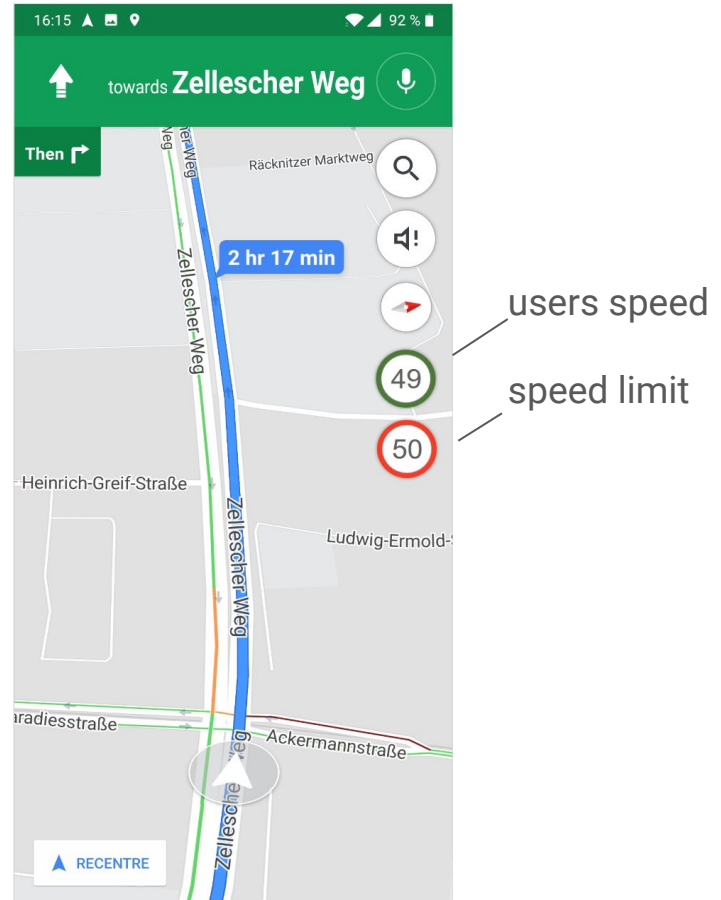


Spover

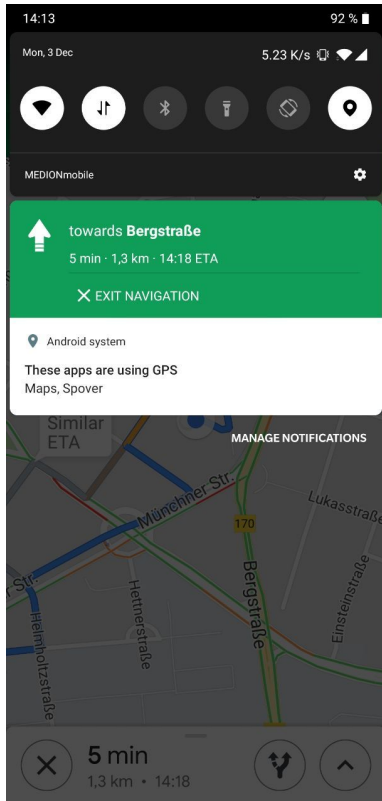
Speed overlay for navigation

Recap

Idea: show speed and speed limit information as an overlay above existing navigation apps



Timing



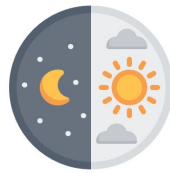
navigation is
running



Needed context feature: scanning for
navigation notifications

Behaviour, when specific notifications:

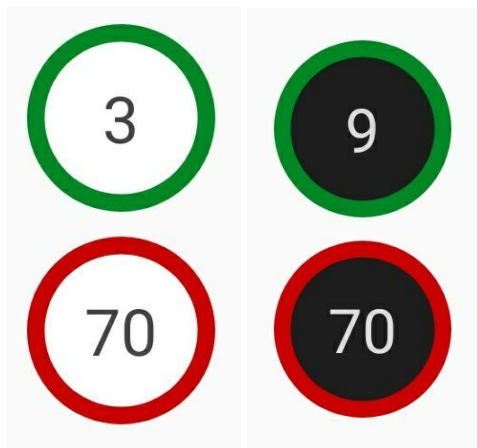
- get **posted** - start Spover
- get **removed** - stop Spover



Form Factor

Needed context feature: access to **light sensor** data

- based on current **environmental brightness**
adapt to a **light theme** ($>15\text{lx}$) or **dark theme** ($<5\text{lx}$)
- to prevent back and forth flipping:
 - different thresholds for toggling between themes
 - timeout (15s) before next change can occur



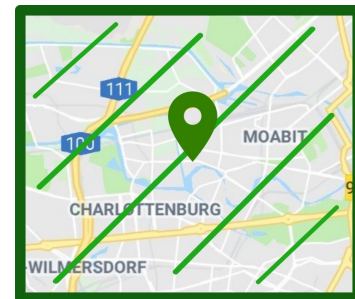
Location



Needed context feature: obtain the current **location** data by **GNSS** (GPS)

Location is used to:

- determine the **current speed**
- determine the area for which **speed limit** data is needed
(call to the OSM API containing a bounding box with curr pos as center returns way data with speed limits)
- comparing **current speed** and **speed limit**
data enables to:
 - adapt the UI to driving style
 - emit warnings when first time exceeding speed limit + self set threshold (can be disabled)



bounding box
example



Connectivity - Online



Needed context feature:

- detected **navigation start** while user is connected to wifi
 - by scanning notifications and using Androids ConnectivityManager

Behaviour:

- Post notification
 - asking the user whether he wants to preload map data

Connectivity - Offline

Needed context feature: reading **network status** information
(accessible through `android.net.NetworkInfo`)



behaviour when on **mobile network**:

- connection type is 4G or 3G - large bounding box
- connection type is EDGE or GPRS - smaller bounding box
 - exact bounding box sizes for each connection type need to be tested
- always ask for confirmation when the user wants to preload data for offline usage while being on mobile network

Dataflow

