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Augmented Reality - Flavours, Challenges and Writing AR Experiences in JavaScript

Oct 2018

Philipp Nagele, CTO

wikitude
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Philipp Nagele, CTO

Previous

- Product-Manager at Verisign, USA
- Director PM at 3United (sold to VRSN)
- Product& Innovation Manager at T-Mobile

Agenda for this talk

- Building AR apps in general
- Available technology
- Context
- Cross-platform API
- Demos


ECHTE SALZBURGER
Mirabell


10:10
Search
Google Search
Google Mail
maps
Kalender
Maps
Market
Wikitude
ShopSavvy
MENU

Wikitude at a Glance

#1 independent **AR development** platform

Serving **100,000+ developers & enterprises**

25,000 apps & 1 bn installs powered by Wikitude

The Virtuality Continuum

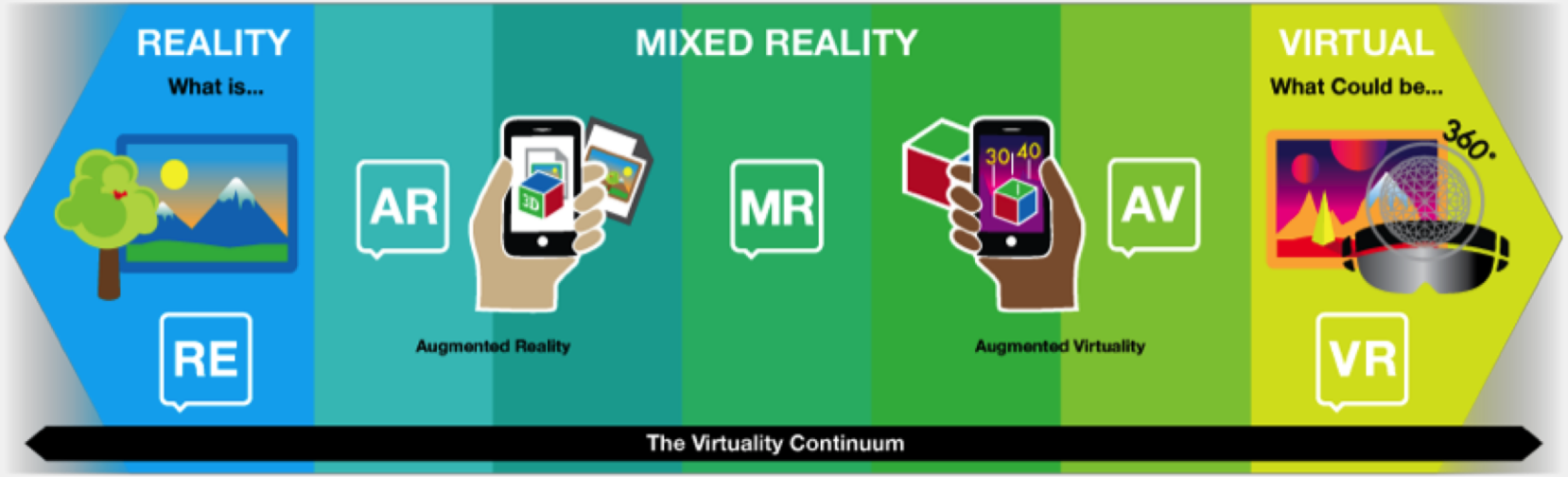


Image © 6d.ai

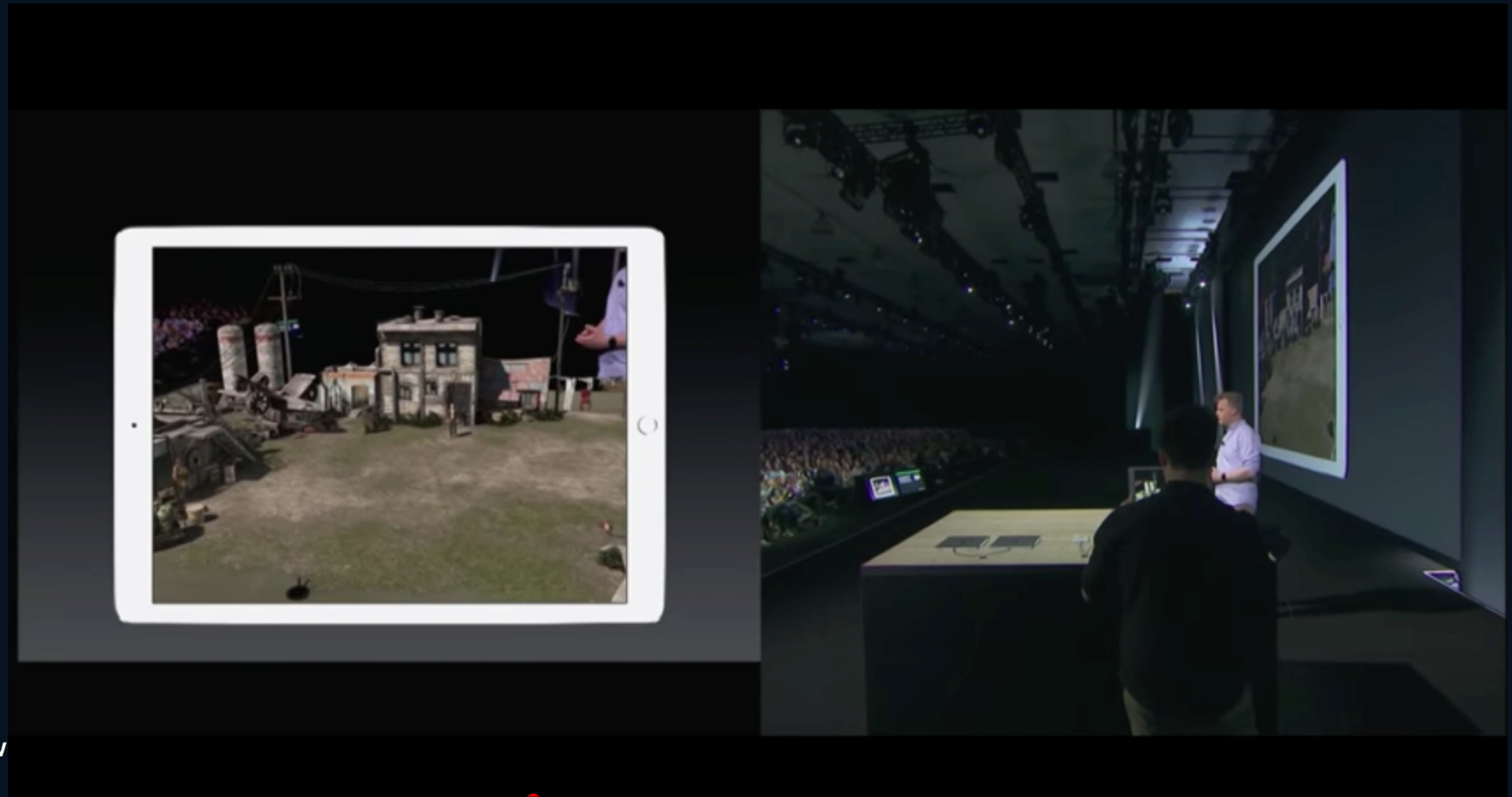
“There’s no point building an AR App unless it interacts with the physical world in some way.”

