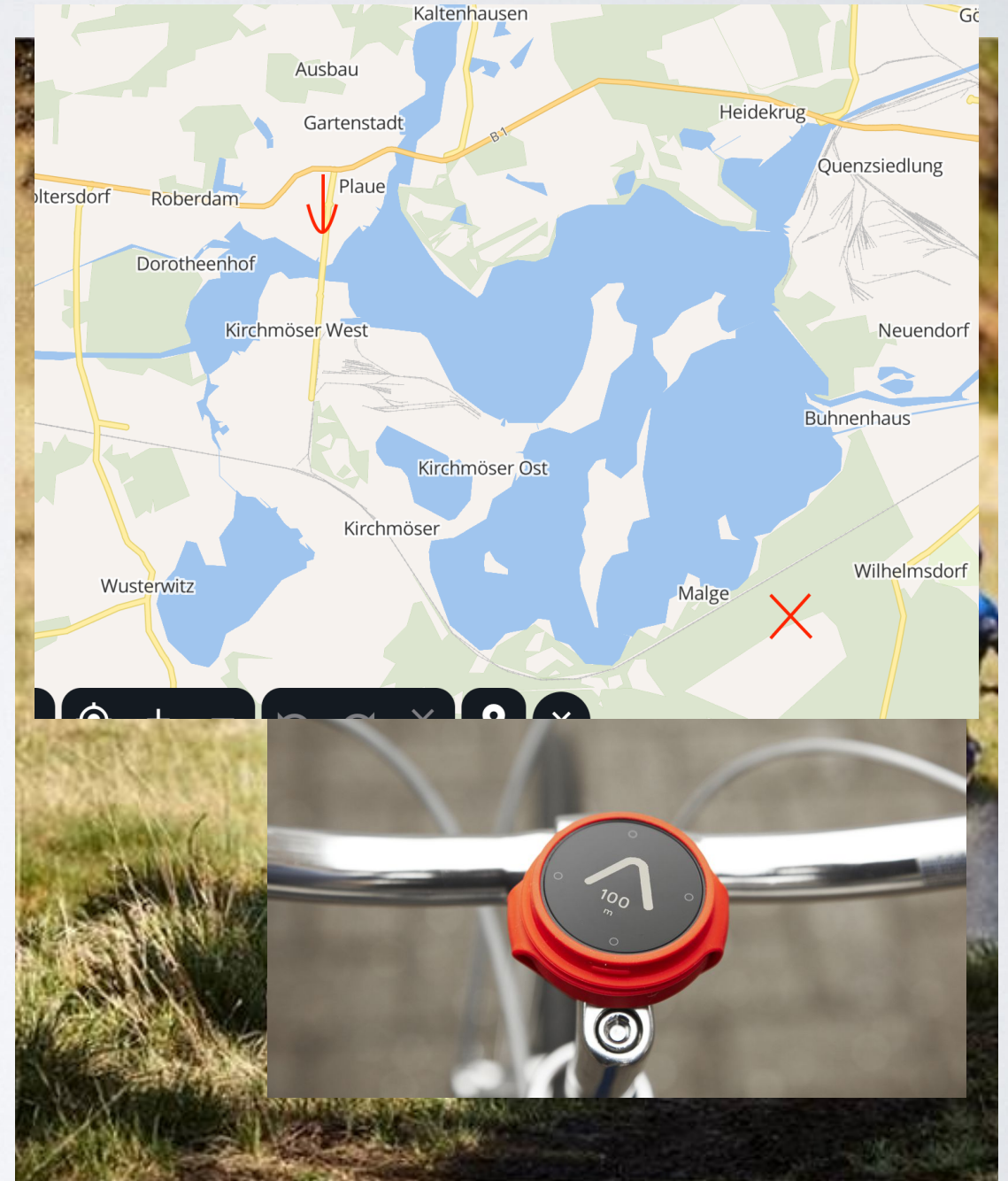
OUR APPROACH

- We want to navigate off road
- Show a reasonable indicator
- Don't use the simplest solution



