Image-based Cycle Route Generation on Mobile Devices

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Motivation
- Beside a means of transport, cycling often is an explorative activity involving spontaneous decisions about destinations. Especially in and around cities, cyclists may want to visit specific points of interest.
- Current planning tools for cycling trips do not sufficiently support this distinct nature of cycling.
- Route creation is not provided in a way suitable for usage on typical mobile devices in situ.
- Tools which support planning trips on-the-fly are needed.

Approach
- Interaction with the application is based on a touchscreen user interface with large finger-friendly buttons.
- Users may set three constraints for the route: maximum duration, maximum length and categories for points of interest.
- Images are used to evoke curiosity to discover new places and provide a quick selection possibility including a rough impression about the possible choices.
- A route matching the user’s selection is automatically generated.
- An additional recommendation feature proposes points of interest that fit with the user’s interests and the calculated route.

Evaluation
- We conducted a lab-based study with 20 subjects from the target group of regular cyclists acquired from a cycling club and the university. Ages ranged from 18 to 74 (mean: 40.2).
- Three scenarios assigning different tasks were used.
- The overall system usability rating was very good (SUS).
- Participants had a positive attitude towards the system and low anxiety to use it (UTAUT).