Comparative analysis of online mapping sites on a case study of Sofia city center

Petar T. Penev

Assoc. Prof. Dr. Petar Penev
UACEG
1 Smirnenski Blvd.
1046 Sofia, Bulgaria
tel. +3592 9634087
fax +3592 9656863
E-mail: ppenev@gmail.com

Abstract
Using online mapping sites, which began about 10-years ago timidly and hesitatingly, today is quite simple and popular. Something more: for the last few years competing sites lead a serious battle for more visitors which, of course, is reflected in the increase in revenue from advertisers. Of course, the number of visitors to one mapping site in itself speaks highly of the quality of services it offers. However, there are other indicators that are important to the user and which can be used for comparative analysis of the most popular online mapping sites. The aim of this work is to make such a comparison of examples of maps of parts of Sofia city center, as a comparison between the most popular sites: Google Maps, MapQuest, Yahoo Maps, Bing (former Microsoft Windows Live Local), Ask Maps and OpenStreetMap, as well as Bulgarian sites such as BgMaps of Datex and Emaps of the ESRI Bulgaria.

Mapping sites maintain different levels of detail, accuracy and actuality, and to provide varying amounts of information for different in nature and location areas. City maps usually contain many different objects that are missing outside the settlements. In some cases, services and features that are available for a specific area, do not work for another (search by address, Bird's Eye View, measuring distances, etc.). Such is the case, for example, when comparing the maps of the United States and Bulgaria. This is confirmed by the performed analysis.

Keywords: Internet, online mapping

The usage of mapping sites began about 10 years ago timidly and cautiously and today that is something very common and popular. Furthermore, for the last few years competing sites have been in a serious battle for more visitors and this certainly is reflected in the increase in revenue from advertisers (Figure 1). The number of visitors to a mapping site largely speaks itself for the offered services quality. But there are other indicators that are important to the user and which can be used for comparative analysis of the most popular online mapping sites. The purpose of this work is to make such a comparison of maps of a part of Sofia city center by the most popular sites, such as Google Maps, MapQuest, Yahoo Maps, Bing (former Microsoft Windows Live Local), Ask Maps and OpenStreetMap, as well as Bulgarian sites BgMaps of Datecs and Emaps of ESRI Bulgaria.

It should be noted from the beginning that mapping sites maintain different levels of detail, accuracy, actuality and provide varying amounts of information for different in their nature and location territories. City maps usually contain many different objects which cannot be observed outside urban areas. In some cases, services and functions that are available in one territory do not work for another (searching by address, Bird's Eye View, measuring distances etc.) for example in USA and Bulgaria. This is also confirmed by performed analysis.

View
Most major and most popular sites offer not only maps but satellite image of the same territory, and some provide additional a hybrid image (Ask Maps and Yahoo Maps). OpenStreetMap, the free Wikipedia World Map, BgMaps of Datecs and Emaps of ESRI Bulgaria do not offer satellite imagery (Figure 2 – Figure 15). Maps and satellite images of Ask Maps and Bing (former Microsoft Windows Live Local) are identical, but the navigation is different.
Figure 1. Analysis of weekly visits to different sites (Hitwise.com).

Zoom
The zoom is an important characteristic of online maps available and is included in all tested sites. In most cases, the maximum zoom is different for map and satellite image of the same territory (Figure 16).
Figure 2. Map from Ask Maps.

Figure 3. Ask Maps satellite image.
Figure 4. Bing map.

Figure 5. Bing satellite image.
Figure 6. Google map.

Figure 7. Google satellite image.
Figure 8. MapQuest map

Figure 9. MapQuest satellite image

Figure 10. Map from OpenStreetMap.
Figure 11. Map from Yahoo Maps.

Figure 12. Yahoo Maps satellite image.

Figure 13. Yahoo Maps hybrid.
Navigation
- Overview Map Pane – all tested sites do have it.
- Draggable Map – all tested search engines do have it.
- Shortcut Keys – all sites have them except OpenStreetMap, the free Wikipedia World Map, BgMaps of Datecs and Emaps of ESRI Bulgaria.
- Address Search – all sites do have it, but it works for Sofia only with Google, Yahoo, BgMaps and Emaps.
Functions

Distance from point A to point B – all sites do have it except OpenStreetMap, but it does not work for the study area with Ask Maps, Bing, MapQuest and Emaps.

Route from point A to point B – it works for the study area only with Google and Yahoo.

Alternative route – it works only with Yahoo.

Walkway – it works only with Google and Yahoo, but inaccurately.

Shortest time – only with BgMaps.

Shortest distance – only with BgMaps.

Actions

Permalink – all sites do have it.

Email Map – all sites do have it except OpenStreetMap.

Sending to Mobile Phone – for Sofia is only available with Google, MapQuest and Yahoo.

Printing – all sites do have it.

Objects adding, links to other sites – it is paid, without OpenStreetMap, which is free.

Actuality – Google, OpenStreetMap and BgMaps are maintained up to date.

Others

One-way streets – all sites do have it.

Public transport’s stop places – OpenStreetMap, BgMaps and Emaps do have it.

Point objects – OpenStreetMap, BgMaps and Emaps do have it.

Number of buildings from - to – Google has it and partly OpenStreetMap.

Specifics of the individual sites

Ask Maps and Bing (former Microsoft Windows Live Local) are identical, but they differ in the cartography section navigation. The names of the linear objects are loaded with unnecessary preceding them "ulitsa" and "boulevard".

OpenStreetMap is in Bulgarian only.

Google Maps has objects’ names in Latin and Bulgarian, which further load the map.

Emaps navigation is heavy and the transition from one scale to another or from one place to another is slow.

MapQuest’s satellite map for Sofia is at a relatively small scale - the maximum zoom is approximately 1:45 000.

Only Google, OpenStreetMap and BgMaps are maintained up to date. Other sites’ information for Sofia, including satellite imagery, is from a few years ago - examples: the airport and new subway stations.

Conclusions

If a classification of cartographic sites is to be made, we put Google Maps in the first place. For Bulgarian users we recommend BgMaps and OpenStreetMap. It should be emphasized that these conclusions were based on analysis of the previously mentioned examples and they are correct only for the studied part of Sofia. Different results are expected for other cities, rural areas in Bulgaria or other countries.

References:

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*Figure 16. City of Sofia Map Site Comparison Table.*