Interactive Guide of Iron route nature trial "Čučma – the mining village" in a Google Maps

VIERA HURČÍKOVÁ and SOŇA MOLČÍKOVÁ[1]

[1]*Institute of Geodesy and Geographical Information Systems, F BERG, Technical University of Košice, 9, 040 01 Košice, Slovakia*
(E-mail: viera.hurcikova@tuke.sk, sona.molcikova@tuke.sk)

ABSTRACT
With the development of computer technologies, including Internet technology the possibilities for the creation and use of maps are currently greatly expanded. By using computer technology it is possible to arbitrarily manipulate the map, show different types of information into the maps, create so-called interactive maps, etc. The article describes the creation of interactive map accessible via the Google Maps, which is currently commonly simple and intuitive to use by public.

Key words: Interactive map, tourist map, Google maps, Iron route, Čučma

INTRODUCTION

With the development of information technology there are maps currently transferring to digital form. These maps can then be published on the Internet, where they are available to the general public, whether professional or not, since today is access to the Internet virtually unlimited. It follows that it is not possible to create a generally suitable application. Therefore, a need to create maps for a particular user in this case is a user of people seeking for interesting tourist sites.

LOCALITY AND BRIEF HISTORY

The village Čučma lies on contact Rožňava basin with the southern foothills of the Slovak Ore Mountains in its Volovec part. Administrative allocated area is 1.164 hectares. The village is located 5 km from town Roznava, incorporated in to the district Rožňava and in the Kosice region.

The origins of the village settlements are placed into first half of the 14th century. Seeing that the Roznava was not the royal city, village Čučma paid property tax, called "teragium" instead serf village taxes.

Therefore the citizens were regarded as equal with citizens Rožňava.

In 1413 Čučma is connected to Rožňava. Village was charged to tolls and required to hand a mined ore to town. Throughout the 16th century the village hoped to establish independence.

The first settlers were miners of German origin. The village had qualitative mining workers authorized to search metals, process and benefit them. But they could not freely dispose with ore and sell of it. This happened until the 1523rd.

The occurrence of gold, silver and copper ores had the greatest significance in the Middle Ages. Later was mined iron ore, which belonged to the highest quality in Hungary. From 17th century was mined antimony ore and in 30s, began mining manganese ore (Cehlár et al., 2010).

Mining ended in 1952 for lack of profitability. In later years was operational only flotation plant (Čučma, 2014).

THE ROUTE OF THE NATURE TRAIL

The entire route of the trail is located in an urban zone (boundaries) and consists of

Fig. 1 Locationof the village

eight information boards. Route can be passed on foot or by bike. The content of individual panes highlights the mining past of the village, describes mining, ore processing and mineral resources.

Information boards are in three languages, illustrated by photographs and a map of the route of the trail.

The trail was inaugurated on 4 May 2012.

INTERACTIVE MAP

According to the International Cartographic Association an interactive map is defined as a map that contains links to complementary information from the associated database, and provides data originating outside the visible content (ICA, 2014).

The first non-static maps are appeared before the development of Internet network

in the early 90s and they were stored directly on a computer disk or CDs. Their functionality from existing maps is virtually no different. The actual development of interactive maps, however, occurs with the birth of web network when the maps become easily updatable and also accessible to the general public, what has given rise to the formation of different geo-portals.

Fig. 2 Leading board of the nature trail (photo: author)

The notion interactive means "with immediate response", it means that the user can to a certain extent directly communicate with the map. Browsing the interactive map is natural and fast. The user does not have to constantly open and close the new windows with details, but all the information is clearly linked in a single view virtual interactive map.

In the case of maps placed on the internet distinguish interactive content and interactive interface. In the case of an interactive interface there are the map controls such as zoom or shift. Interactive content includes, for example writing of information on clicks or other response elicited by users (Kraak, 2001; Veverka, 2004).

Thus formed map can serve the needs of the general public for the purpose to its awareness, cognition, also for the complex show of cities, towns or tourist region.

"Clickable" Maps are a very good interactive complement for example for web sites, as their principle is very simple and is intuitive. Principle lies in the fact that for a particular interesting place is assigned a link that the user will be sent on.

