

Final mini project

- Extension of the last mini project
- Running computations in the backend
- Presenting results on the map (frontend) - you might want to consider using GMaps for this one

Suggested HTML2PostGIS projects

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Project schedule

- Concept (9.12. PL / 10.12. EN)
- Plan (16.12. PL / 17.12. EN)
- Progress check (9.01. PL / 7.01. EN)
- Initial Deployment (13.01. PL / 14.01. EN)
- Final Deployment (20.01. PL / 21.01. EN)
- Presentation (27.01. PL / 28.01. EN)

Project ideas

1 Recommended projects

- OpenStreetMap Top 10 list [10+]

- Tematic Hackathons [10+]

- VRP solver visualization [10+]

- Navigation system for the physically disabled [10+]

2 Research and Development projects

- Service needs identification map

- Signal strength visualization

- Phone localization in the Faculty's building

- Location aware meeting notifications

- An expert system supporting building detection in aerial and satellite photography

3 Engineering projects

- Implementation of a spatial index

- Automatic GUI for QGIS Server

- Encapsulating ML models within web application

Selected TOP 10

- Area datatype
- Clickable POI
- Pedestrian and bicycle routing

Example: DB Schenker Hackathon

- Java & JavaScript applications
- Logistics 4.0
- 1 or 4 people
- [Last year Schenker Hackathon](#)

Application for presenting VRP solutions (2-4 people) I

Goal

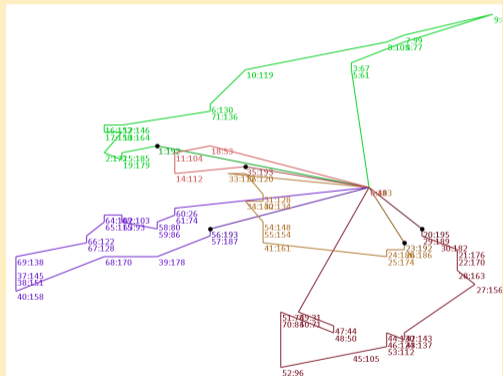
- Creating an application for visualizing a Vehicle Routing Problem solutions

Requirements

- Wrapping existing algorithms in a form of a web service
- GUI for entering the data
- Taking into account real distances between points

Application for presenting VRP solutions (2-4 people) II

M.Okulewicz, J.Mańdziuk (2MPSO 2014–2019)



Navigation system for the physically disabled (2-3 people) I

Goal

- Application supporting assessing the accessibility of a potential workplace and possible public transportation routes

Requirements

- Navigating from start to end point
- Selecting intersections with a better accessibility for a wheel chair (lowered pavements, no staircases, complete and working lifts)
- Choosing a route serviced by buses and trams with lowered floor and train stations with small platform-to-train gaps
- Ability to rate buildings, routes, intersections and stations by their accessibility

Navigation system for the physically disabled (2-3 people) II

Links

- <https://konkurs.danepowarszawsku.pl/pl/projekt/ktoredy-do-pracy>
- <http://mapabariier.siskom.waw.pl/>
- <http://www.niepelnosprawnik.eu/>
- <http://metro4all.org/pl>
- <http://wheelmap.org/>
- <http://openrouteservice.org/>

Service needs identification map (2-3 people) I

Goal

- Showing a map for potential necessity of services (like having another coffee shop in a densely populated area)

Requirements

- Importing data about services location
- Importing / assuming data about the possible interest in a given service
- Presenting a possible unfulfilled interest map

Presenting WiFi and GSM signal strengths (1-3 people) I

Goal

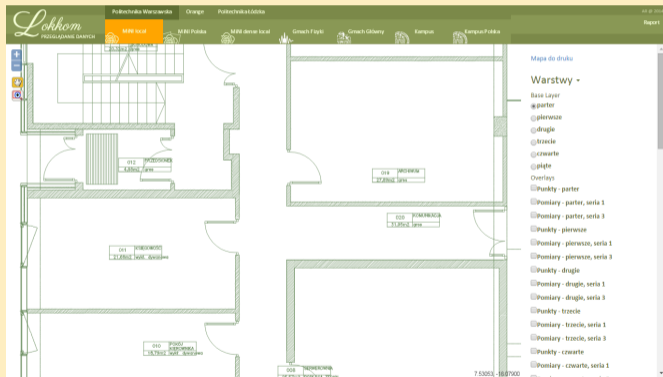
- Presenting a WiFi and GSM signal strengths within a building to help organizing locations of the Access Points

Functionality

- Selecting an AccessPoint
- Selecting an SSID
- Creating a simple signal propagation model (distance and number of walls) with presenting the simulation effects

Presenting WiFi and GSM signal strengths (1-3 people)