Matt Miesnieks, 6d.ai

context

set of circumstances or facts that surround a particular event, situation

Disconnect from Reality



Context delivering technologies

Geolocation
AR

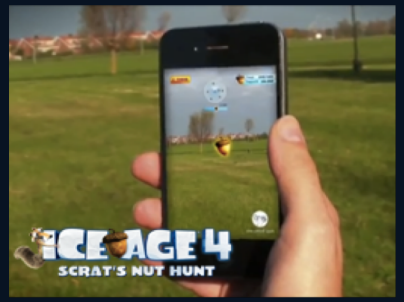
Role Model for AR Cloud

Image: © Niantic

- Globally available
- Persistent content
- Augmented Reality feature
- Social aspects
- Real-time collaboration

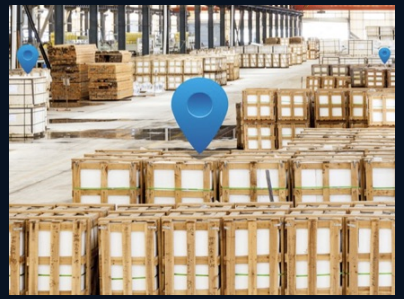
Geolocation AR

Example Video:
RecarGO | IceAge



LBS Gaming

Placing graphical 3D elements on geo-coordinates, empowering interactive, location-based gaming concepts and treasure hunts for broad retail promotions



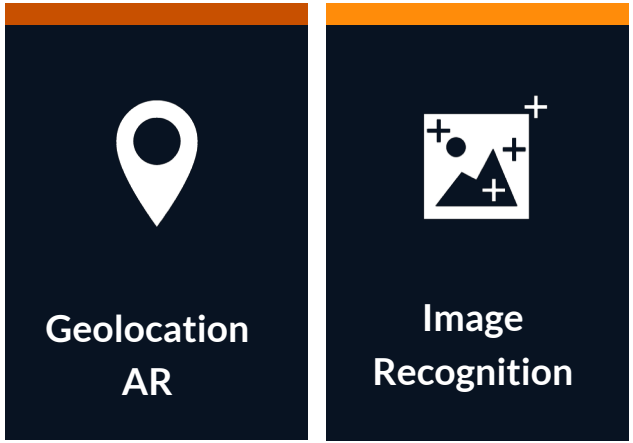
Logistics and Indoor Locations

Guide personnel dynamically through the warehouse, locate and visualize products and appliances and increase productivity in your logistics processes

Tourist Guides

Visualize Points of Interest, link landmarks to digital content sources and provide an interactive city guide to tourists and locals at the same time

Context delivering technologies



2D Image Recognition

Example Videos:
TIME Magazine | Mirage | MediaMarkt

Augmented Commerce

Interact with catalogues, brochures and flyers for a revolutionary new home-shopping experience and direct link into a mobile commerce flow

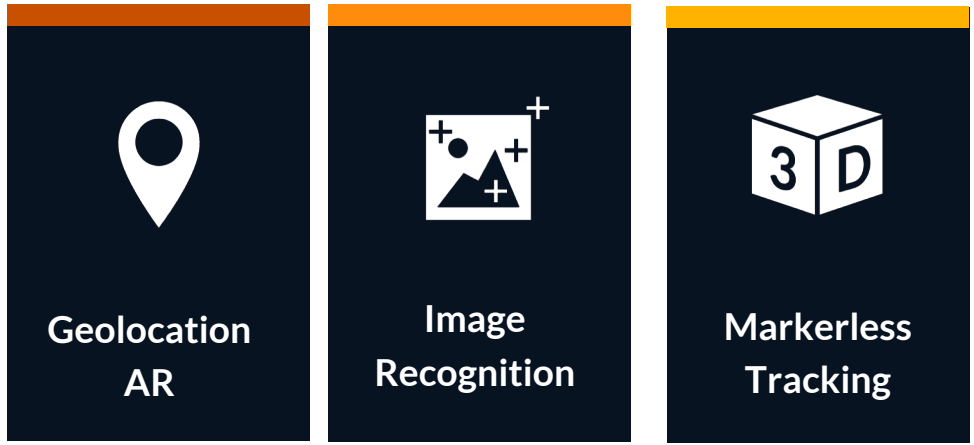
Interactive Sales

Present products and features in a new, innovative and interactive style and bring sales presentations to a brand new level