This way user can let display more descriptive or graphical information, for example pictures, or can be redirected to a specific web page with information about the object (Molčíková & Hurčíková, 2013).

TOURIST MAPS ON THE INTERNET

Tourism today is of great benefit to the economy. Individual entities are therefore seeking to present its region on the internet. Regarding the promotion of Slovak tourism, there are two ways of presenting tourist attractions. In the first case it is a tourist portal, which sees the map as a supplement to your content (Tourist map server attractions of Slovakia www.mapysr.sk). After clicking on an element is displayed detailed information, or the user is redirected to another website.

The primary purpose is to show the phenomenon in space, for example location of cultural and natural attractions in the region.

The second option is to create a separate mapping application. The primary purpose in this case, is the layout view phenomenon. A range of optional layers there are to select. These web applications are presented, for example on the mapping portals of counties or cities. In this case tourist information it is not fundamental fill of the map, but it is possible to show the required superstructure (Tourist map server of Slovakia www.hiking.sk).

CREATING OF INTERACTIVE MAP

Map of the nature trail was created via Google Maps. Google Maps is Google's technology application for web mapping. It is free for non-commercial use. It offers maps of the whole world and route planner for searching and localizing. Maps are provided as standard in three views, a satellite view, map view and a combination of both. The map is navigable by control mice, the search results are displayed directly on the map.

Google Maps uniqueness does not lie only in display of maps, but the possibility of implementing these maps to own Web site and their subsequent editing and updating of the various new data and information.

Precondition for creating custom maps in Google maps is an own account and login. Then we can proceed to the formation of the map itself through the My Maps feature.

Enter the Edit mode, where you need to enter a map title and its short description, and then you can proceed to the formation of particular layers. Layers are chosen so that the layers displayed related data type. The user application allows you add maps brand into the map, which serve to identify the object, the lines for the routes, shapes which will mark the selected area (square, parking), and searching by using
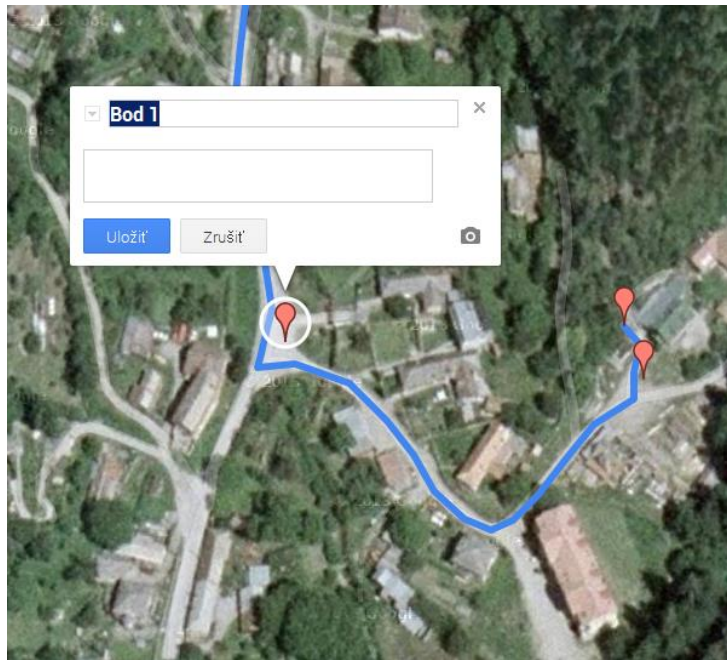
Fig. 3 Inserting and editing marks

appropriate controls.

The route of the trail was representing by the line in this case. To line was attached the marks showing the location of particular information boards of the trail in the village Čučma. Specifically, the information boards 1-8 the trail "Iron route" and single information panel Rožňavská Metercia of "Slovak mining route". Plotted route of the trail follows the local communication.

Edit mode does not allow us only insert the single objects, but it is possible for them to set certain parameters such as the type of mark, colour mark or line, thickness etc. or use your own type of brand, selected according to our requirements for objects visualization.

In the next step for the individual objects in the map were added names and descriptions of objects. The order and name in the information boards, as their located on the route of the trail in the village, was assigned. Further, the description connected to each object, which is a shortened version of the description found on the notice boards. Description was shortened due to the fact that the proposed inscription text box has a limited number of characters.

