MapRecorder

Analyzing Real World Usage of Mobile Map Applications

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Introduction

- Mobile map applications like Google Maps are extremely popular, with Google Maps being the fifth-most-used mobile application [1].
- Despite their popularity, we know very little about how these applications are used within the general population.
  - How much do users need or want to pan and zoom?
  - For what types of entities do they search?
  - Do they show reoccurring interaction patterns?
- Many companies do not share usage data from their applications, which results in enormous black boxes in important areas of the literature.

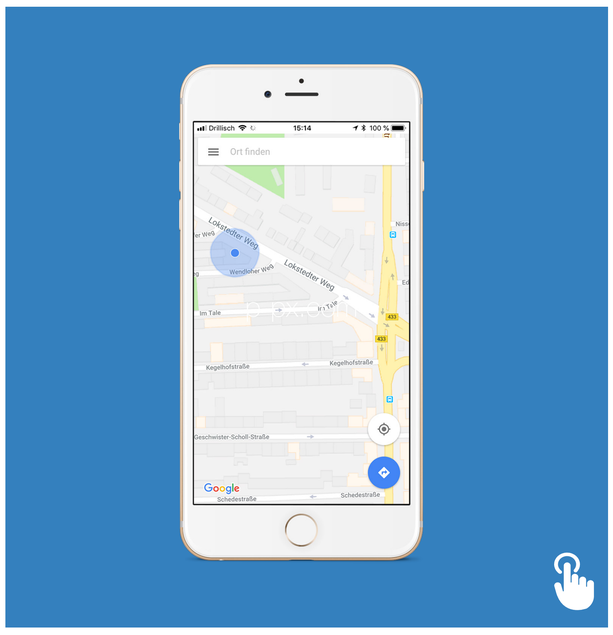
[1] Frommer, D. These are the 10 most popular mobile apps in america. Blog, August 2017. Retrieved August 28, 2017 from http://www.recode.net/2017/8/24/16197218/top- 10-mobile-apps-2017-comscore-chart-facebook-google.

Method

- We created an application that "wraps" the Google Maps mobile website. This allows us to capture rich behavioural logs whilst affording a very similar experience to the standard application.
- We developed such a "wrapper" application for Google Maps called *MapRecorder*, and recruited 28 participants to use it for 4 weeks.
- We captured 483 minutes of interaction with *MapRecorder*, spanning 443 sessions. From these sessions, we were able to paint a broad picture of current mobile map application usage for our participant pool.

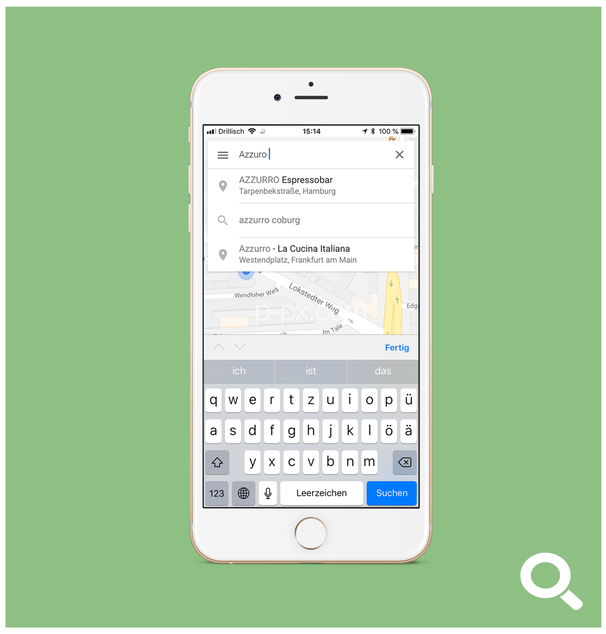
Usage States

MAP-VIEW MANIPULATION



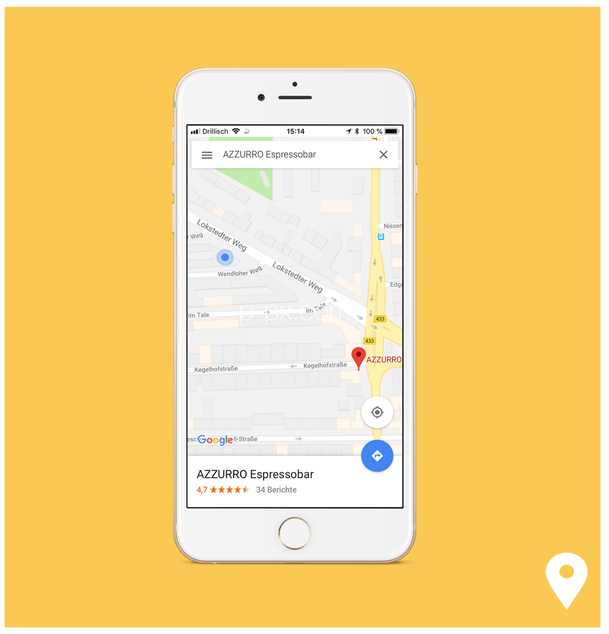
The Map-View Manipulation state covers all the interacation such as panning and zooming as well as or viewing time with the map.