Augmented Print

Allow customers to engage with printed content in a personalized, interactive way, update content in real-time and introduce new advertisement forms

Context delivering technologies



3D Markerless AR

Example Videos:
Marvel | ScopeAR | Franklin Institute

Remote Maintenance & Work Instructions

Provide dynamic step-by-step guides at your workplace, offer remote support through augmented live annotations and increase productivity for your workforce

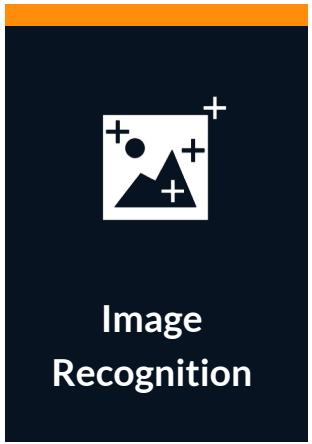
Home Planning and Decoration

Plan private or professional environments, visualize furniture and items dynamically and store your work for later use

Augmented Entertainment

Place all kind of entertainment content, game characters etc. in real life, make them interact with their surrounding and design exciting use-cases for single or multiple users.

Context delivering technologies



Object & Scene Recognition

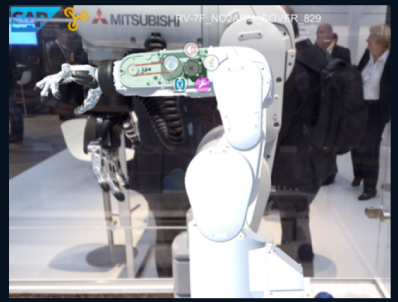
Example Videos:
CN2 | Palfinger | Disney

Documentation & Instructions

Link multi-language documentation to a physical object, display a personalized set of data and enable dynamic guides and instructions

Interactive Toys

Connect toys to a mobile companion application, interact / fight / engage with your favorite toy and create a revolutionary new playing experience.

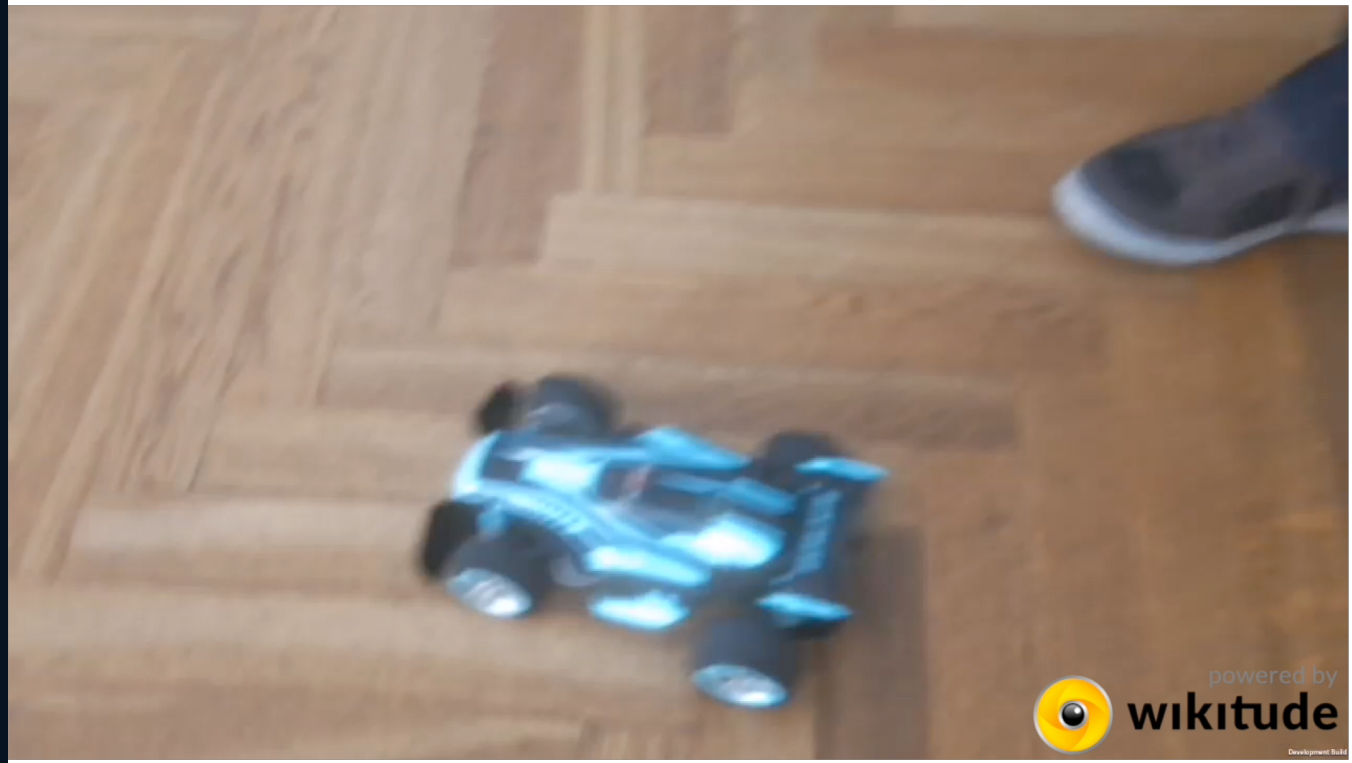


Internet Of Things and Live Monitoring

Show IoT and Monitoring Data in real-time, link sensor-data with advanced visualization and create dynamic guidelines for problem analysis and resolution

