Localization service using sparse visual information based on recent augmented reality platforms.

Javier Rodriguez Puigvert

COLOGNE INTELLIGENCE

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Software developer

Background:
Android, Indoor Navigation and Robotics

Our portfolio

COLOGNE INTELLIGENCE

One company, many strength

CONSULTING

Customer-Driven Excellence

SOFTWARE SOLUTIONS

Software Development

MOBILE MINDS

UX Design & App Development

DECISION DESIGN

Business Intelligence

Some of our satisfied customers

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congstar	dardenne	DER Touristik	DW Deutsche Welle	DB	Deutsche Post	WL BANK
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Our Story

Hardware positioning systems

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Tango

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- Motion Tracking
- Area Learning
- Depth Perception

Lenovo Phab 2 Pro

Asus Zenfone AR

Indoor navigation with Google Tango

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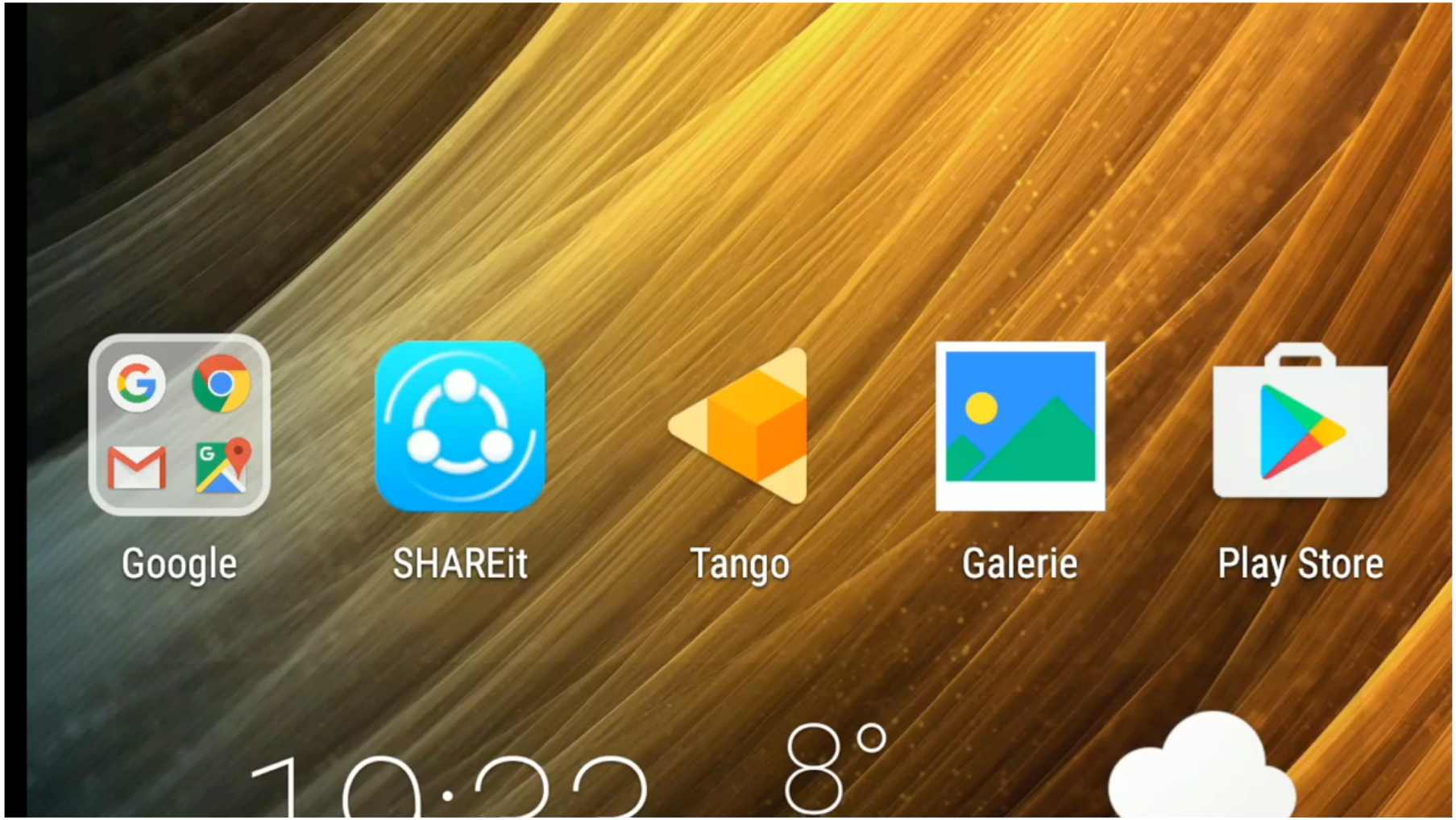

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ARCore

ARCore

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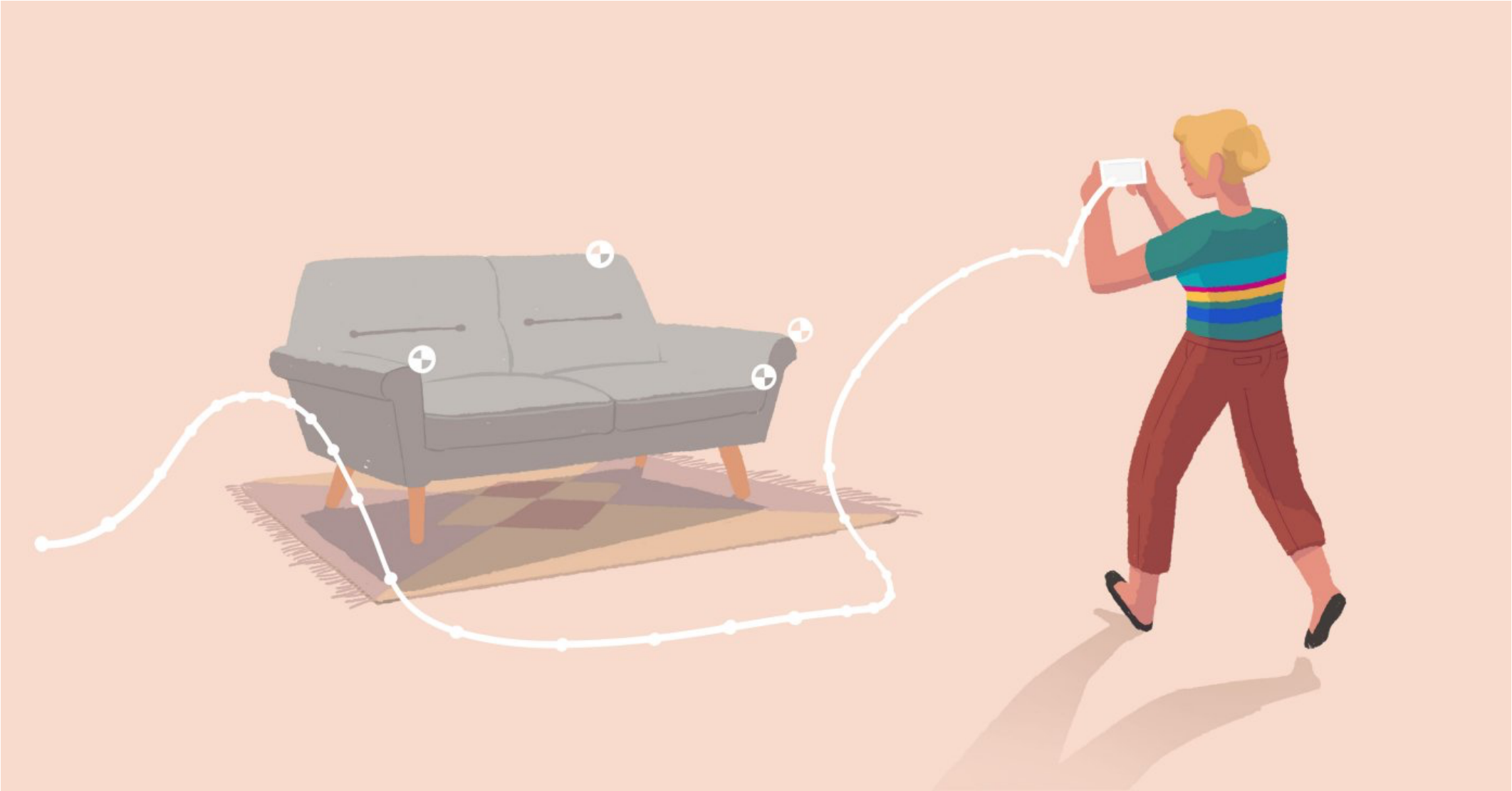
- Motion Tracking
- Area Learning
- Depth Perception