A. Roślin (LOKKOM 2014)



Phone localization in the Faculty's building (2-4 people) I

Goal

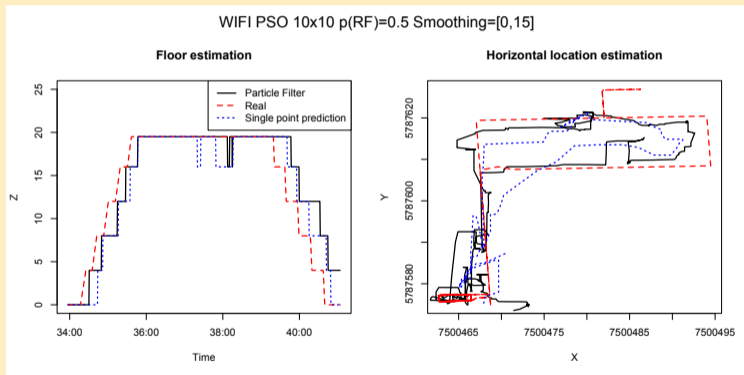
- Utilizing a signal strength database in order to localize phone within the Faculty's building

Requirements

- A Webservice for providing phones location on the bases of BTS and AP Received Signal Strengths
- Presenting current phone location on a building map (or making an augmented reality application)
- Presenting all phones with enabled localization on a building map

Phone localization in the Faculty's building (2-4 people) II

M.Okulewicz, D.Bodzon, M.Kozak, M.Piwowski, P.Tenderenda (PF/RF/PSO 2016)



Location aware meeting notifications (1-2 people) I

Goal

- Creating notification system adjusted to user location

An expert system supporting building detection in aerial and satellite photography (2-4 people)

Goal

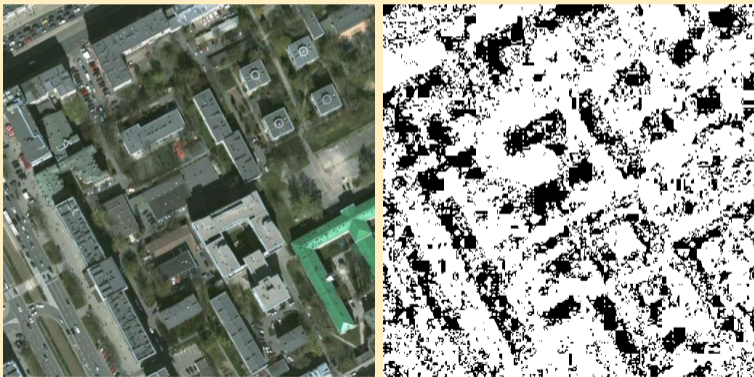
- Speeding up the process of drawing the buildings on the bases of aerial photography

Requirements

- Selecting the area to detect the buildings
- Presenting the identified buildings on a map
- Noise reduction and vectorization of the potential building shapes
- Ability to manually improve proposed building shapes
- Supporting exporting identified buildings to OSM databases

An expert system supporting building detection in aerial and satellite photography (2-4 people)

T.Półgrabia, K.Bocian - Sieci Neuronowe 2014/15



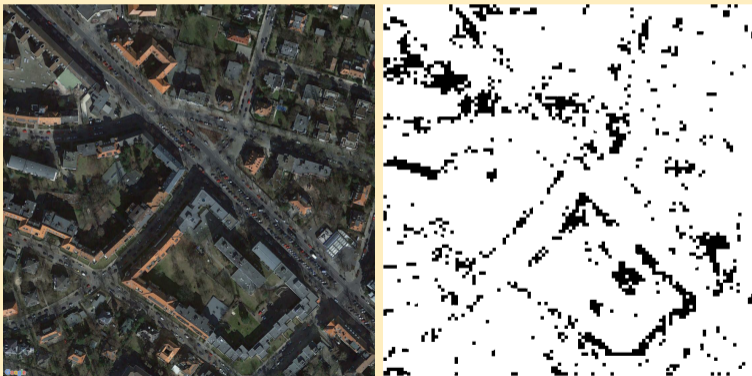
An expert system supporting building detection in aerial and satellite photography (2-4 people)

M.Jabłoński, K.Fokow, M.Chołoniewski - Sieci Neuronowe 2015/16



An expert system supporting building detection in aerial and satellite photography (2-4 people)

M.Kaczmarek, J.Ruszkowski - Sieci Neuronowe 2015/16



Implementation of a spatial index in .NET Standard (1 person)

Goal

- Implementation and publishing a multidimensional spatial indexing which can be utilized within GIS and statistics community (e.g. in k-NN algorithm)

Requirements

- Building a spatial index
- Searching for k-closest points etc.

Automatic GUI for QGIS Server (2-4 people) I

Goal

- Creating an application for presenting the data disseminated by QGIS server
- Better support in OpenLayers and GoogleMaps with a JS library allowing for data manipulation with WFS services

Encapsulating ML models within web application (5-6 people) - DS only I

Goal

- Creating application for utilizing GovTech competition models