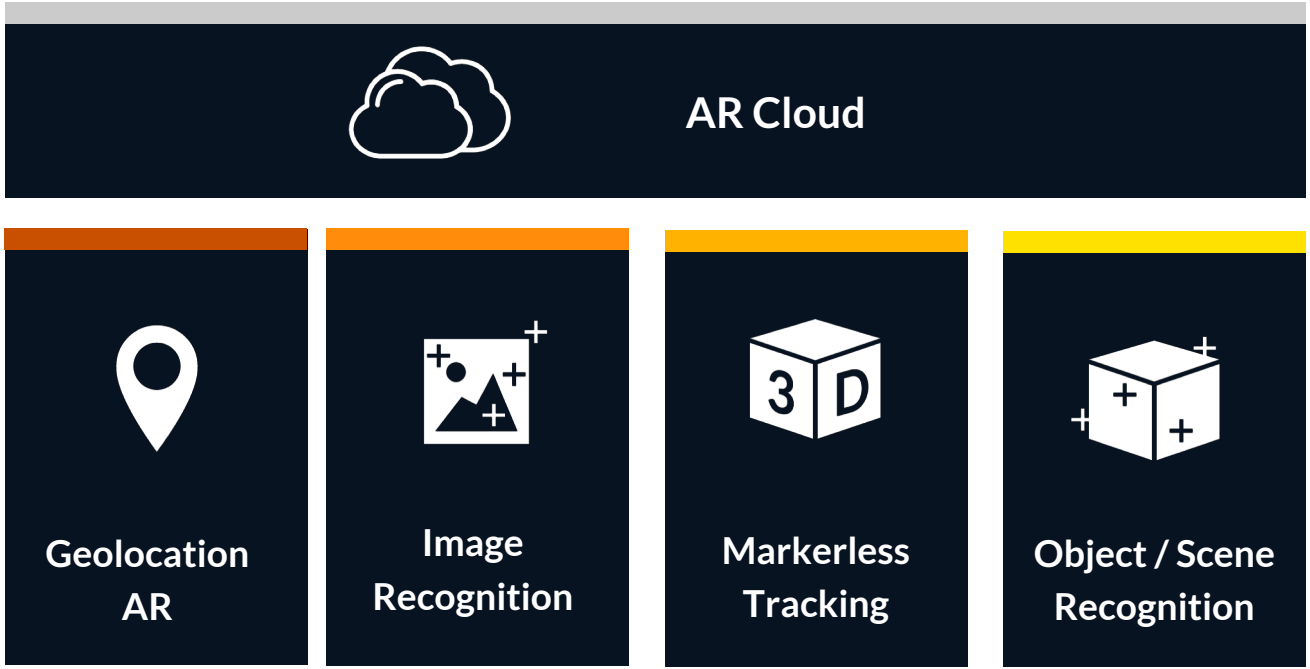
Applied Object Recognition

Effect built using Unity



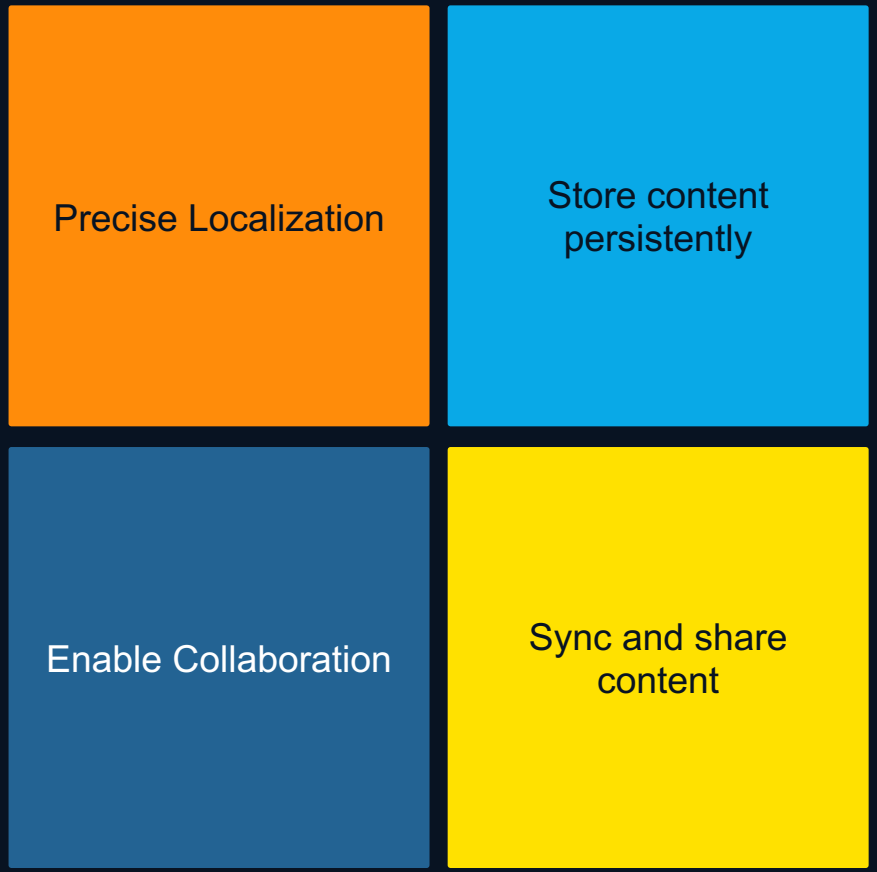
Object Tracking Video

Context delivering technologies



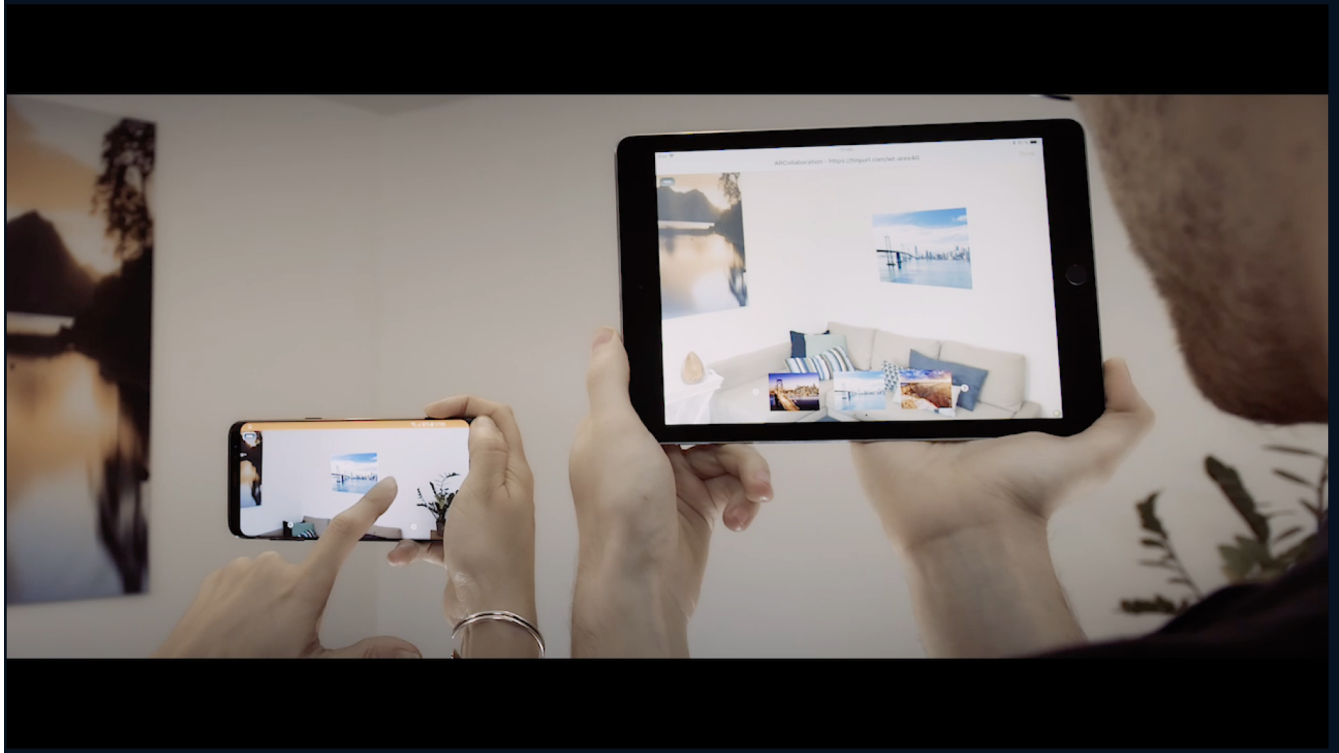
Definition and Promise of AR Cloud

AR Cloud is a localization service that works indoor and outdoor globally based