Motion Tracking



Source :https://developers.google.com/ar/discover/concepts

Point cloud

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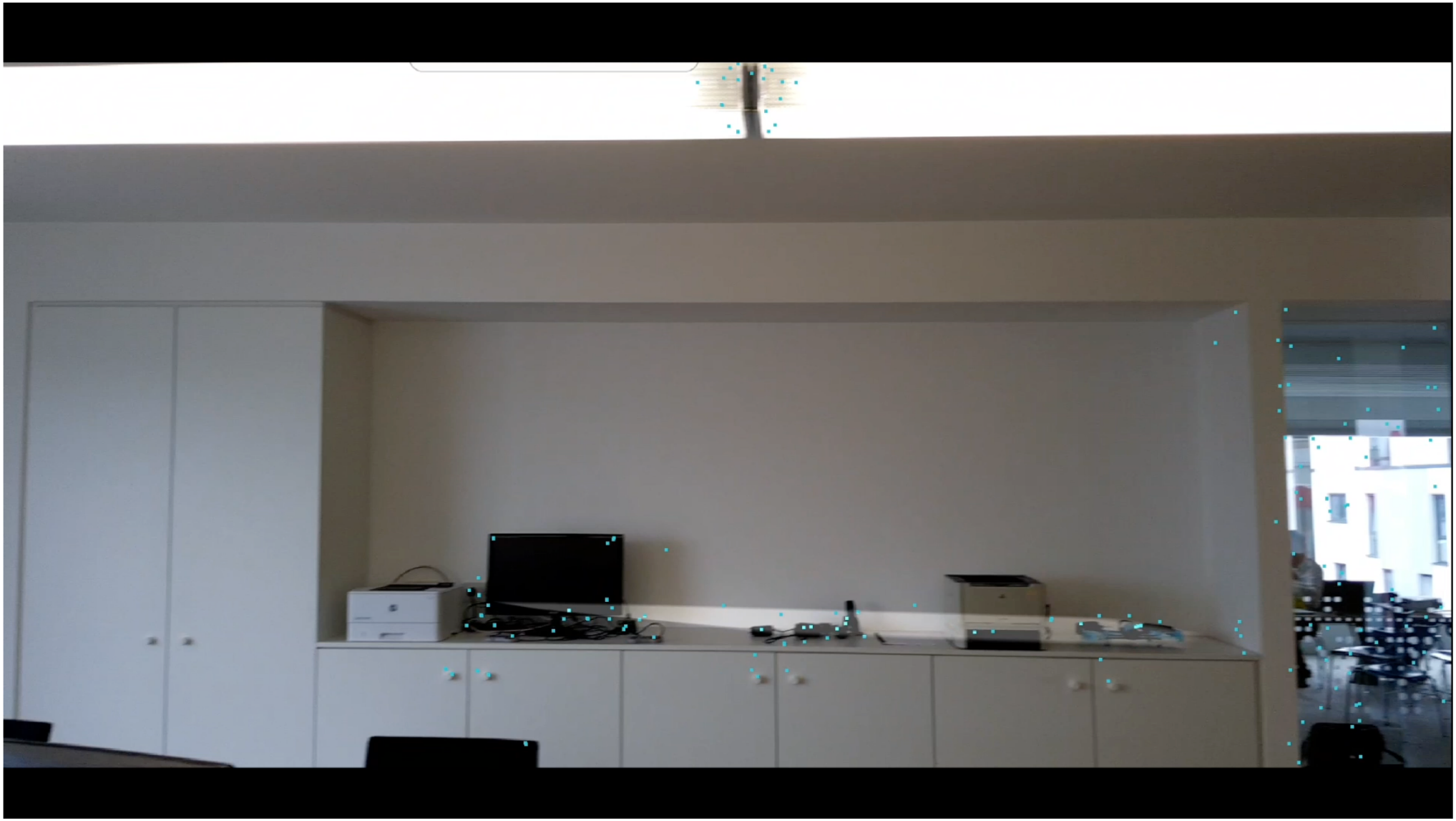

Environmental Understanding

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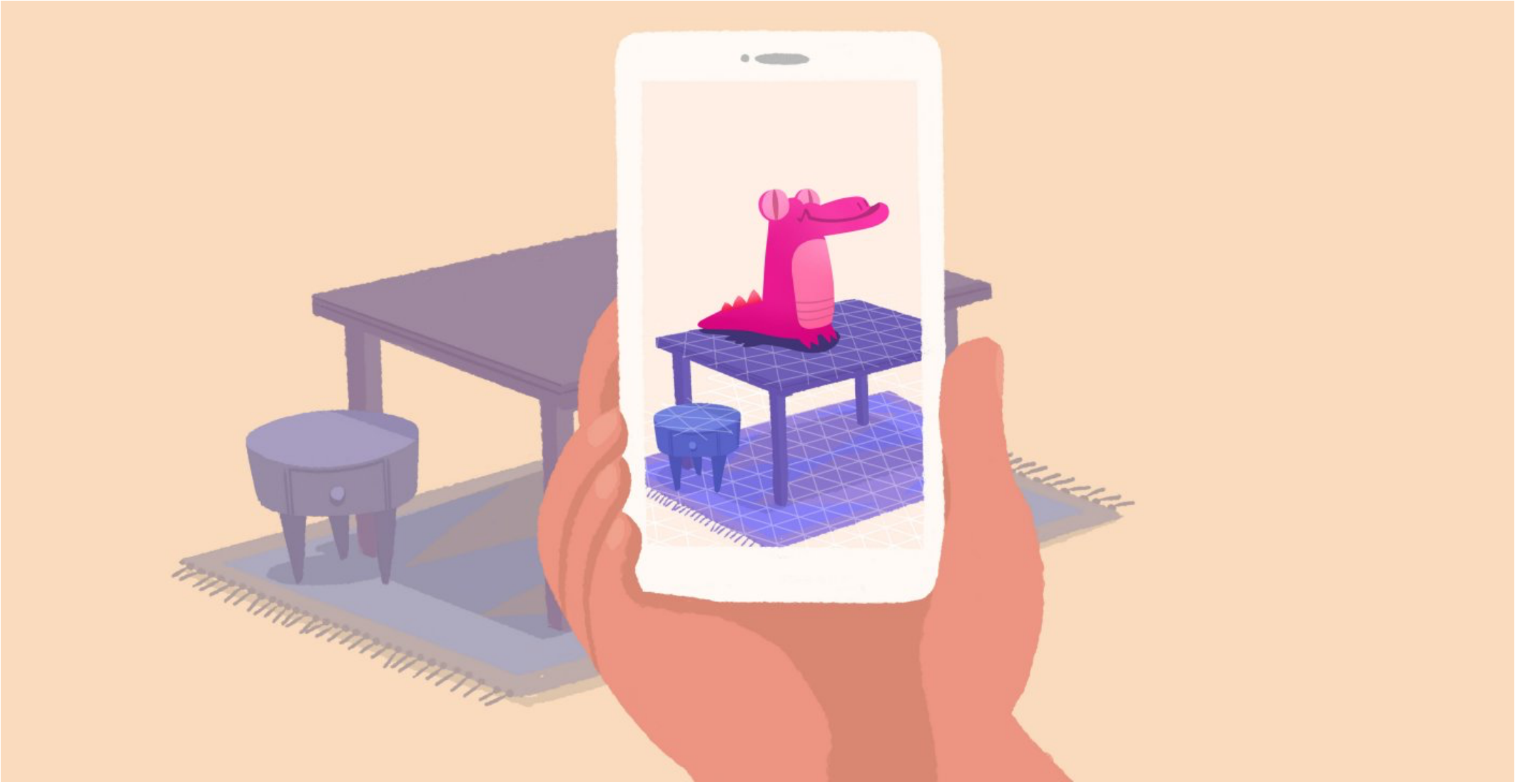

