

Android application to guide users through Slovenian hiking trails

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Extended Abstract

There are 1661 registered hiking trails in Slovenia which cover over 10000 km. The trails are maintained by Alpine clubs. 287 Alpine clubs are organized within the Alpine Association of Slovenia (AAS 2016).

AAS is in authority for keeping a record of existing hiking trails as well as categorizing the trails. AAS also publishes hiking maps and a monthly journal. In the year 2002 a decision to contain each trail into the database was made.

The database has been established in four phases. The first phase was establishment of the database and filling it with any available information on hiking trails. The second phase was about checking the location accuracy. The third phase included adding attribute data into the database. The fourth phase was the representation of the collected data for wide spectrum of users.

An idea of creating an application for using the database on actual trails has emerged. The android platform has been chosen as it had been the most used smartphone OS at the time. The app has been developed in Android Studio environment using Java and XML languages. The database is in SQLite format. The tracks in the database are in GPX format. Data types are waypoints, routes and tracks.

The goal of the app is to guide hikers in the Slovenian mountains. Initially, user selects a mountainous area. Then a trail can be proposed by certain criteria, such as complexity, length or duration of the hike. Any trail can be selected directly from the list.

When the hike is started and GPS is turned on, the trail is shown with the current position on it. Additional information on the screen include heading, distance to the finish or junction point, height and the accuracy of the GPS signal.

Different background maps can be selected: Google (terrain, roadmap, satellite), OpenStreetMap or AAS hiking map, as can be seen in *Figure 1*.

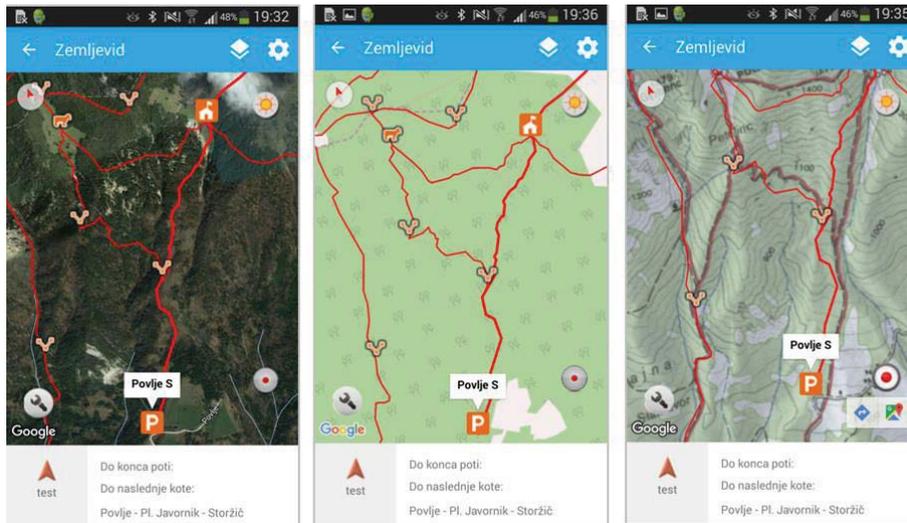


Figure 1. App main screen with background maps from Google (left), OpenStreetMap (center) and a hiking map (right) (Žličar 2016).

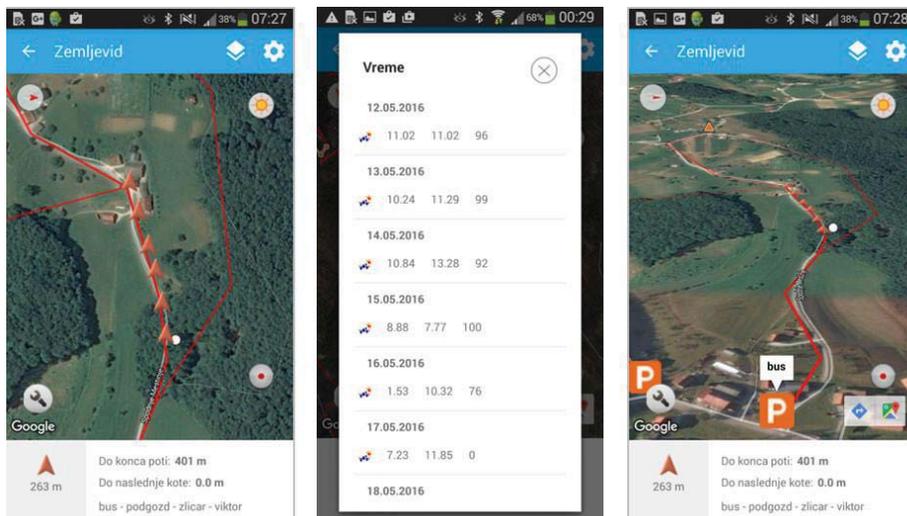


Figure 2. Navigation with an orthophoto background (left), weather data and forecast (center) and perspective view (right) (Žličar 2016).

Figure 2 left depicts actual navigation. The app contains additional features: error reporting, weather forecast (see *Figure 2 center*), logging of the track, compass and car navigation using Google services for guidance to the origin point. All saved tracks can be displayed over a background map. A fake 3D perspective view can also be shown, as seen in *Figure 2 right*.

References

- AAS (2016) Alpine Association of Slovenia home page: <http://en.pzs.si/>. Accessed 15 October 2016
- Žličar P (2016) Creating the application to guide users through Slovenian hiking trails: Graduation thesis. University of Ljubljana, Faculty of Civil and Geodetic Engineering