on visual information with high precision and allows to share AR experiences with other users in real-time across any AR device


Precise Localization
Store content persistently
Enable Collaboration
Sync and share content

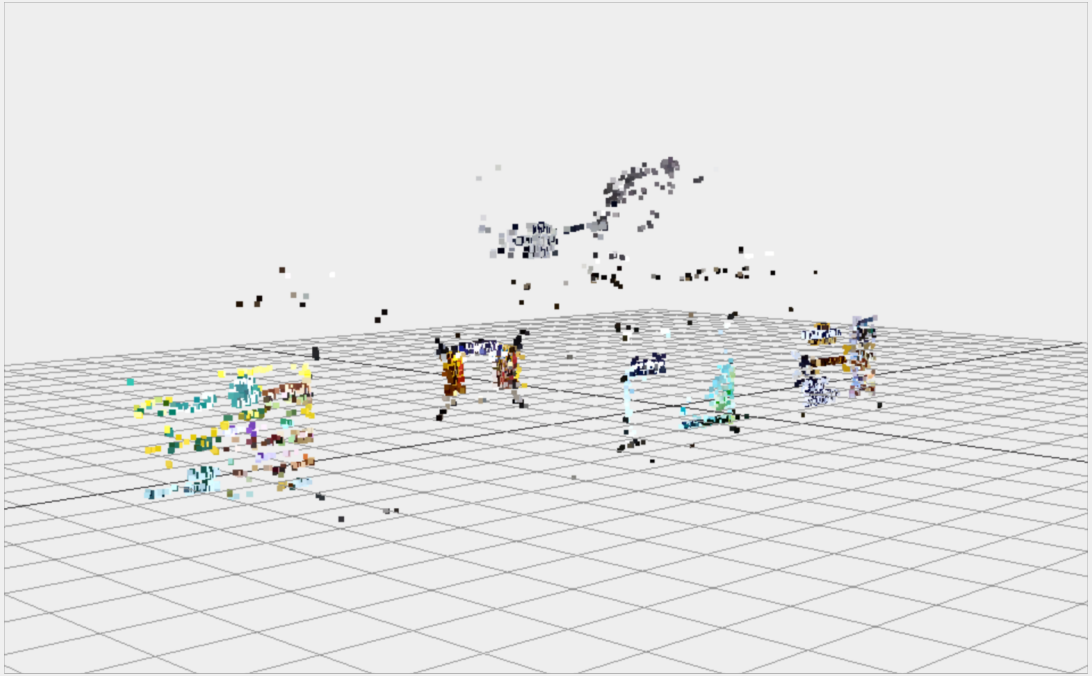
Wikitude AR Cloud Demo#2

* Live demo use-cases based on Wikitude SDK 8 (GA Q2’18)