Source :https://developers.google.com/ar/discover/concepts

Light estimation

Source :https://developers.google.com/ar/discover/concepts

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Technology
Arts Sciences
TH Köln

Geoguessr

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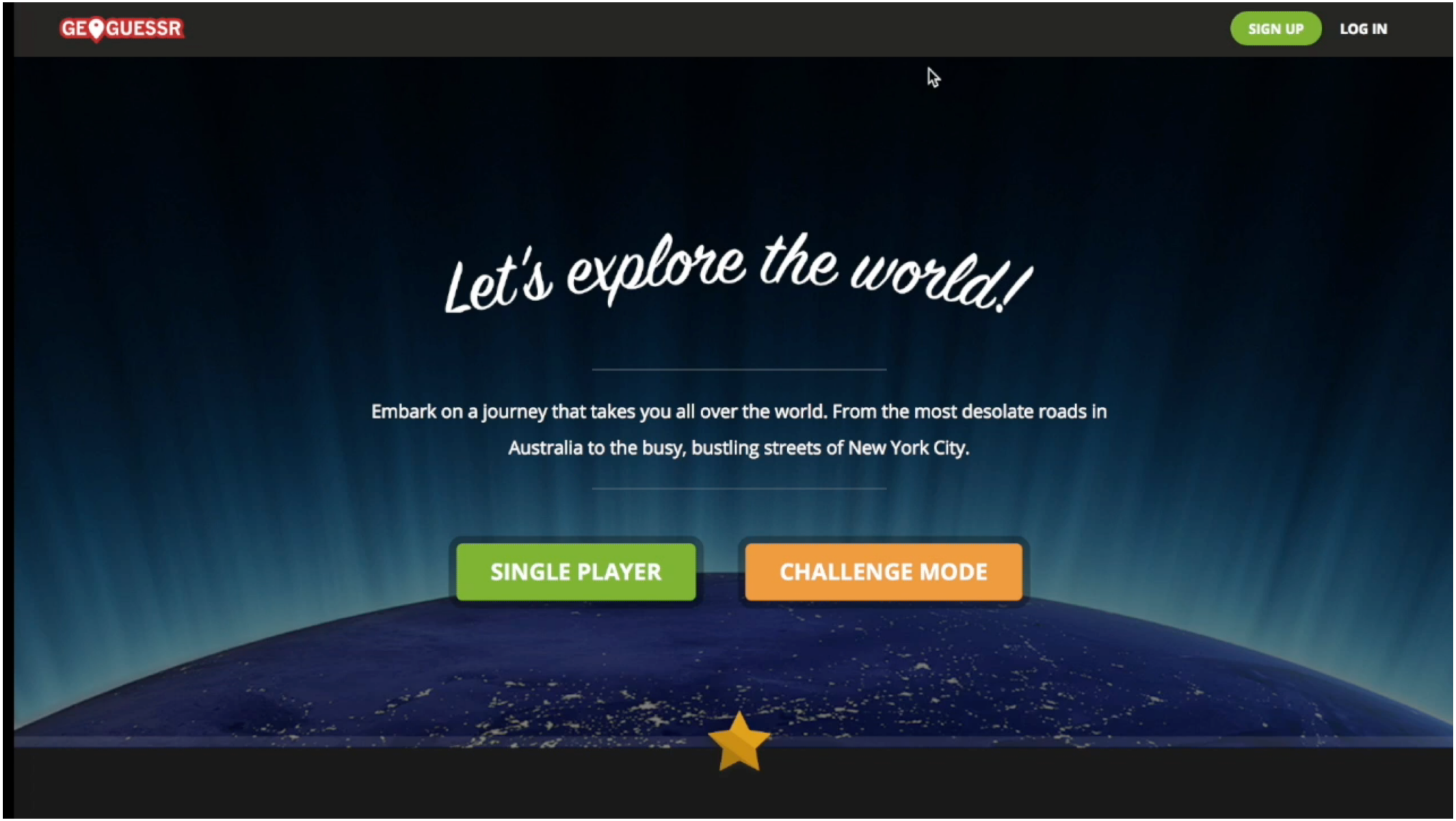

Source: www.geoguessr.com

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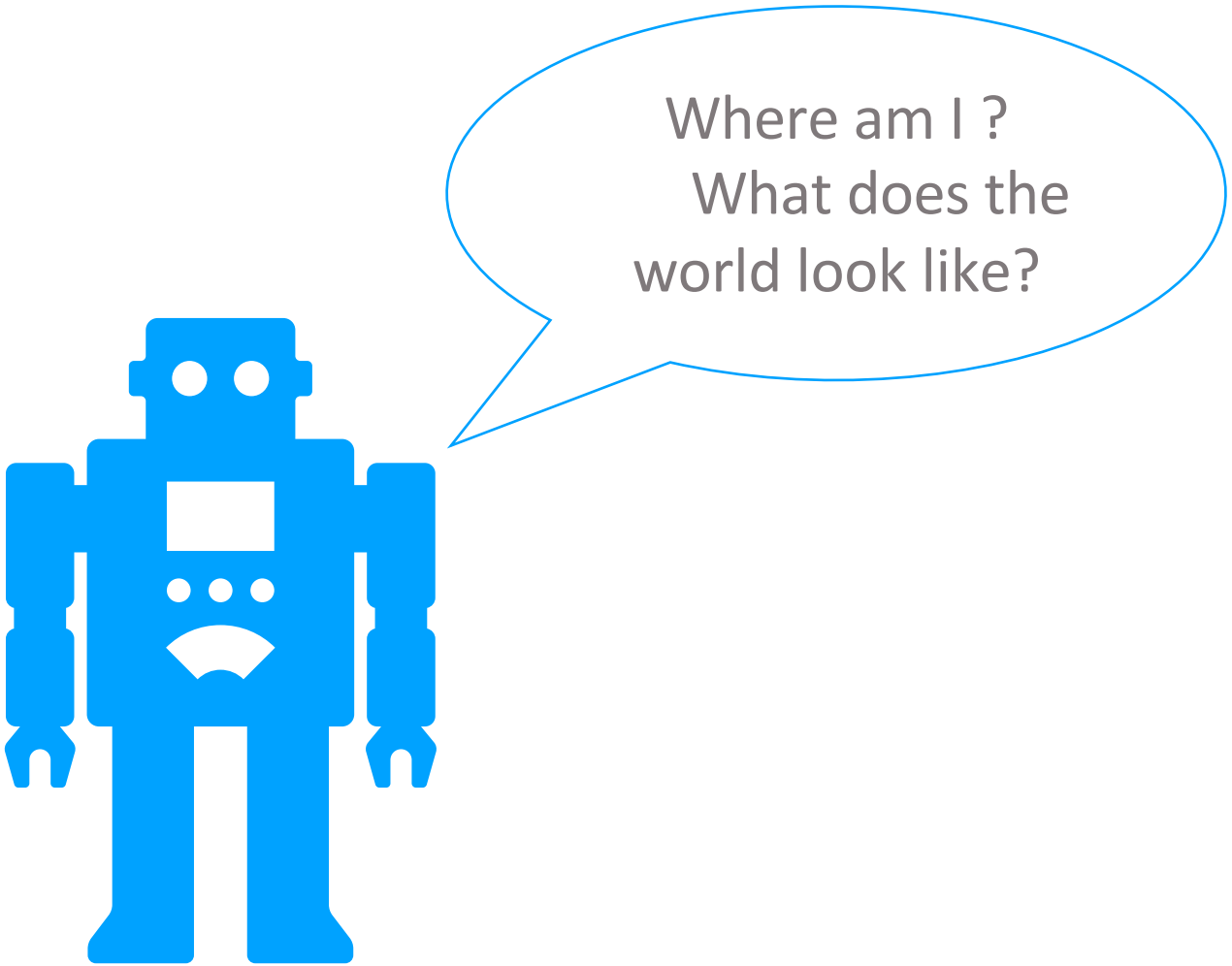
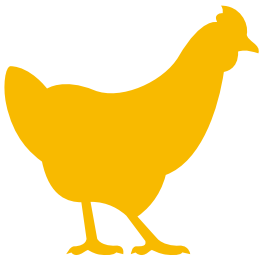
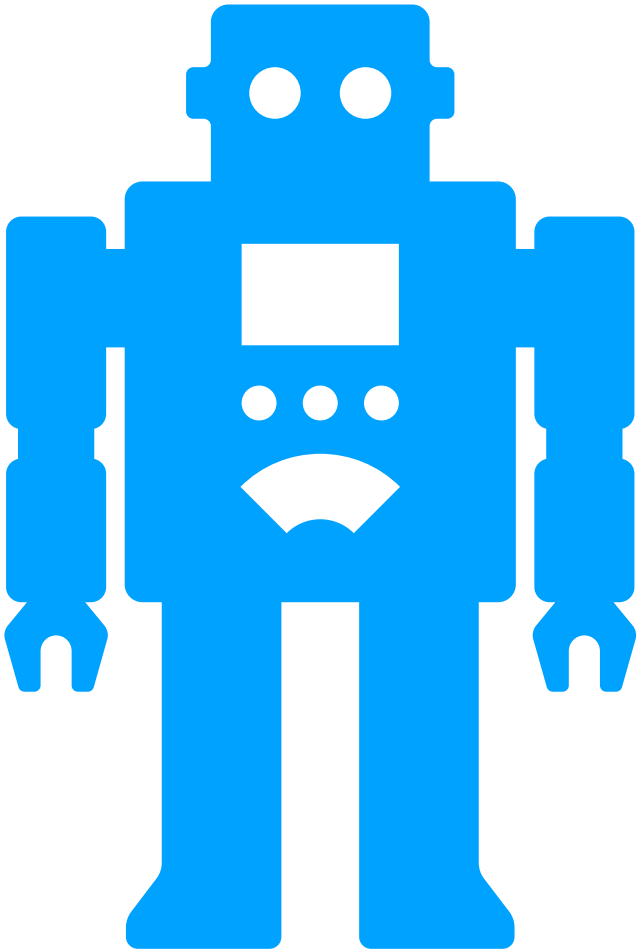
Simultaneous **L**ocalization **A**nd **M**apping (SLAM)