OUR APPROACH

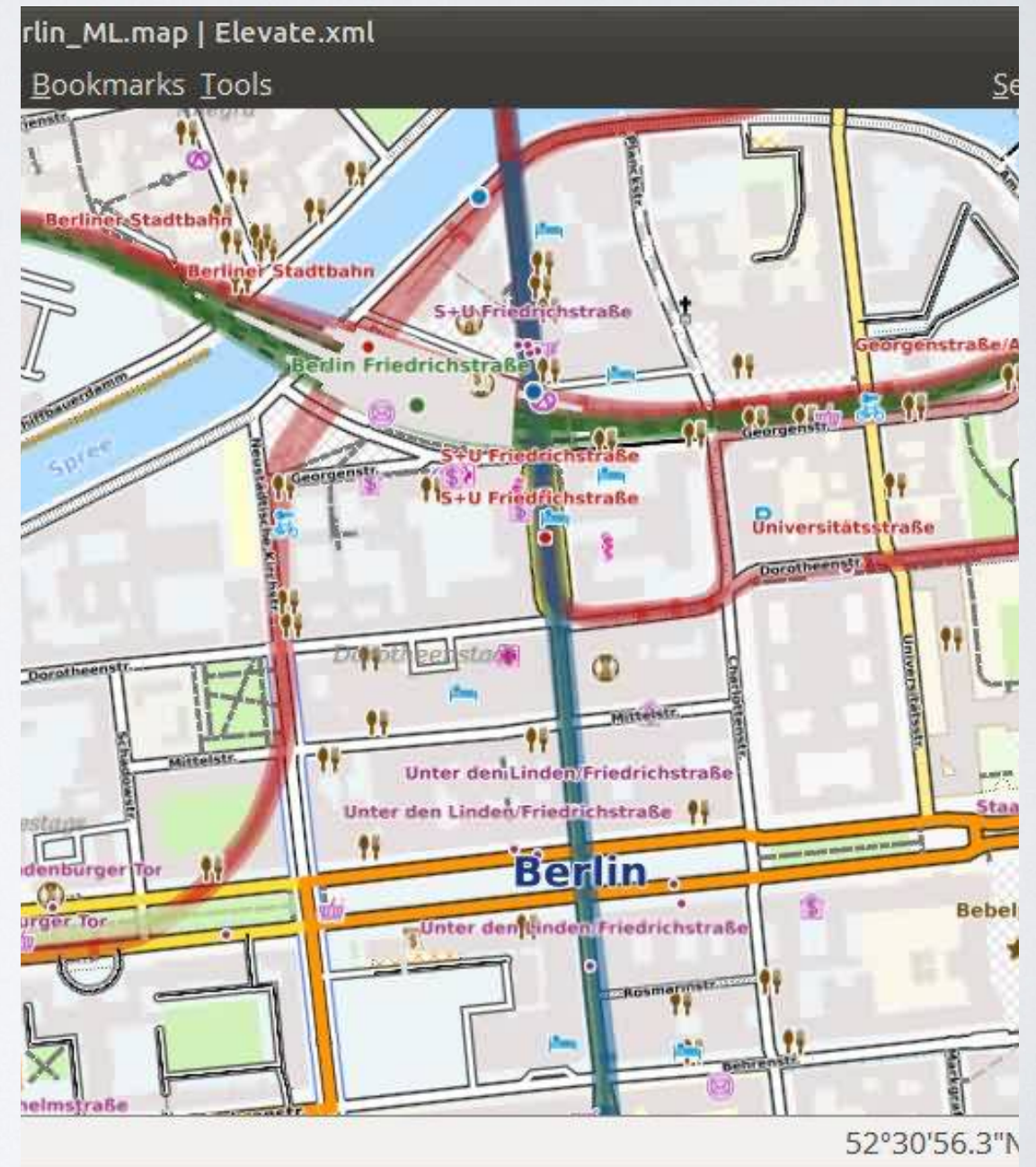
- We want to navigate off road
- Show a reasonable indicator
- Don't use the simplest solution
- Memory and and Processor efficient (offline) algorithm