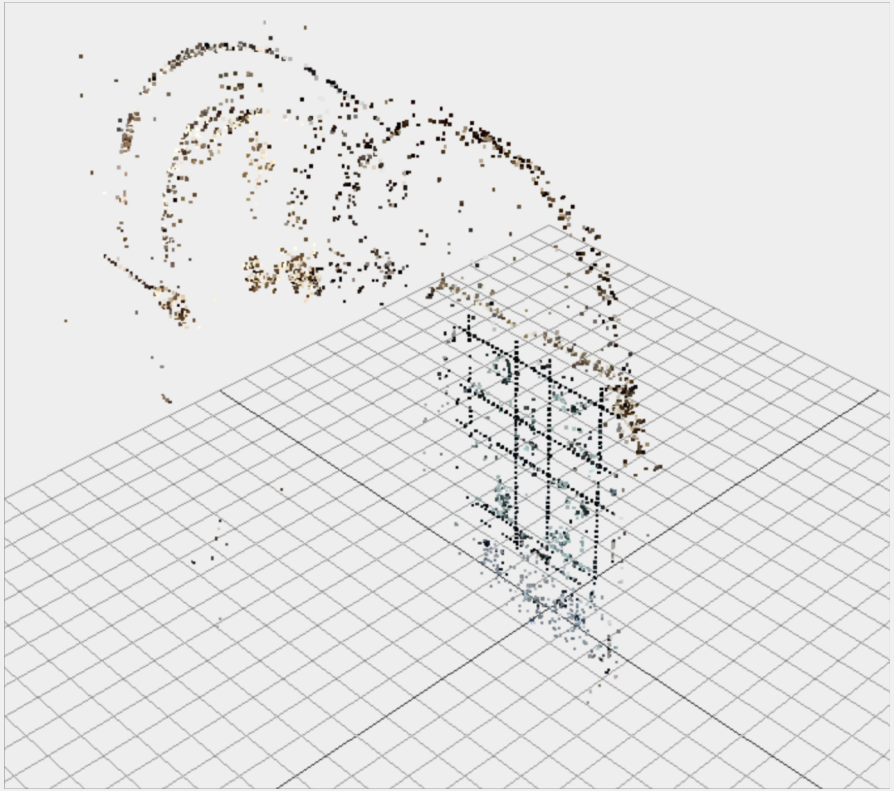


AR Cloud Demo Video

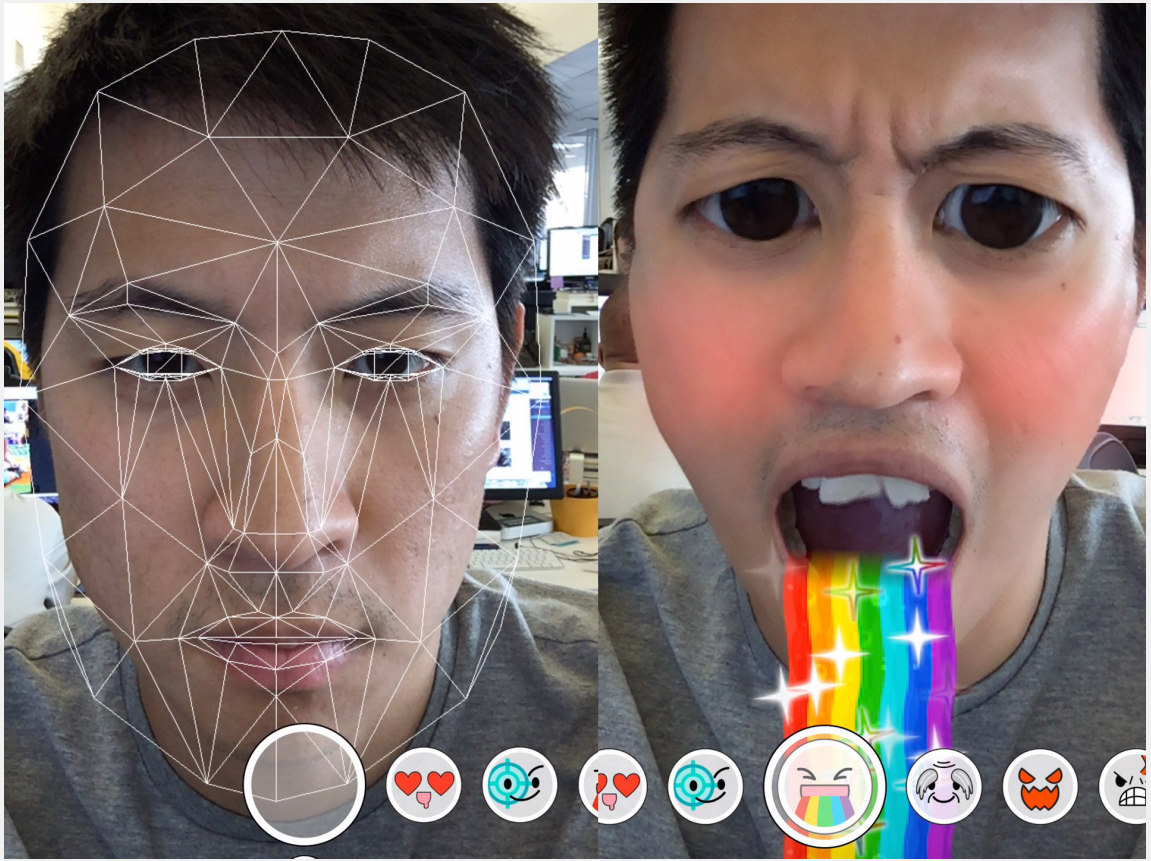
Metro Station



Church Portal

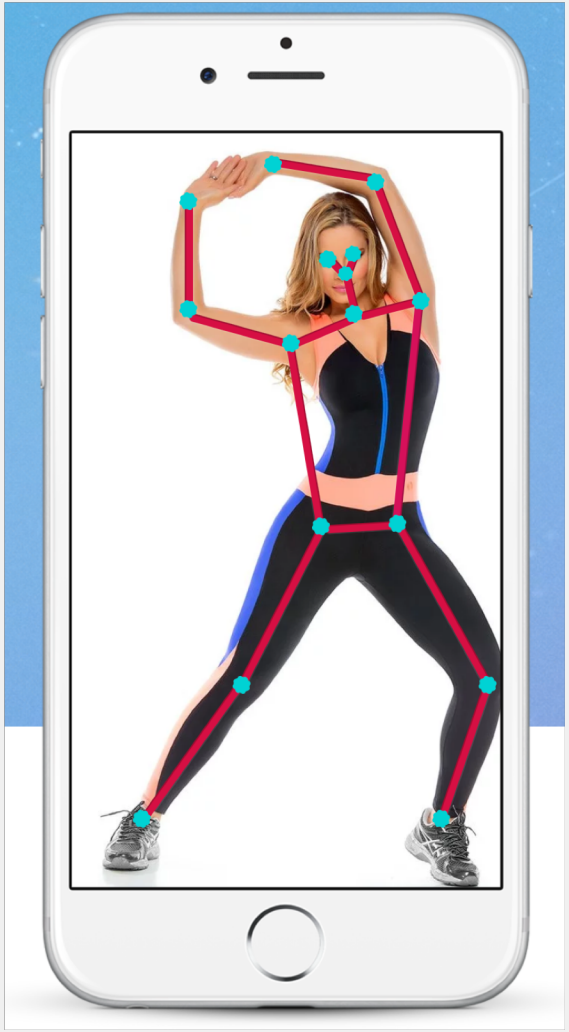