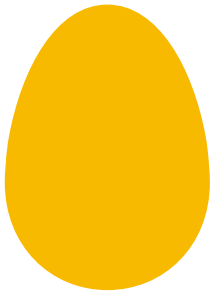
SLAM



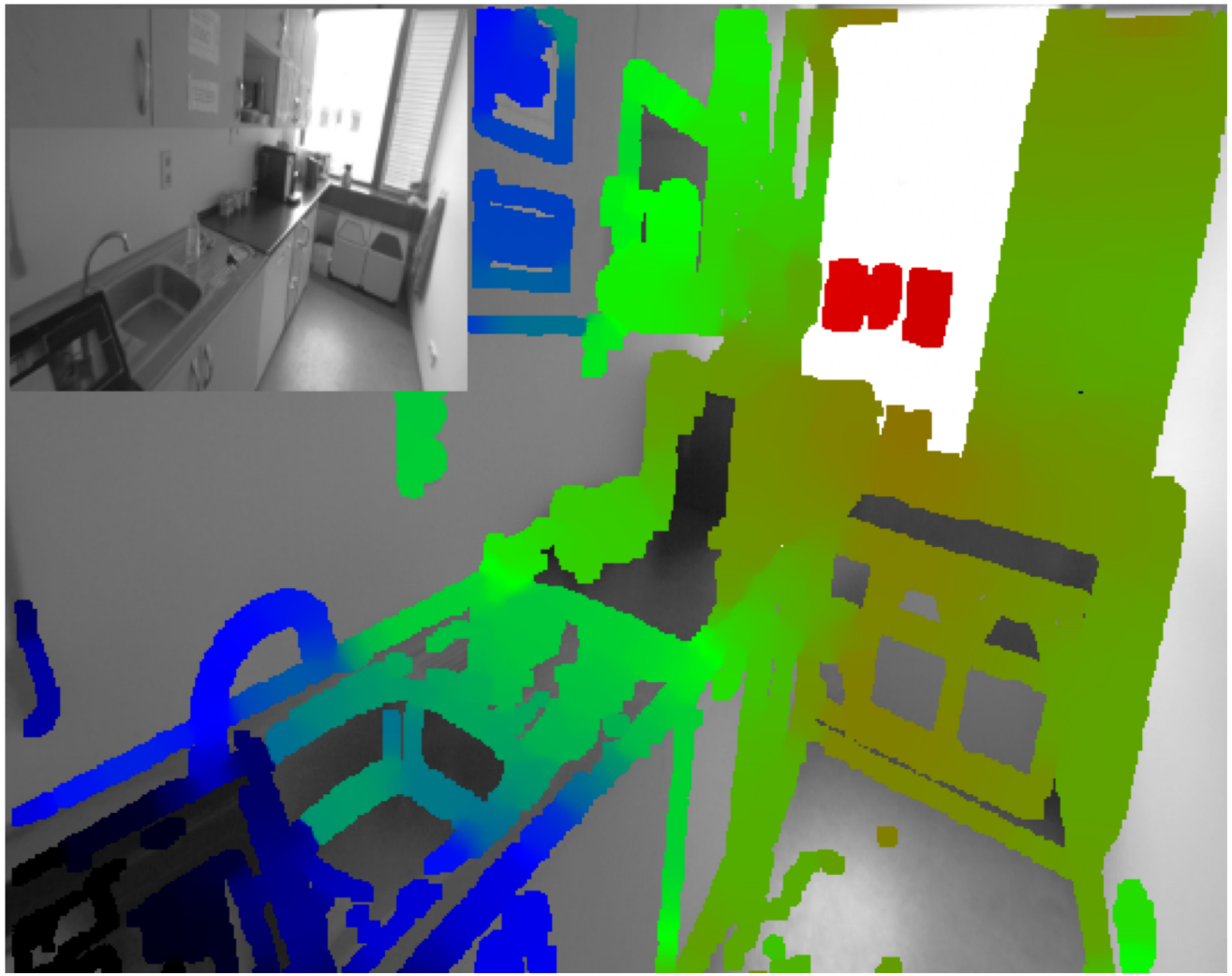
SLAM







Visual SLAM: Direct methods



Engel, Jakob, Thomas Schoeps, and Daniel Cremers (2014). *LSD-SLAM: large- scale direct monocular SLAM*.

Visual SLAM: Feature based methods

Mur-Artal Raúl, Montiel J. M. M. and Juan D. Tardós (2015a). “ORB-SLAM: Versatile and Accurate Monocular SLAM System”

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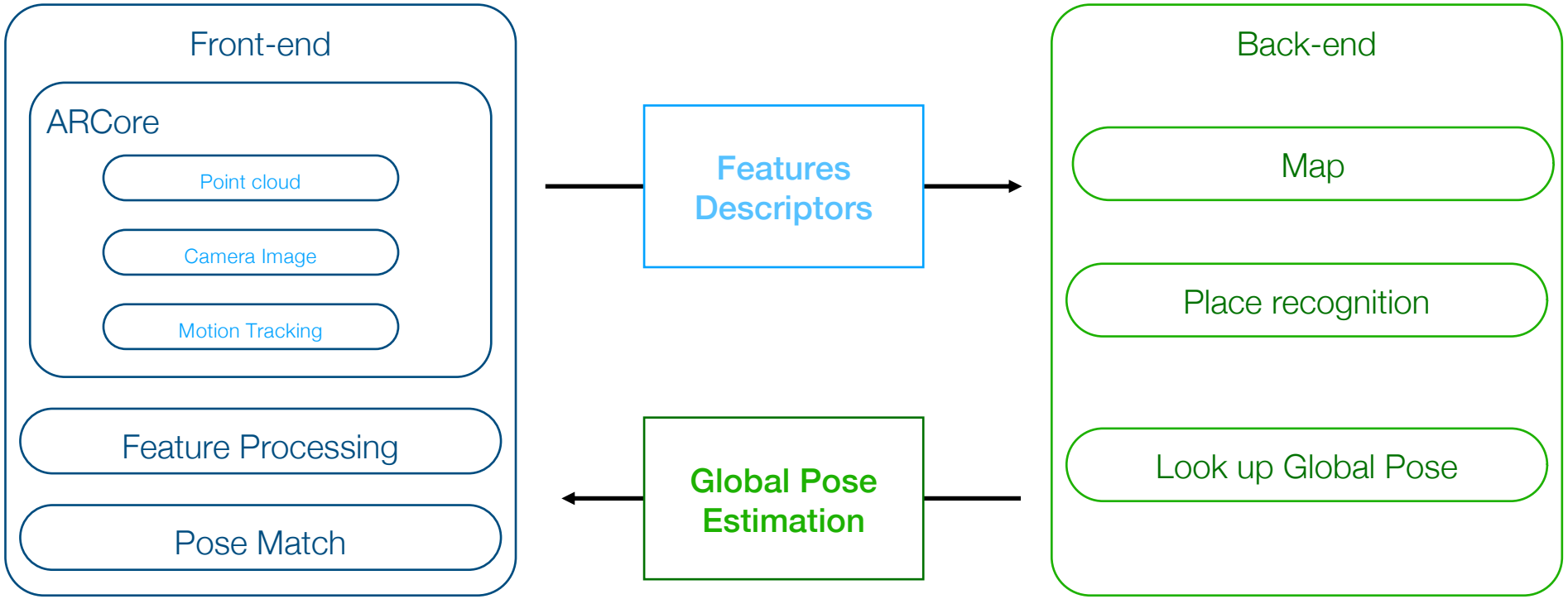
Architecture