SOLUTION

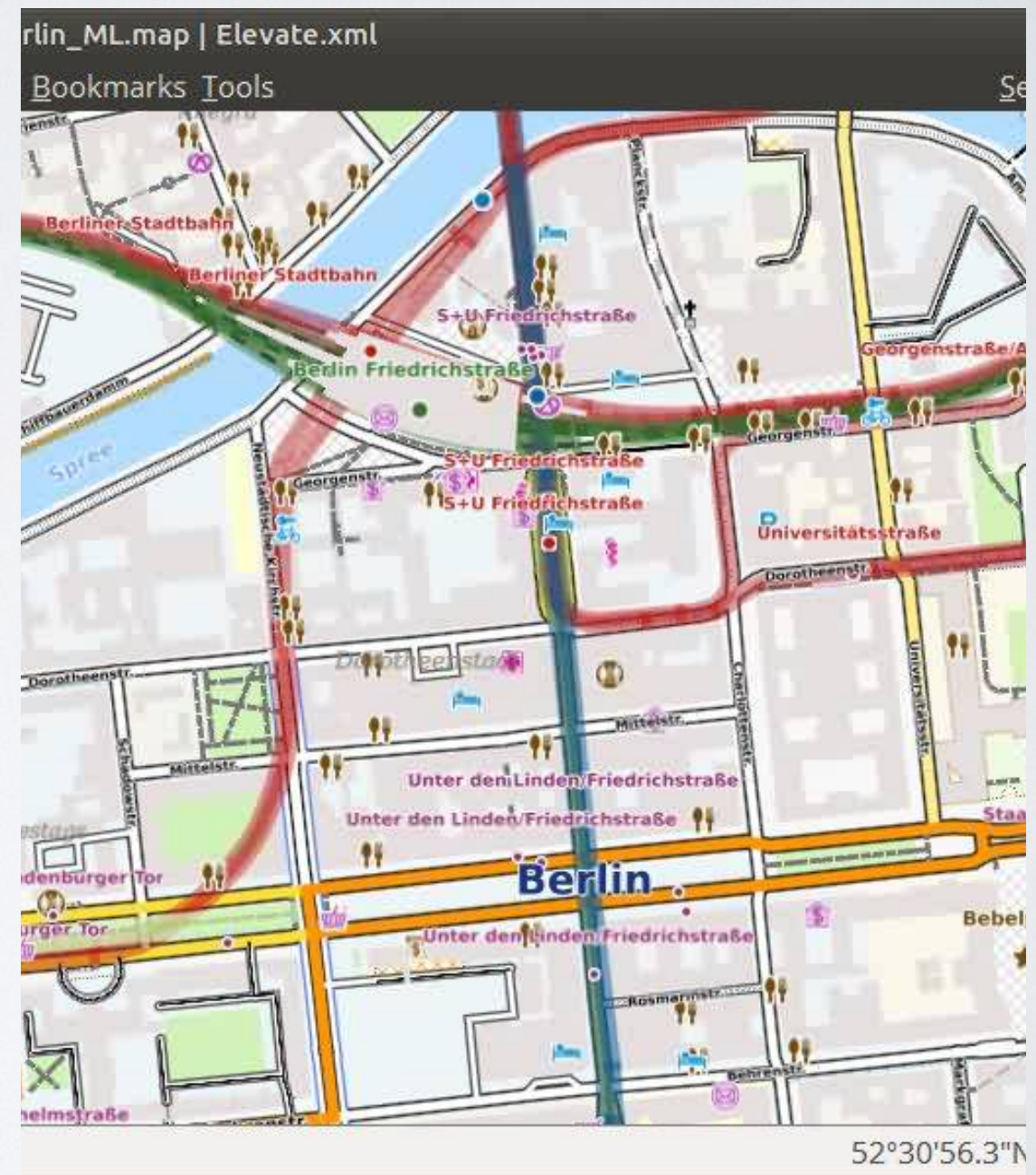
SOLUTION

- Use Mapsforge database



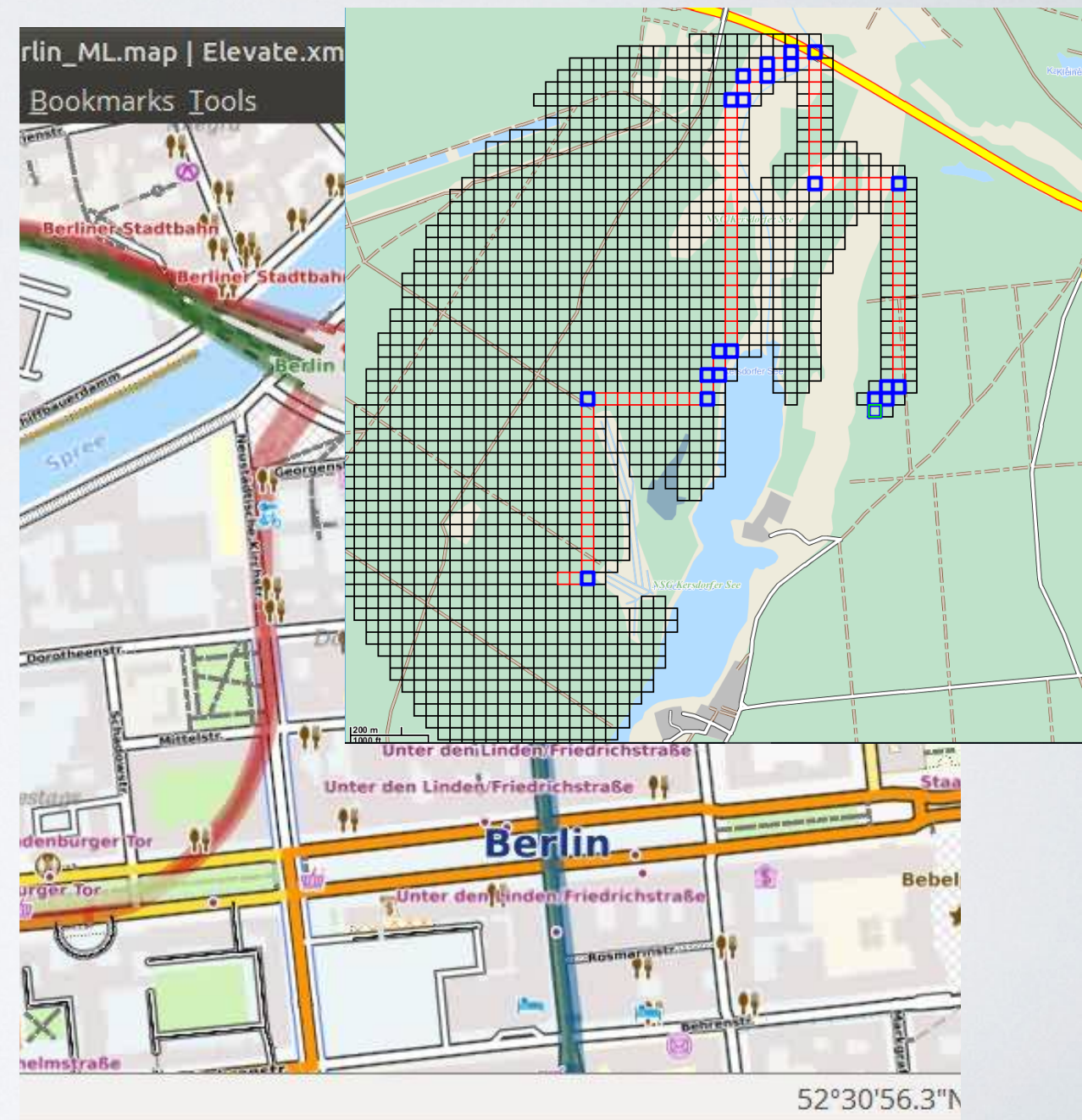
