OSMaps library

Bespalov D.

Lobachevsky State University of Nizhni Novgorod
NATIONAL RESEARCH UNIVERSITY

Project goals

- Cross platform embedded library, which can render any tile maps with geo bindings or not (also plans or any other complex images).
- Cache to have offline access to the tiles, that have been already loaded.
- Ability to the programmer to work with marks on the map, with layers and any complex objects (such as tracks or active zones).

1st version

- Access to tile server with opensource tile maps openstreetmaps.com (cloudmade.com).
- 2 level cache – on the hard drive and in the memory.
- First edition of programming API for adding and managing marks, which have a set of predefined types.
- Signal-slot based API to track user interaction with a map.

Tile math

$$x = i/128/2^{zoom} * pi - pi$$

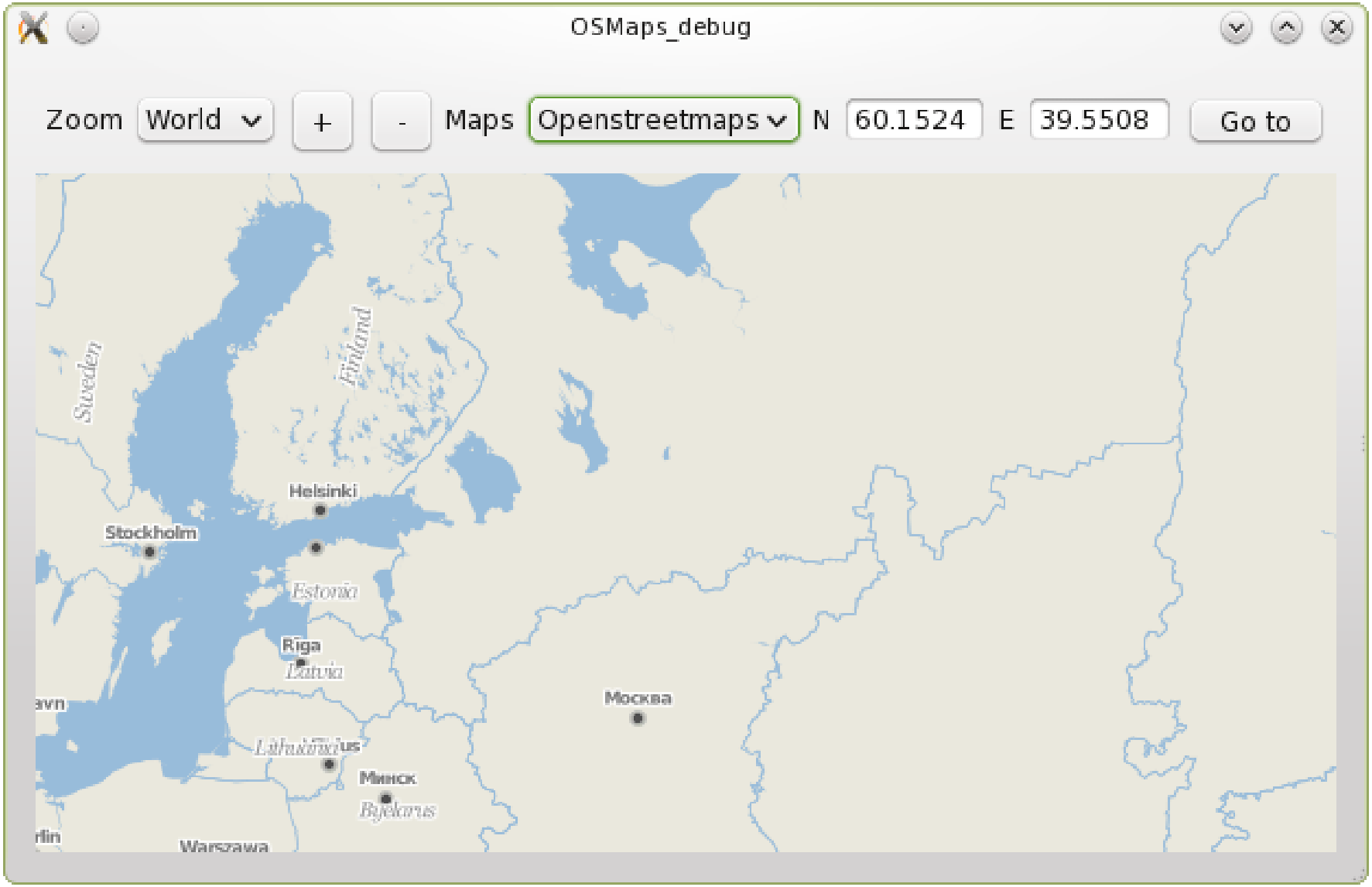
$$y = \arctan(\sinh(pi * (1 - j/128/2^{zoom})))$$

$$i = (x + pi)/pi * 2^{zoom} * 128$$

$$j = (1 - (\log(\tan(y) + 1.0/\cos(y))/pi)) * 2^{zoom} * 128$$

i,j — global pixel coordinate system

x,y – geo coordinate system


OSMaps_debug
Zoom
World
+
-
Maps
Openstreetmaps
N
60.1524
E
39.5508
Go to
Sweden
Finland
Helsinki
Stockholm
Estonia
Riga
Latvia
Москва
Lithuania
Минск
Belarus
Warszawa

Limitations

- Error accessing Yandex® maps (there is used an ellipsoid Mercator projection, not a sphere).
- Only http web servers are used.
- Poor API for maps objects using.

Next steps

- Make different translation of coordinates between geo and pixel coordinate systems for different data providers.
- Develop an API to manage complex objects.
- Optimize algorithms for images' storing and drawing (QGraphicsScene).

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