Architecture



Map

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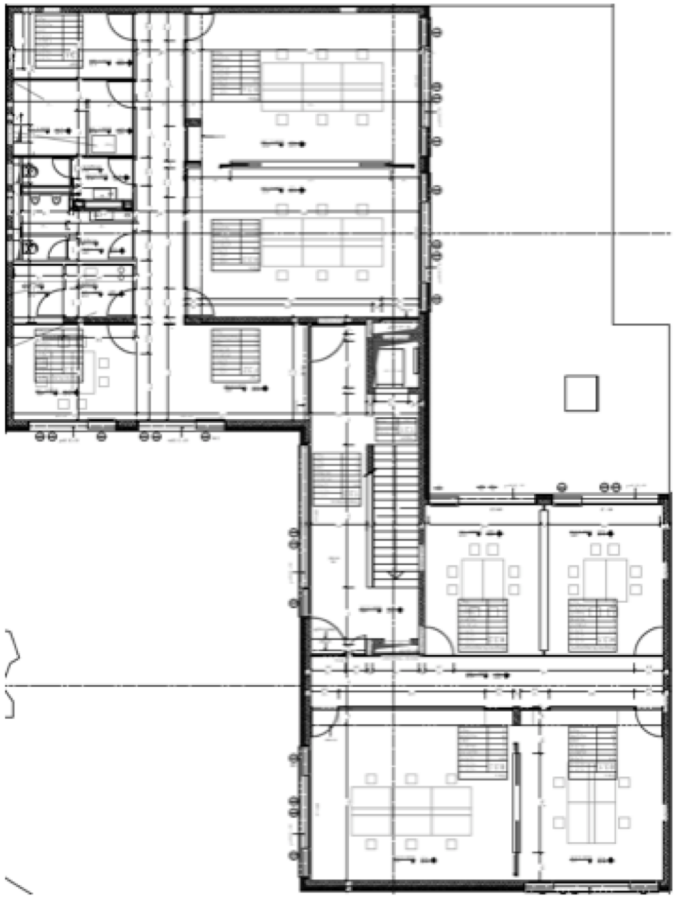