Accurate Face Detection

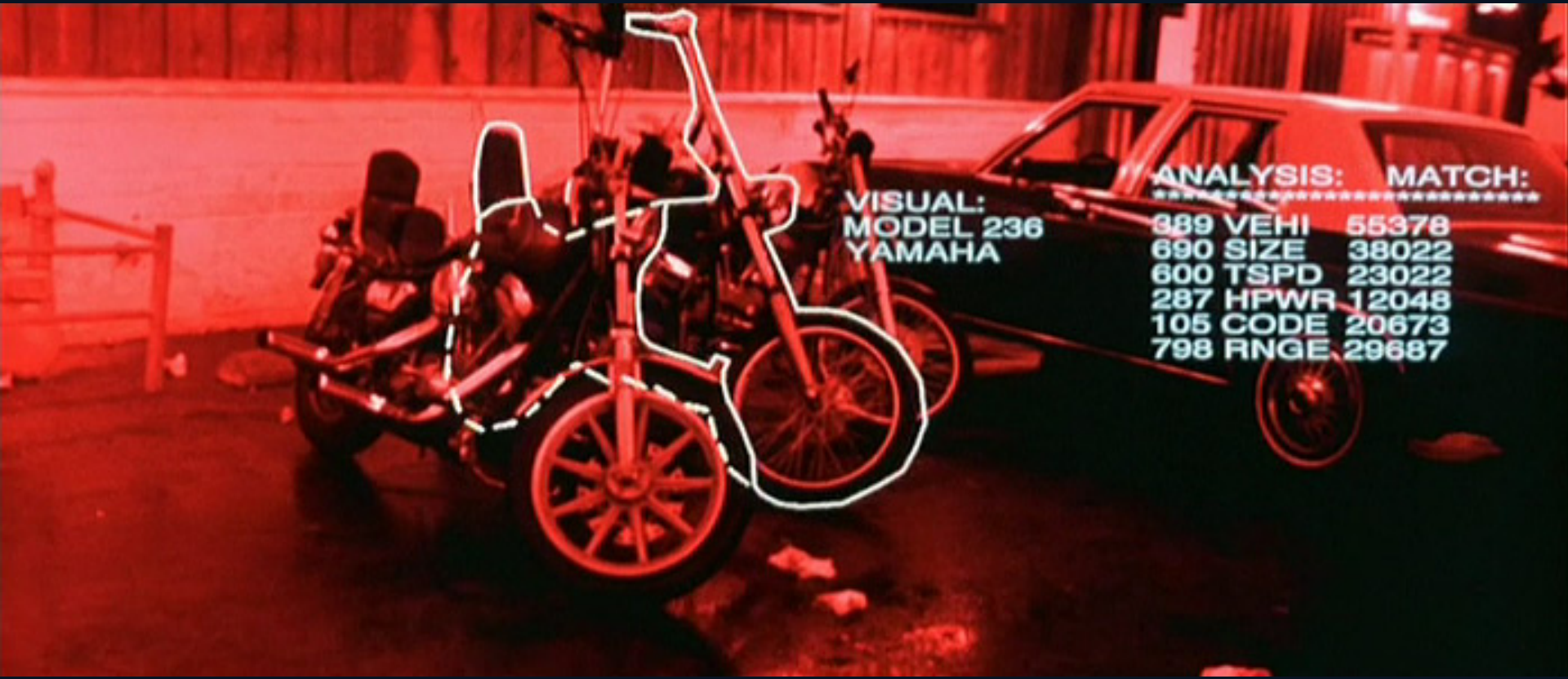


Source: © Business Insider Will Wei - http://www.businessinsider.com/new-snapchat-selfie-filters-2015-9

