HiReach

Start Lab

NL

Accelerators Selection:

Top 5 VCÖ Mobility prize 2019

myGalileo SOLUTION

Top 20 MyGalileoSolution 2020 - EUSPA

GEWINN

Top 100 Best Austrian small companies 2021

1st Prize Social Innovation Tournament 2022

Awards

Accelerators Selection:

HiReach Startup Lab

BridgeforBillions

PLUGandPLAY JAPAN

Verbund X accelerator

See the world through your ears.
Orientation is a fundamental challenge...
...and is especially hard in specific situations.
Independent mobility is a challenge for blind people
Make navigation easy for everyone!
1. Audio augmented reality app
The audio augmented reality navigation app
Sound cues are placed along the user’s route.
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Sound cues are placed along the user’s route.
We co-design directly with the user...

Over 120 blind and visually impaired

Hilfgemeinschaft der Blinden und Sehbehinderten Österreichs
ONCE
SANTA CASA Misericórdia de Lisboa
Workshops
“It’s a completely different paradigm of navigation”
“It’s a bit like seeing.
The impression of direction is constantly transmitted.
That sounds complicated at first and technically, it certainly is. In practice, however, it is amazingly simple.

Dreamwaves differs from all systems known to me simply because of this permanent indication of direction.”

Jürgen Schwingshandl
Blind user tester for our navigation app, waveOut.
Blind or moderate to severe visual impaired

WORLD WIDE
250M

EUROPE
20M
2. Implementation
Technological Challenges

Mobile audio AR is still not perfect

For a realistic audio experience it is crucial to know the exact location of the users and therefore their position in relation to the virtual sound.
Technological Challenges

GPS is far from perfect
Our Technological Solution

**GPS**
- **ACCURACY IN CENTIMETER RANGE WITH CAMERA**
  - **ViO**
    - Accurate (centimeter level) relative phone motion using visual inertial odometry
  - **RONIN**
    - Accurate (one meter level) relative phone motion using machine learning and inertial sensors only (like ViO without the camera)

**SENSOR FUSION**
- **MACHINE LEARNING**
  - Sidewalk - street side
  - Intersection
  - Walkable space

**PRECISE LOCATION ON MAP**
- (therefore, precise location of virtual objects in the word - AR)

**INTUITIVE NAVIGATION**
- **SPATIAL AUDIO**
- **Spatial Audio**

**ACCURACY IN ONE METER RANGE WITHOUT CAMERA**
(e.g. Phone in the pocket)

**MACHINE LEARNING**
- Using additional smartphone sensors (disclosure pending IP application)
3. How did it start
How did it all start

Passion 1: augmented reality
How did it all start

Balloon insertion visualization
How did it all start
Passion 2: music and audio
4. The present and the Future
Intuitive outdoor orientation and navigation for everyone.

Technology Use Case: Outdoor wayfinding
Hands-free audio augmented reality experience for safe and intuitive navigation while cycling
Technology Use Case: Tourism

Immersive audio experience for tourists visiting a city
Digital Twin
indoor navigation

DIGITAL TWIN INTEGRATION
An interaction can be made with anything that is on the digital platform

REGISTER AS ADMIN
Fine grained access to indoor plan and feature customization

DEFINE NODES OF INTEREST
Define possible origin and destination notes to enable automated routing

ADD SPACIAL AUDIO CUES
Define which points should be heard, what audio be heard and when
Indoor intuitive way finding in complex unknown venues
“Let’s improve mobility for everyone!”

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