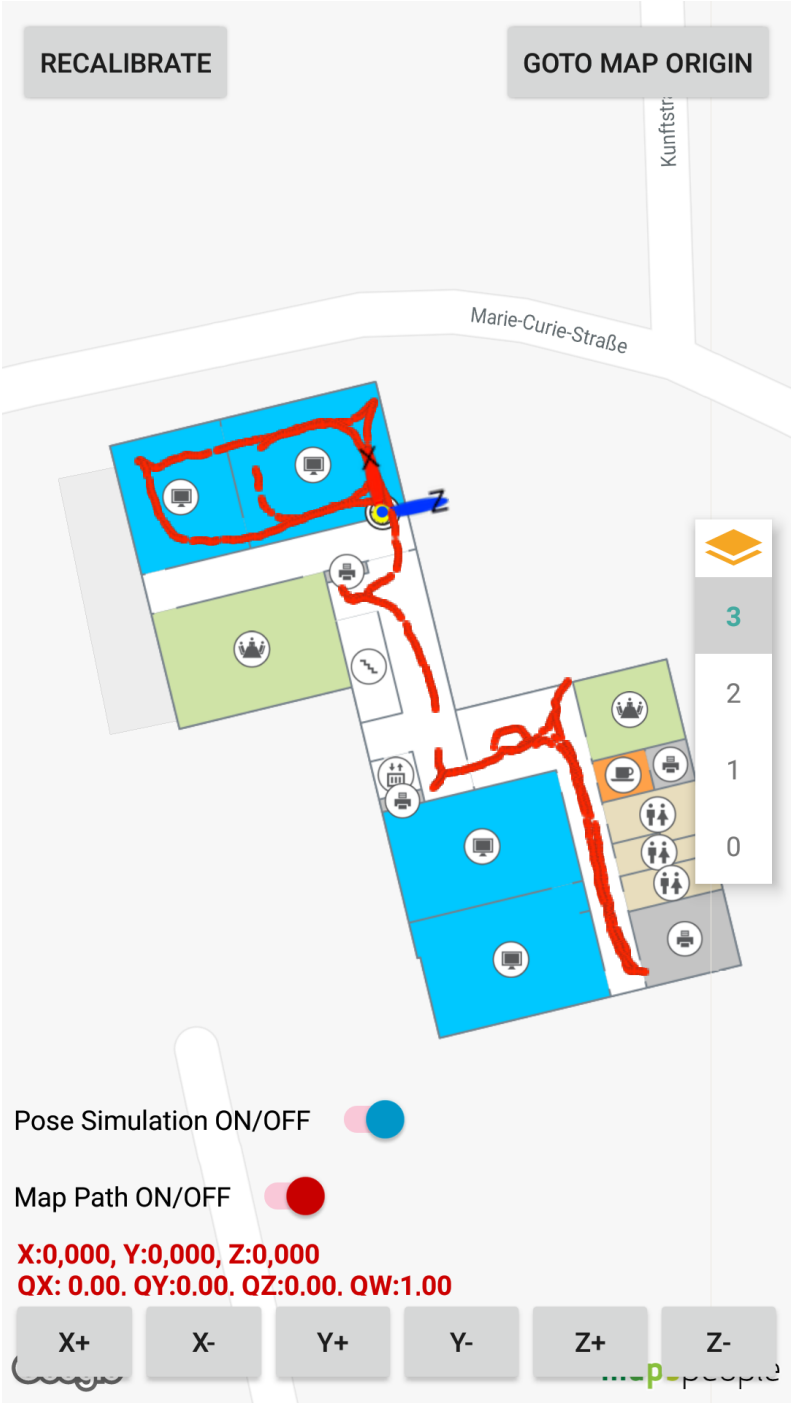

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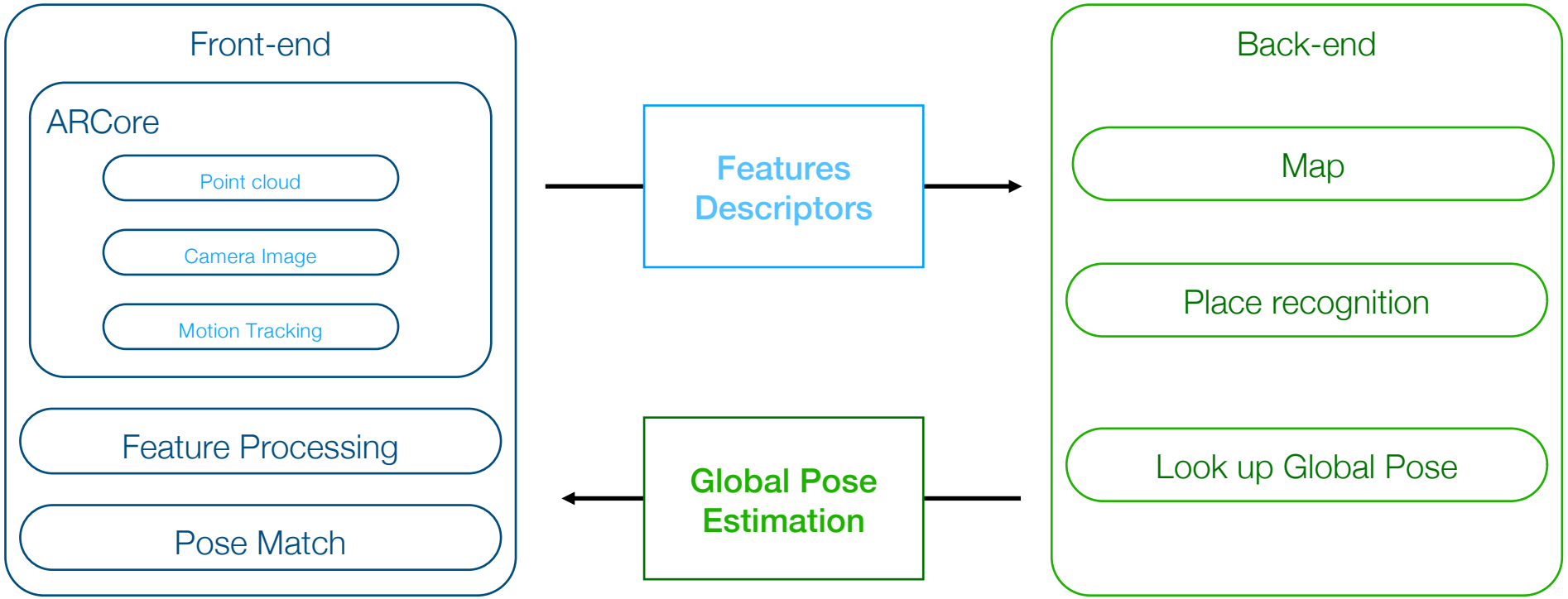
Architecture