Excepting the description the objects showing the position information boards are added by the photo of boards content, because except describe, they contains an interesting picture documentation of sites, mining maps and diagrams, and comparison of the current and past state of objects. The photo come from own photographic documentation that has been done during the actual reconnaissance nature trail in Čučma.

As a base map, was used a satellite map, from offered choice, because topographic map was for a more detailed view the locality on a large scale a few explanatory. Satellite image in contrary, give the real visual display, and thus helps to better orientation. Choice of base map the user can change according to his preferences.

The final step in creating interactive map of the nature trail was open the create map to the general public. This is achieved by allowing the sharing of map for other users. Except to viewing the interactive map you can allow other users to complement the map and cooperate for its modification.

CONCLUSION
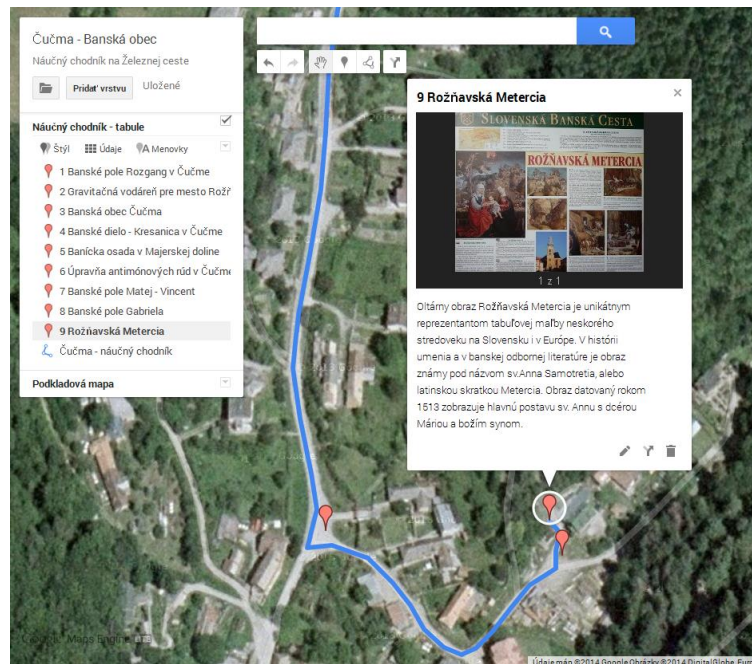
Created interactive map is available at: https://mapsengine.google.com/map/edit?mid=zjVnPZbQhzHM.kbtVGMANjVps

Fig. 4 Preview of interactive map

The map displays the location of particular information boards and route of the nature trail of Iron route "Čučma - the mining village", which documents the history of mining and metallurgy in the village Čučma and its surroundings. It also allows the user to gain more information and new knowledge, which show the mining and metallurgical activities in the past that brought fame the village.

REFERENCES:

Cehlár, M., Suchá-Očenášová, K., Jokmanová, D. and **Drevko, S.** (2010) Investment possibilities of use ore deposit in Slovakia depending on the methods of funding, Acta Avionica, vol. 12, nr. 19, s. 55-60. ISSN 1335-9479

Kraaak, M. J. (2001) Web cartography – developments and prospects. Tailor & Francis London

Molčíková, S. and **Hurčíková, V.** (2013) The possibilities of map layouts creation in ArcGIS, in: SGEM 2013: 13th International Multidisciplinary Scientific GeoConference: Informatics, geoinformatics and remote sensing: conference proceedings: volume 1: 16-22 June, 2013, Albena, Bulgaria. – Sofia, ISBN 978-954-91818-9-0 - ISSN 1314-2704

Official website of the village, available at: http://www.obeccucma.sk/ (February, 2014)

The Internet portal of the International Cartographic Association, available at: http://icaci.org/ (February, 2014)

Tourist map server attractions of Slovakia, available at: www.mapysr.sk (November, 2014)

Tourist map server of Slovakia, available at: www.hiking.sk (November, 2014)

Veverka, B. (2004) Topographic and thematic cartography 10. ČVUT, Praha