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| Subject Area | Software and Systems |

Kort Native - OpenStreetMap Data Completion Through Gamification



Figure 1: User profile: from wireframe to actual implementation.

Introduction: The core idea of the collaborative and free project OpenStreetMap (OSM) is that everyone is able to contribute to the community by collecting data by manual survey, GPS or satellite imagery, and make this data available as open data. Nowadays however it is not sufficient for a mapping software to just present the latest geometry features. The requirements of such software have increased especially with smartphones where one expects further information on geographic features e.g. the opening hours of a supermarket or the cuisine type of a restaurant.

Result: This thesis consists of a complete reboot of the Kort game project featuring a native smartphone solution. Some of the gamification elements have been adopted and improved. People using Kort can solve missions and earn so-called «Koins» in order to climb up the leaderboards. In order to keep users coming back, a plethora of achievements has been introduced which users can obtain by solving more missions, hence improving OSM data altogether. The backend is written in Python and uses the Connexion framework which sits on top of Flask and exposes a RESTful API based on OpenAPI 2.0 Specification (formerly known as Swagger Specification). The services as well as the PostgreSQL database run in Docker containers, enabling easy deployments on different systems. The frontend is written in JavaScript and uses the React Native framework. This allows to have true native mobile apps while maintaining only one single codebase. The result of this work is a native mobile app for the Android and the iOS platforms as well as an all new backend. A new error data source (Overpass) with new mission types have been added as well. The work could be presented at State-of-the-Map conference France and received broad interest, which in turn resulted in additional beta testers. The application is currently in beta phase, and due to be publicly released in summer 2017. Website: www.kort.ch

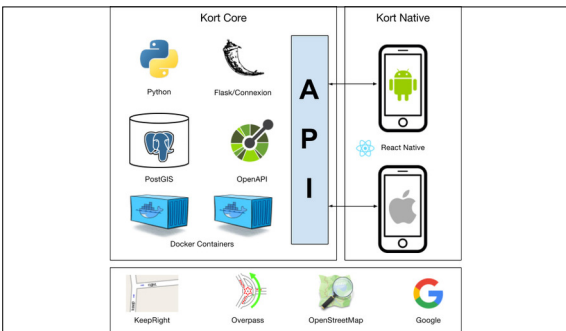


Figure 2: Kort game system landscape.

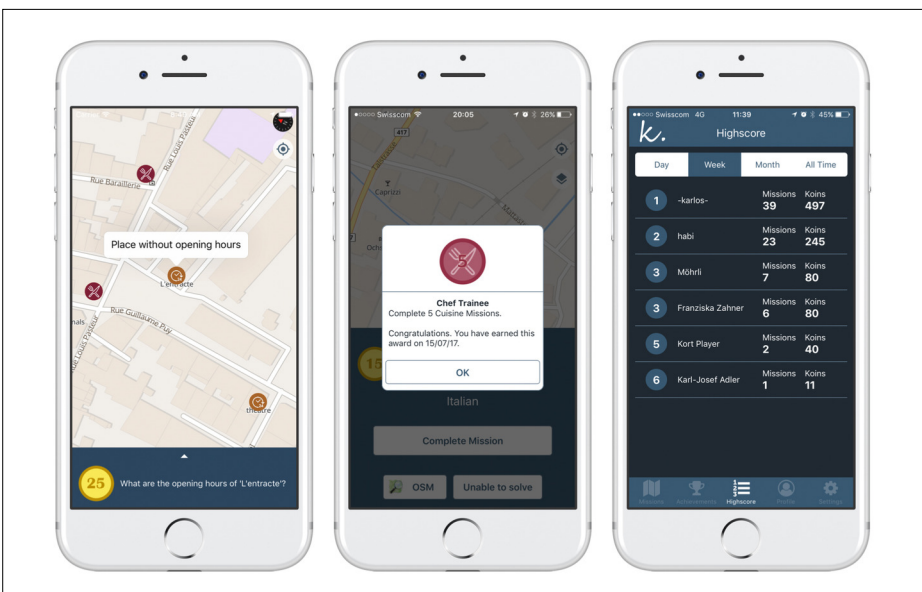


Figure 3: Showcase of the Kort game.