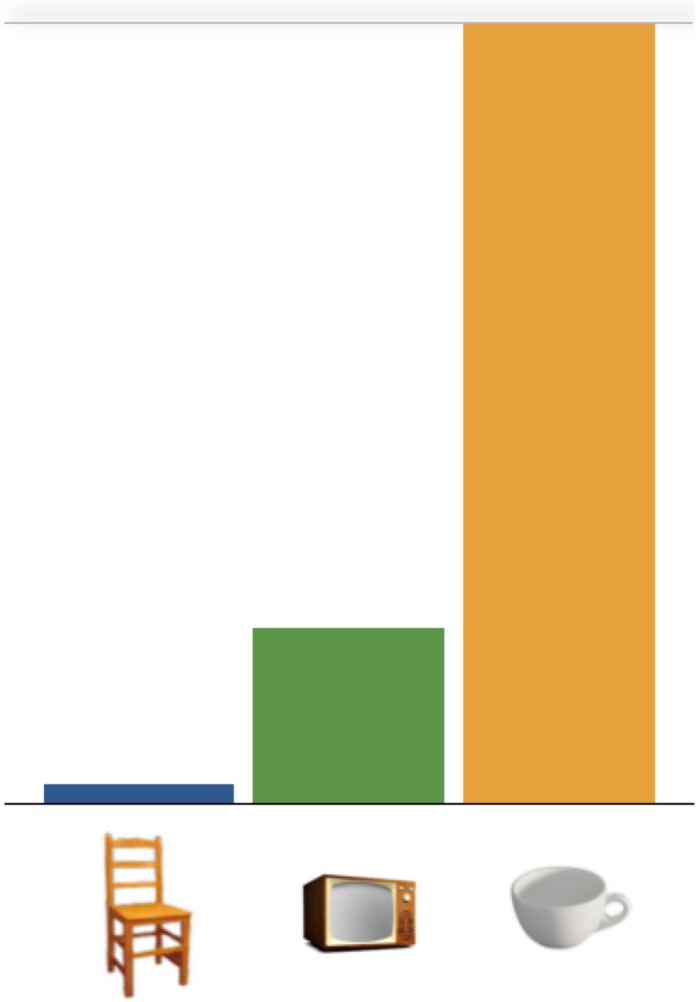


Place recognition

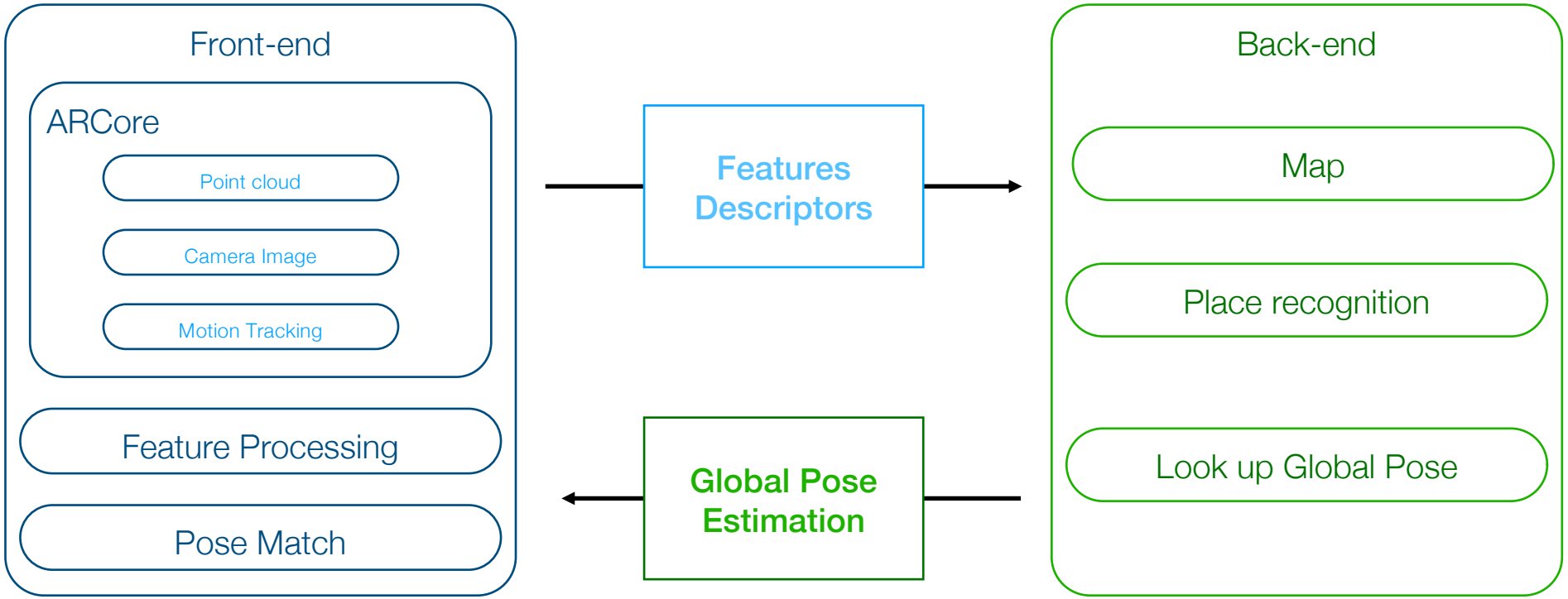
Bag of Words

Place recognition

Bag of Words



Architecture



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Demo Videos

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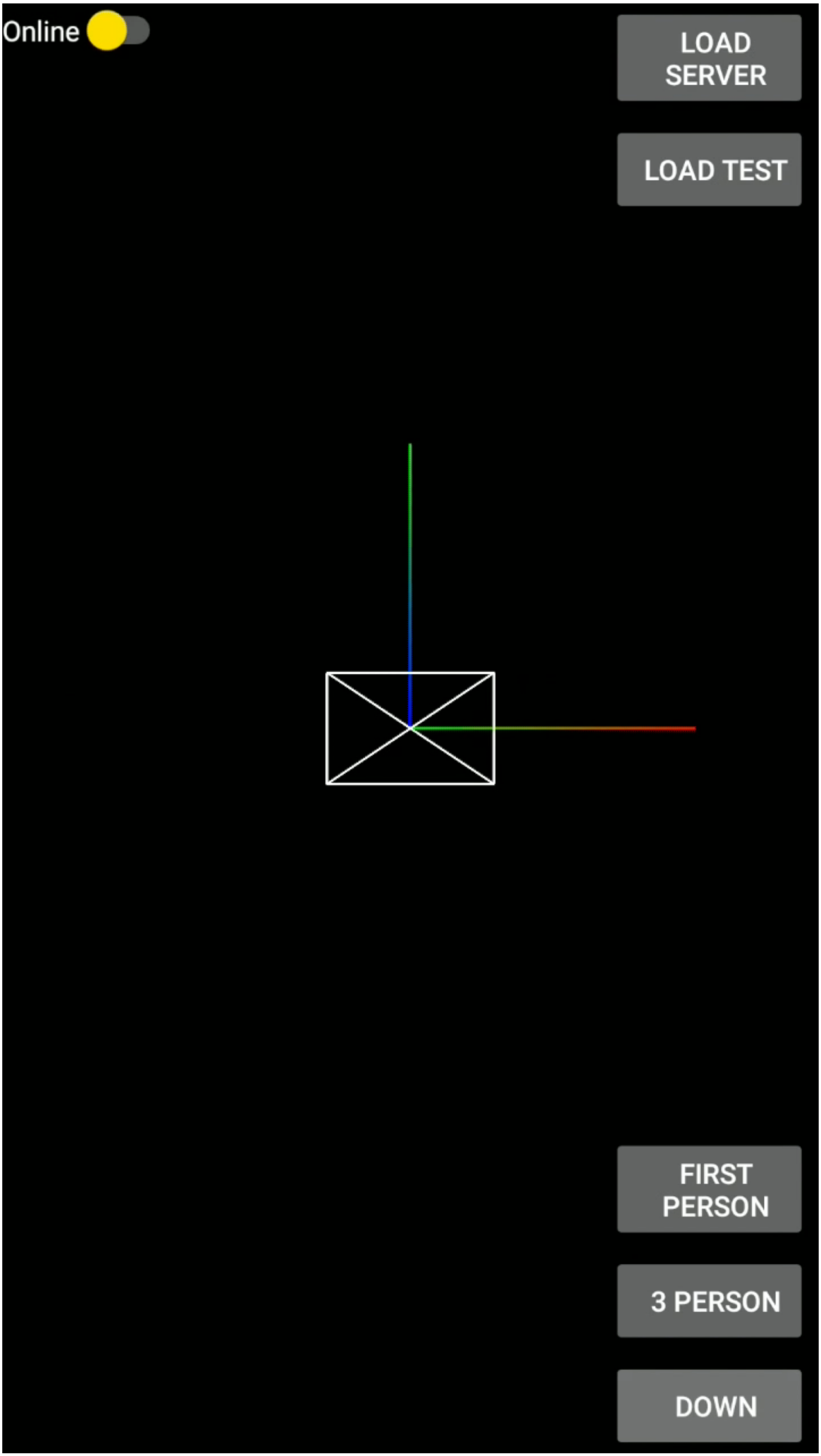

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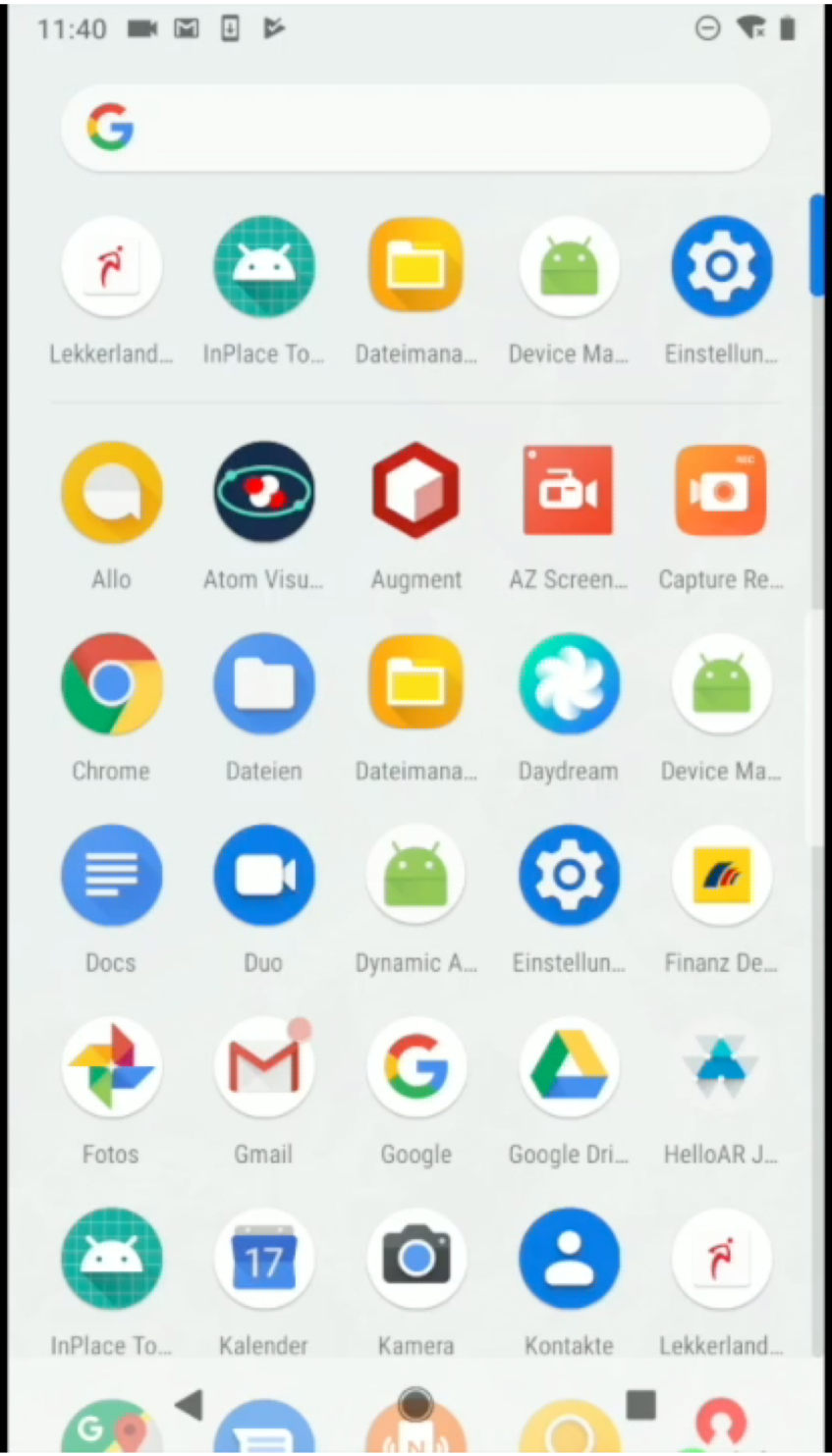
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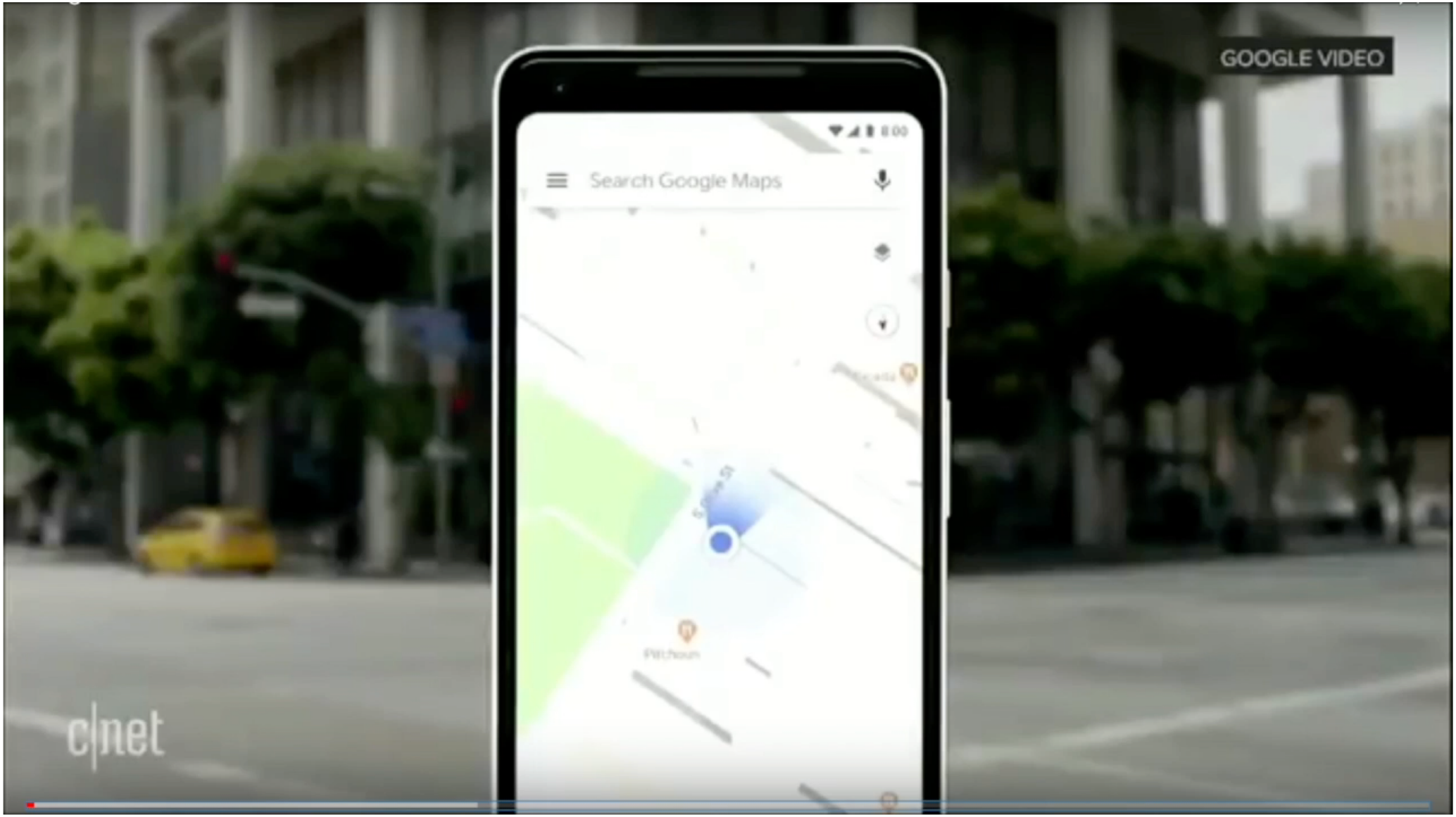