SEARCH



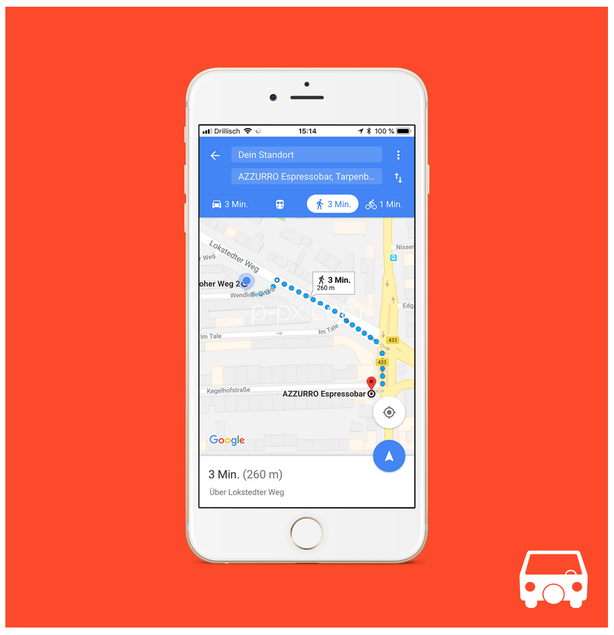
The Search state includes the time for typing something into the search bar as well as evaluting the search results.

PLACE



The Place state consists of all the possible interactions with a place on the map such as looking up information or pictures.

DIRECTIONS

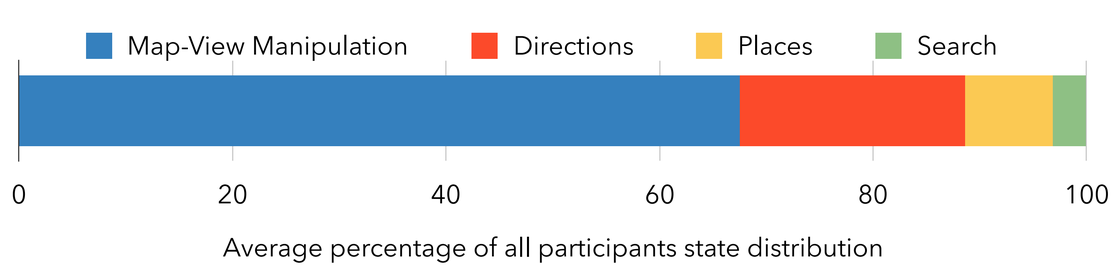


The Directions state is made up of the route finding functions within Google Maps such as choosing the method of transportation.

Results

Average State Distribution

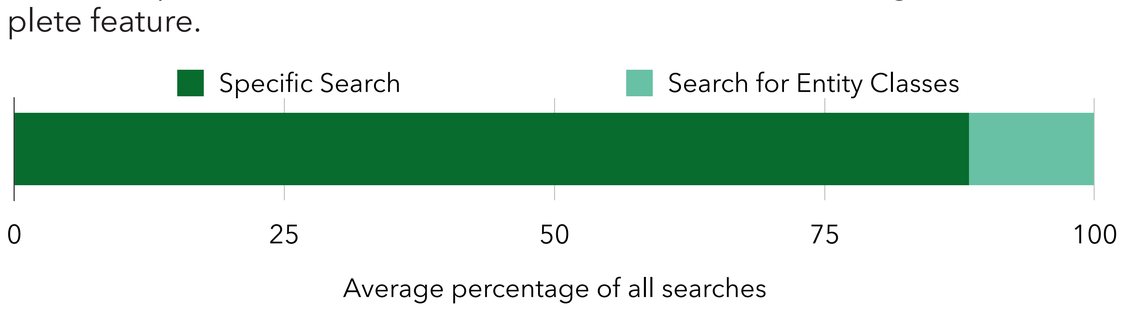
Users demonstrated exploratory behaviour for almost 50% of their sessions with *MapRecorder*, indicating a preference for non-prescriptive methods of interaction with mobile map applications, and supporting the user-as-explorer ideal.



Average percentage of all participants state distribution

Search behaviour

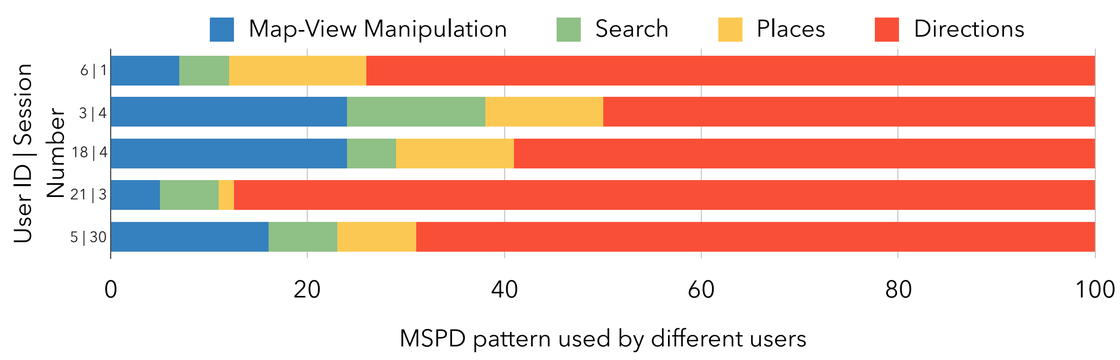
Users also expressed search behaviours which demonstrate a preference for specific named places rather than entity classes such as "restaurants" or other near me options. Also more than 50% of searches used Google's auto complete feature.



Average percentage of all searches

Usage Pattern

Our findings also suggest that users exhibit similar patterns of use in order to get directions to a specific location, with a high percentage of sessions displaying specific sequences of interaction between states within the map application. 13% of all users used the pattern MSPD (Map-View Manipulation – Search – Place – Directions) which was (except for solely Map-View Manipulation) the most used interaction pattern.



MSPD pattern used by different users

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