SOLUTION

- Use Mapsforge database
- Put a grid over it



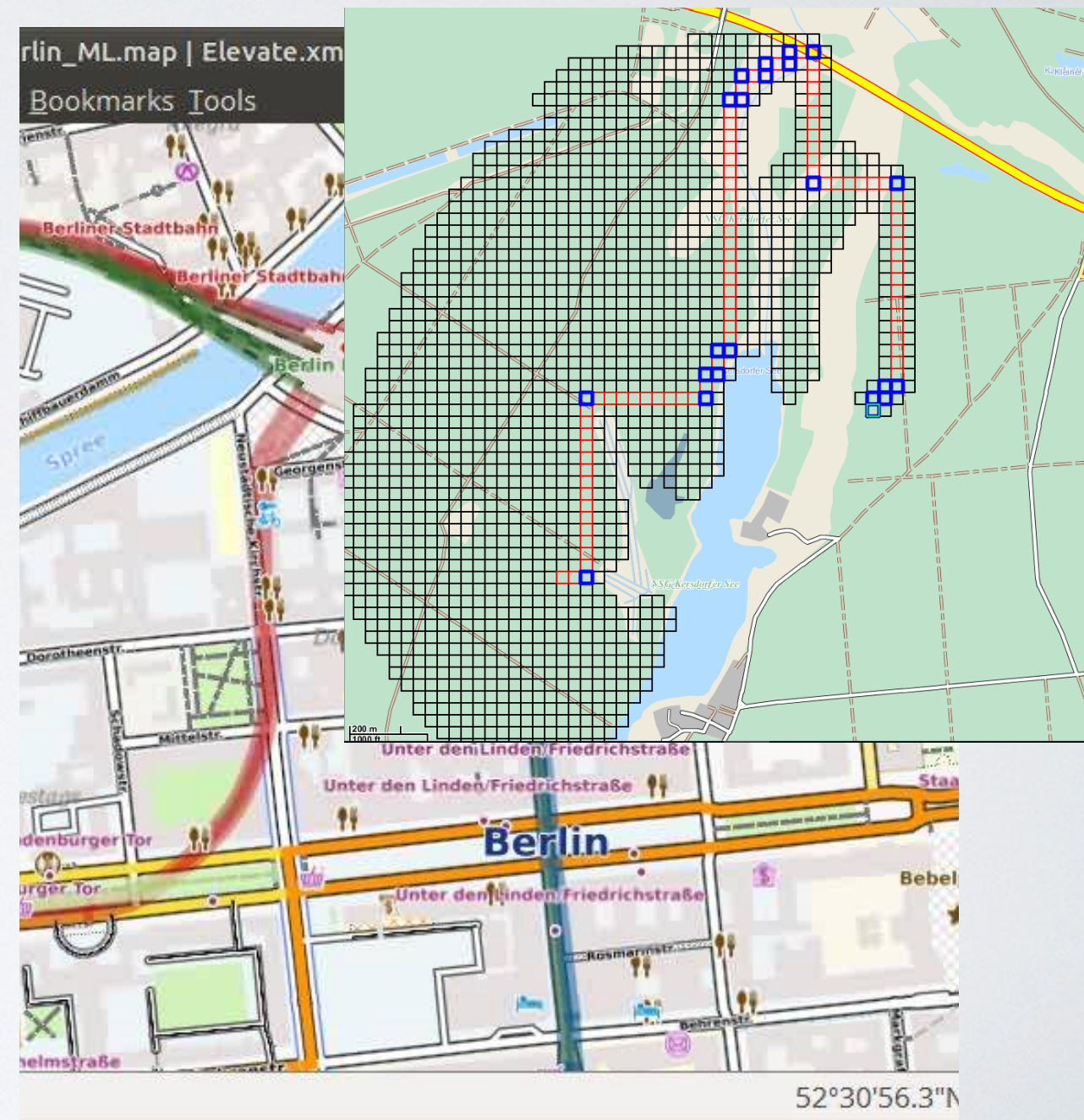
