



SEAMLESS SMARTPHONE LOCALIZATION (MOVIA)

Cornelius Rabsch - Wherecamp 2017

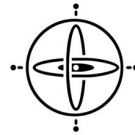
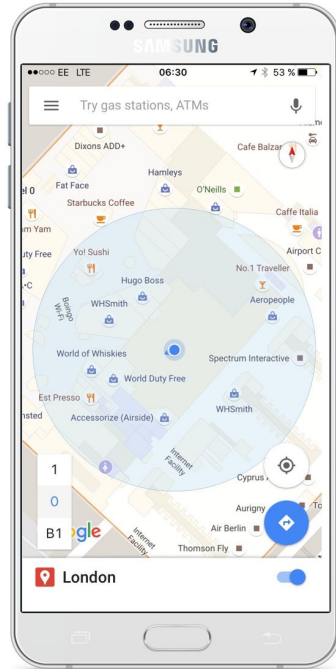
LOCALIZATION NEEDS

- seamless between indoor & outdoor
- ubiquitous availability
- understanding visited places & dwell times
- with a real-time personalized experience
- background & foreground localization
- privacy-friendly (GDPR 2018!)
- energy- and resource-friendly
- fast and reliable
- accessible



Source: Android.com Geofencing

SENSING LOCATION & CONTEXT

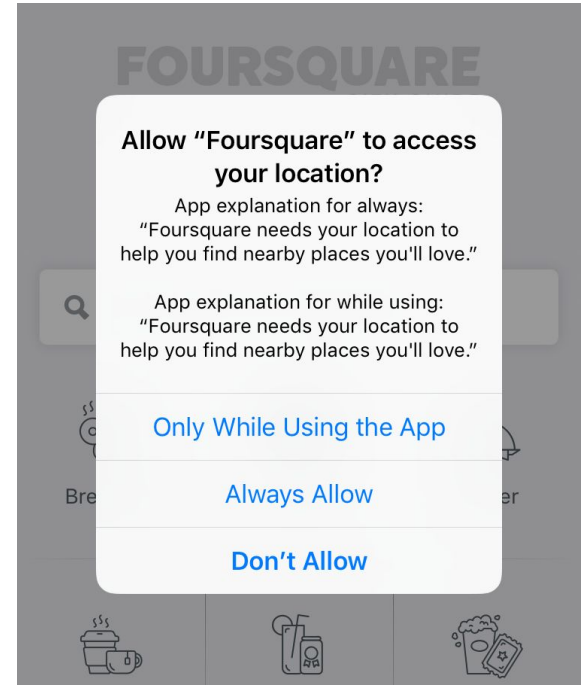


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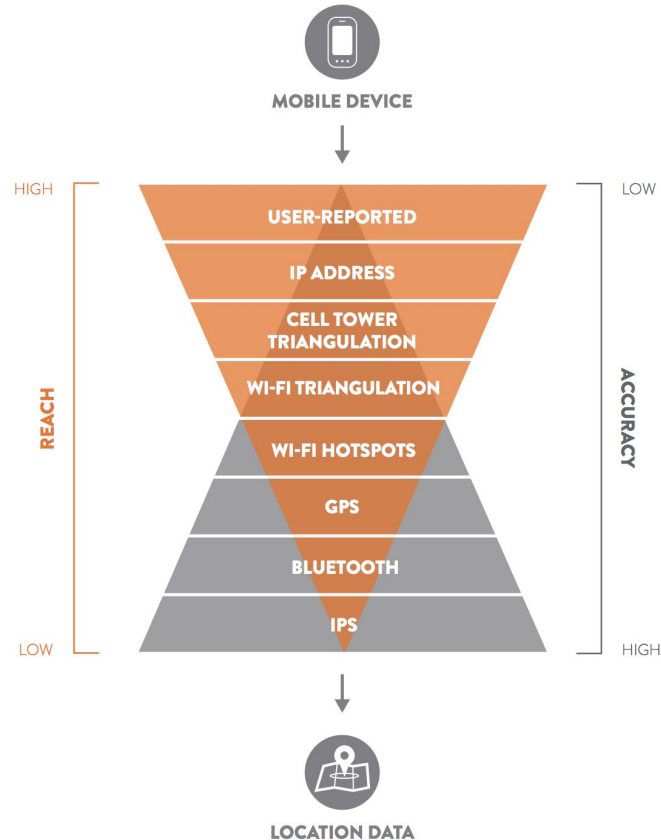


DATA PRIVACY

- Location Services Opt-In required
- Never, Always, WhenInUse Authorization
- Ask for authorization when you need it
- iOS 11 (BLE & Wifi does not need to be enabled)
- Blue arrow in status bar



VARIOUS TRADE-OFFS APPLY...



ELEMENTARY LOCATION SERVICES

- Android Fused Location Provider API [\[1\]](#) & iOS CoreLocation
 - Simple, battery-efficient location APIs
 - Last known location, location updates
 - Specify the desired level of service
- Android GNSS raw data access
- Android Geofencing API [\[2\]](#)
- Google Awareness API [\[3\]](#)
- ...

PROPRIETARY ELEMENTARY LOCATION SERVICES

- Various proprietary location providers
 - Skyhook Wireless - Precisely mapping wifi networks
 - PathSense “A better location stack”
- Indoor Positioning Systems
 - Proximity- and Fingerprinting-based methods (e.g. indoo.rs)
 - LED based indoor positioning system (Philips)
 - Highly fragmented, venue-specific,...
- Missing standards (e.g. unified interfaces, data exchange, infrastructure access)



- “We’re building an open SDK to collect location data (like GPS) from phones, for apps like yours”
- Standards and best practices for location collection
- Full transparency
- github.com/OpenLocate
- stevecoast.com/2017/10/19/openlocate

MOVIA RESEARCH NETWORK

- MOVIA: research network is to foster the development of seamless navigation solutions
- INF: Development of an interoperable and unified localization platform
 - Access to elementary services
 - Parametrization
 - Scheduling
 - New personalized services
 - Focus on accessibility



THANK YOU

Cornelius Rabsch

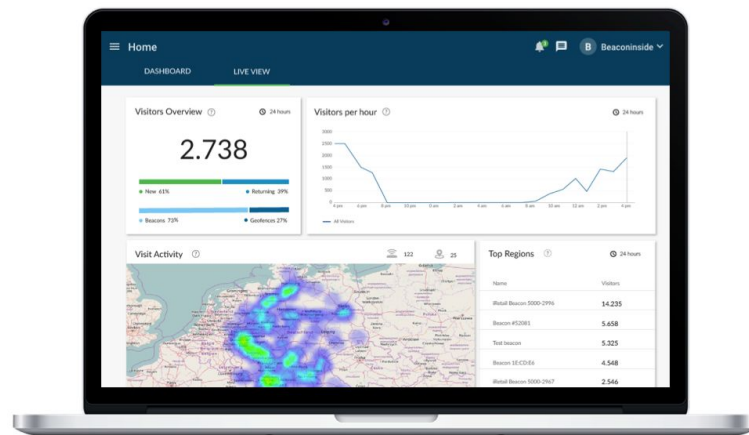
Beaconinside GmbH

Gustav-Meyer-Allee 25

13355 Berlin

c.rabsch@beaconinside.com

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www.beaconinside.com