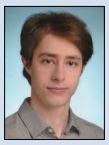

Daniel Schmider

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Subject Area	Software and Systems

Proof of Kort-cept

OpenStreetMap Data Completion Through Gamification Techniques

Fig. 1: Wireframe prototype which outline the process of solving "Missions" and placing "Towers" on the map.

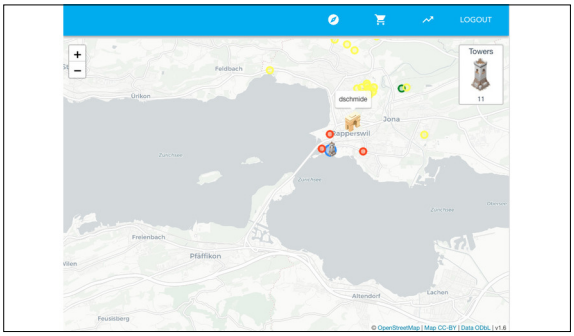

Fig. 2: Screenshot of the "Proof of Kort-cept" webapp showing Missions of varying difficulty on the map screen.

Introduction: OpenStreetMap (OSM) is a collaborative project to create a free map of the world. To renew and complete this map, volunteers contribute data manually. The tools required to make meaningful changes to those may often be overwhelming. Gamification of these tools can help to attract new users, to motivate existing ones which finally achieves better coverage and detail level of OSM. The mobile app "Kort Native" addressed this issue 2017 by providing the player with bite-sized "Missions", where they completed a Mission by adding missing data in a rewarding way with "Koins" and badges.
"Proof of Kort-cept" aims to expand these gamification principles by rebooting Kort as a webapp and by turning Koins into an exchangeable in-game currency, which can be used to purchase strategic in-game resources. On top of these vital changes, e.g. "Experience Points" could be introduced as status points which would allow players to level-up and unlock more mission types on their journey.

Result: In the first part, research was carried out in gamification techniques and projects in the field of geoinformation aimed at spatial data collection which delivered good gamification practices.
The second part consists of a SW prototype. User interface wireframes were designed to communicate how to expand the Kort idea with a more consequent gamification approach (Fig. 1). The prototype was realized as a single-page web application for mobile and desktop devices (Fig. 2). For the implementation, modern web technologies were chosen to develop new frontend and backend servers, and the existing backend "Kort-Core" was updated and integrated to provide Mission data (Fig. 3). An in-game "Market" has been added for players to exchange Koins for various items, such as attribute boosts or placeable buildings like "Towers" to solve Missions that are beyond their current vicinity.

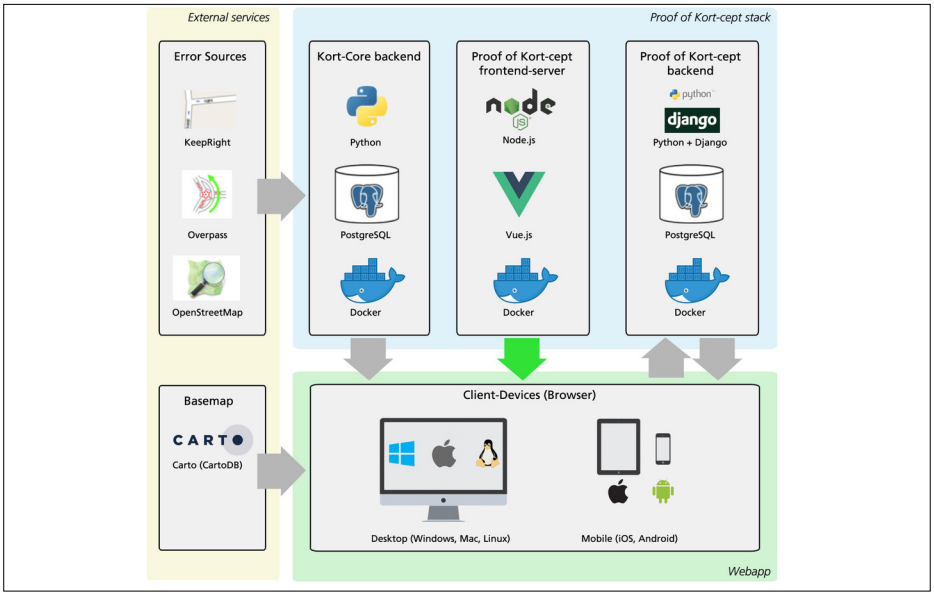

Fig. 3: System overview of the technologies and data flow within the Vue.js based webapp. It communicates with the backend servers (Node, Python, PostgreSQL) via restful APIs.