SOLUTION

- Use Mapsforge database
- Put a grid over it
- Run A*



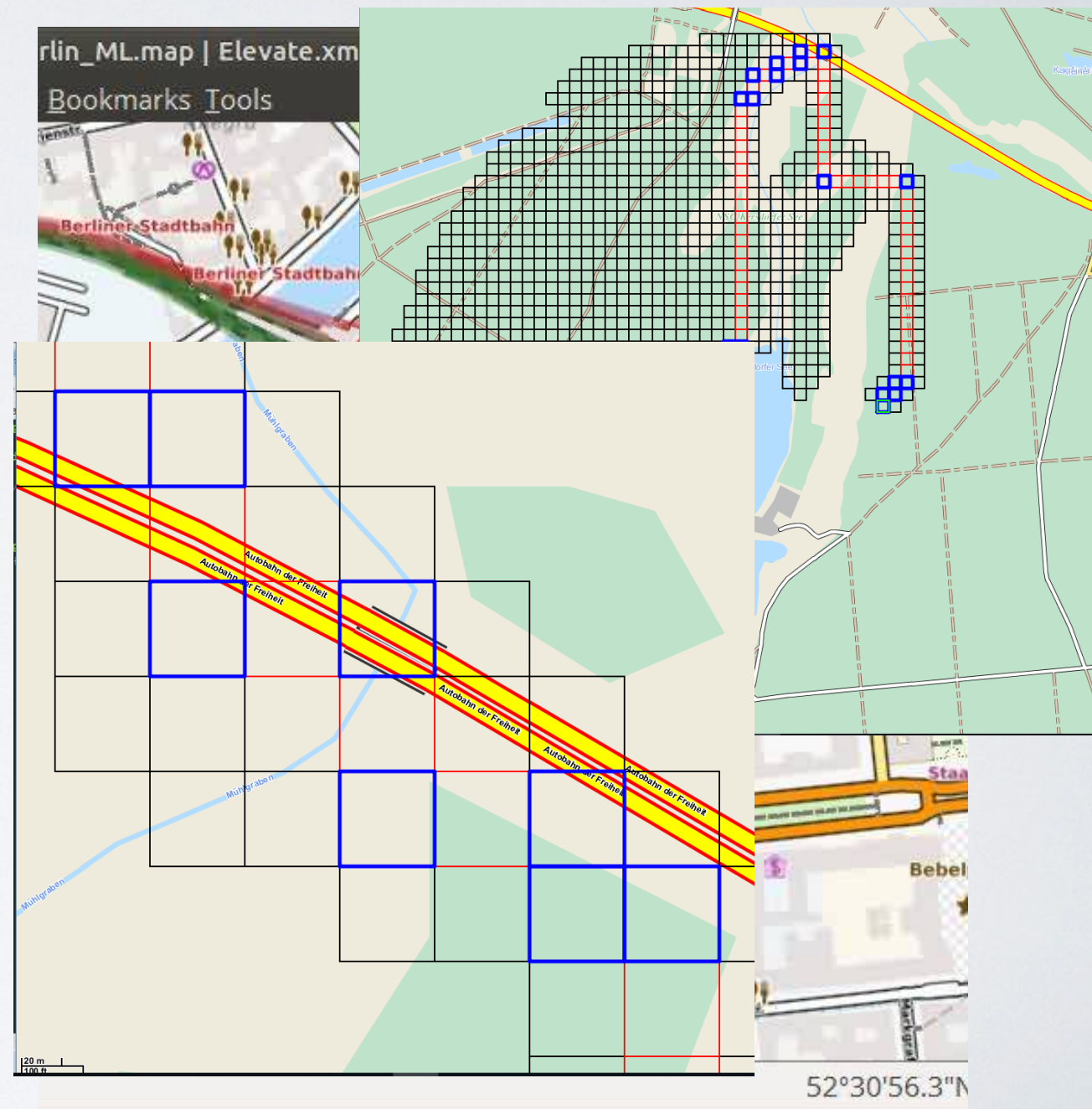
SOLUTION

- Use Mapsforge database
- Put a grid over it
- Run A*
- Very fast (few seconds for a couple of kilometers)