Source: Google IO 2018

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Classification Tool

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Online Mode

Learning Mode

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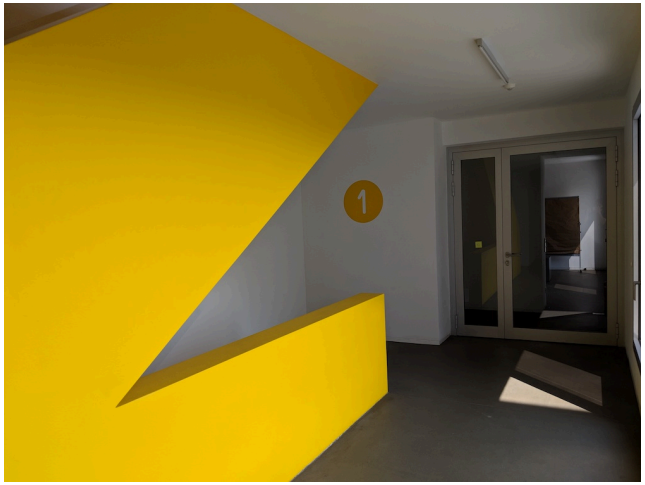
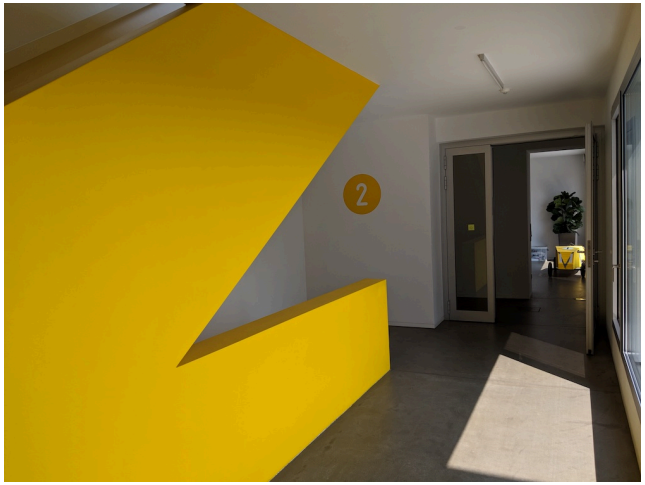
Discussion

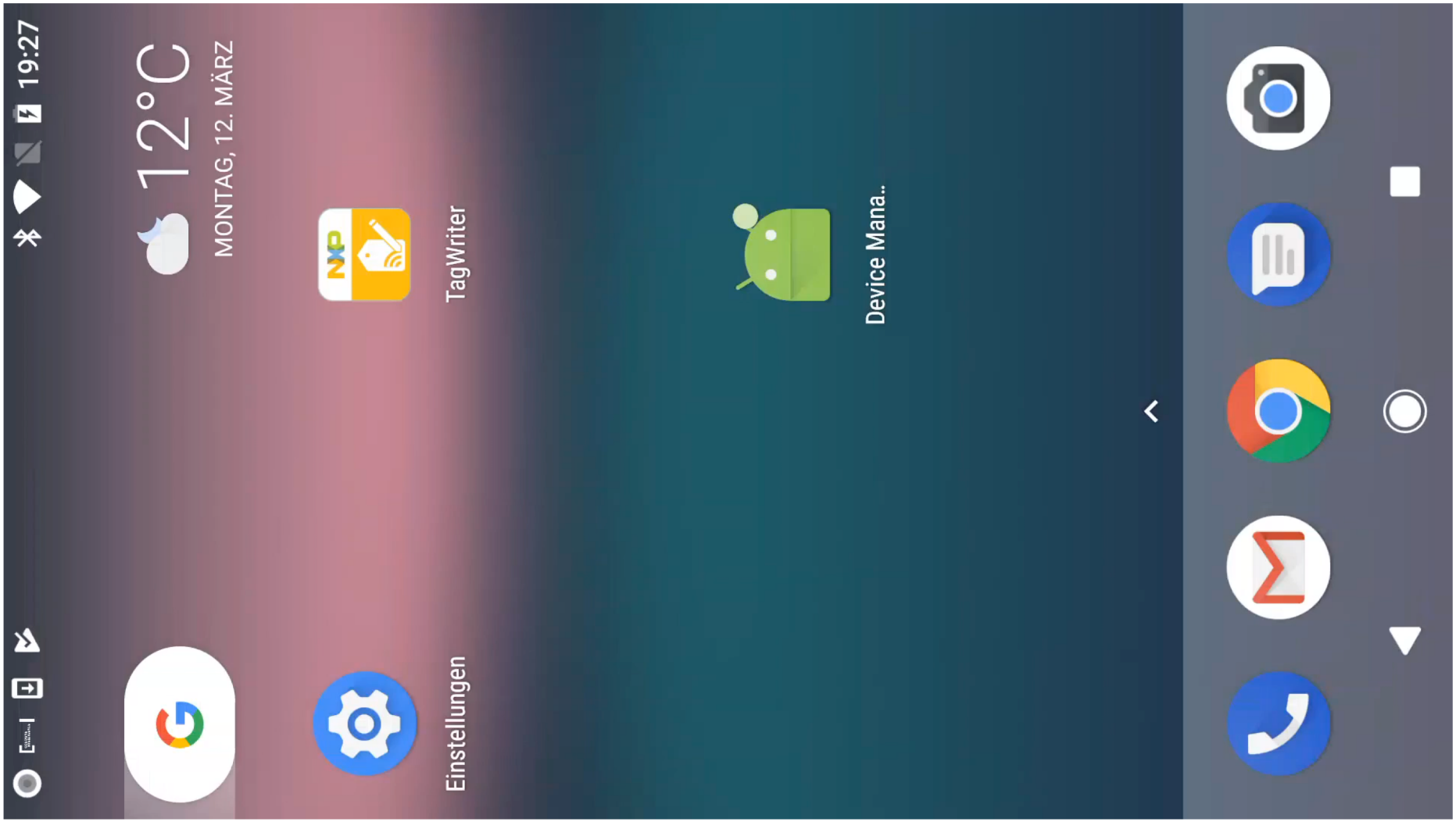
Different Perspectives

Similar places





Light conditions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