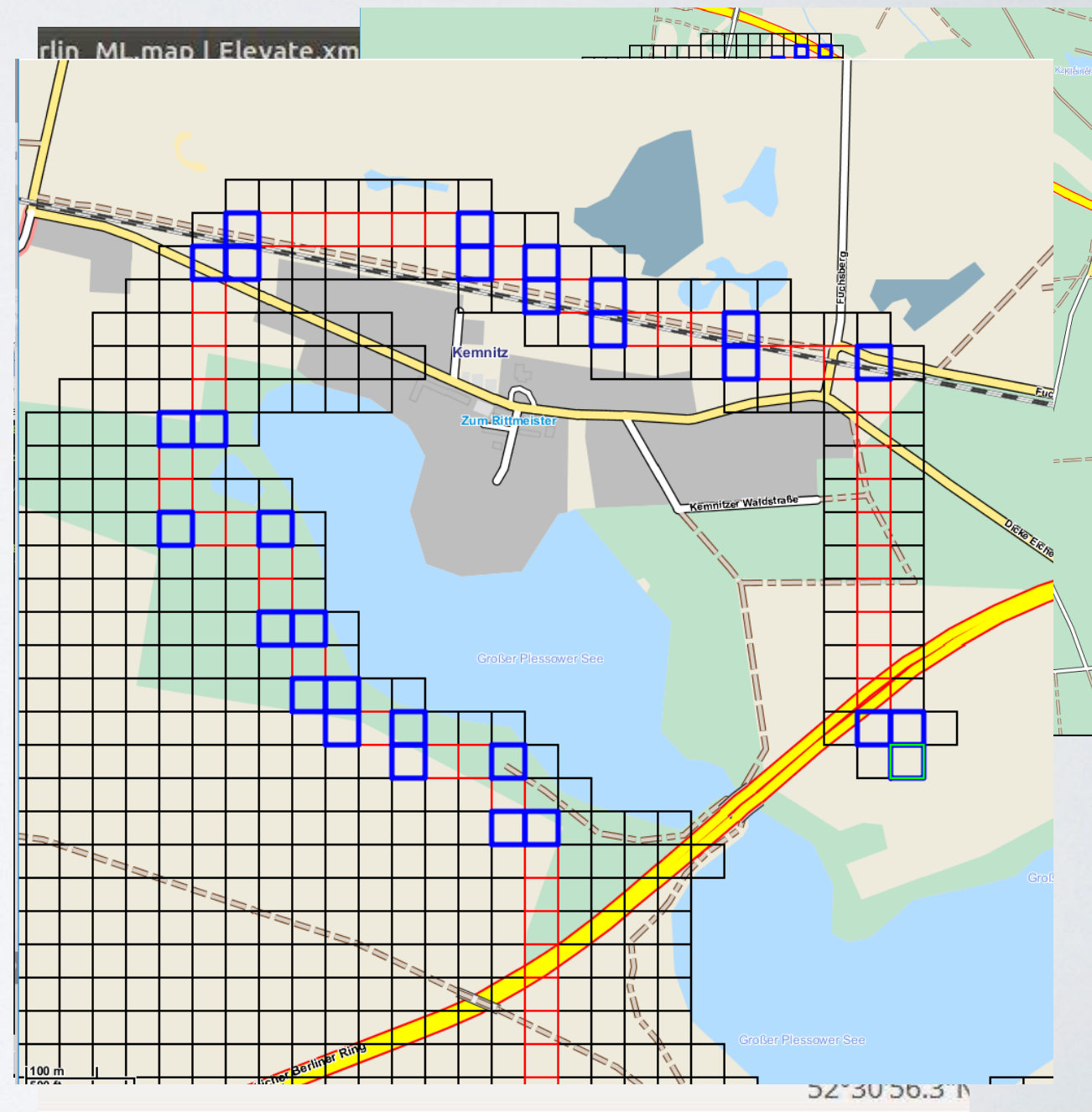
SOLUTION

- Use Mapsforge database
- Put a grid over it
- Run A*
- Very fast (few seconds for a couple of kilometers)
- Works with current OSM data



SOLUTION

- Use Mapsforge database
- Put a grid over it
- Run A*
- Very fast (few seconds for a couple of kilometers)
- Works with current OSM data
- Downside: Problems with resolution



DISCUSSION

- Much faster (but not optimal) solution
- A combination between “ray tracing”-method and tiled version might lead to the best results
- Improve on caveats regarding polygons in multiple tiles