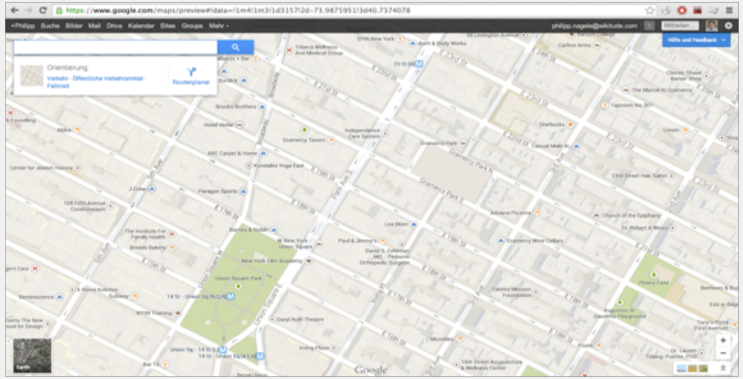
Body Tracking



Source: © Poze

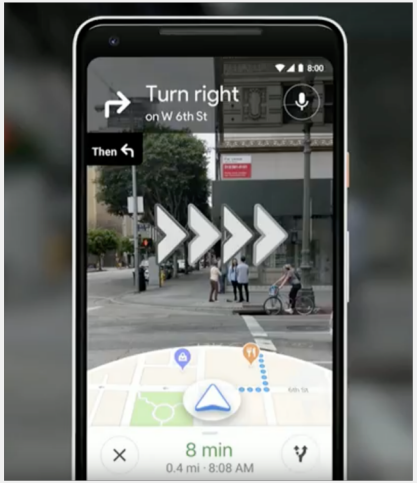

VISUAL:
MODEL 236
YAMAHA
ANALYSIS: MATCH:
389 VEHI 55378
690 SIZE 38022
600 TSPD 23022
287 HPWR 12048
105 CODE 20673
798 RNGE 29687

Desktop

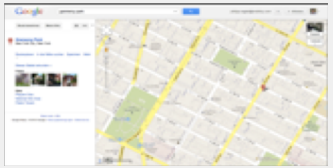


Mobile

Augmented Reality

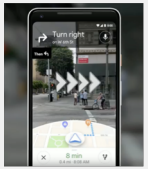


Desktop



Mobile

Augmented Reality



Information Density

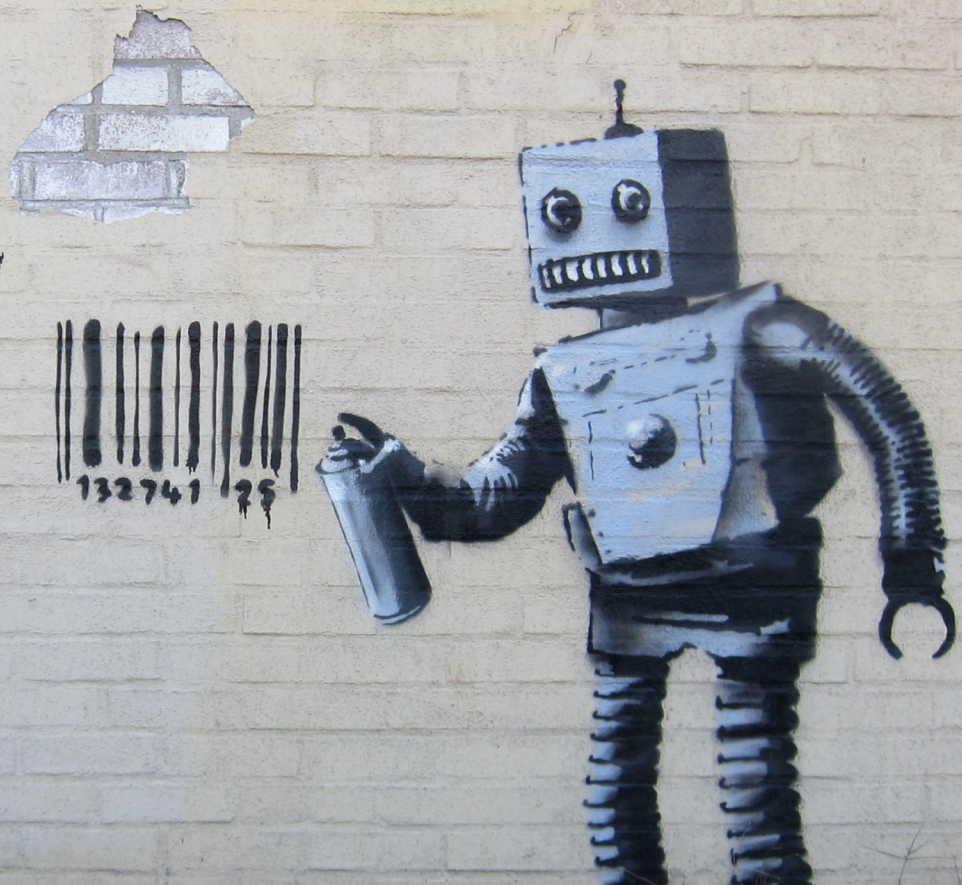
+

Context

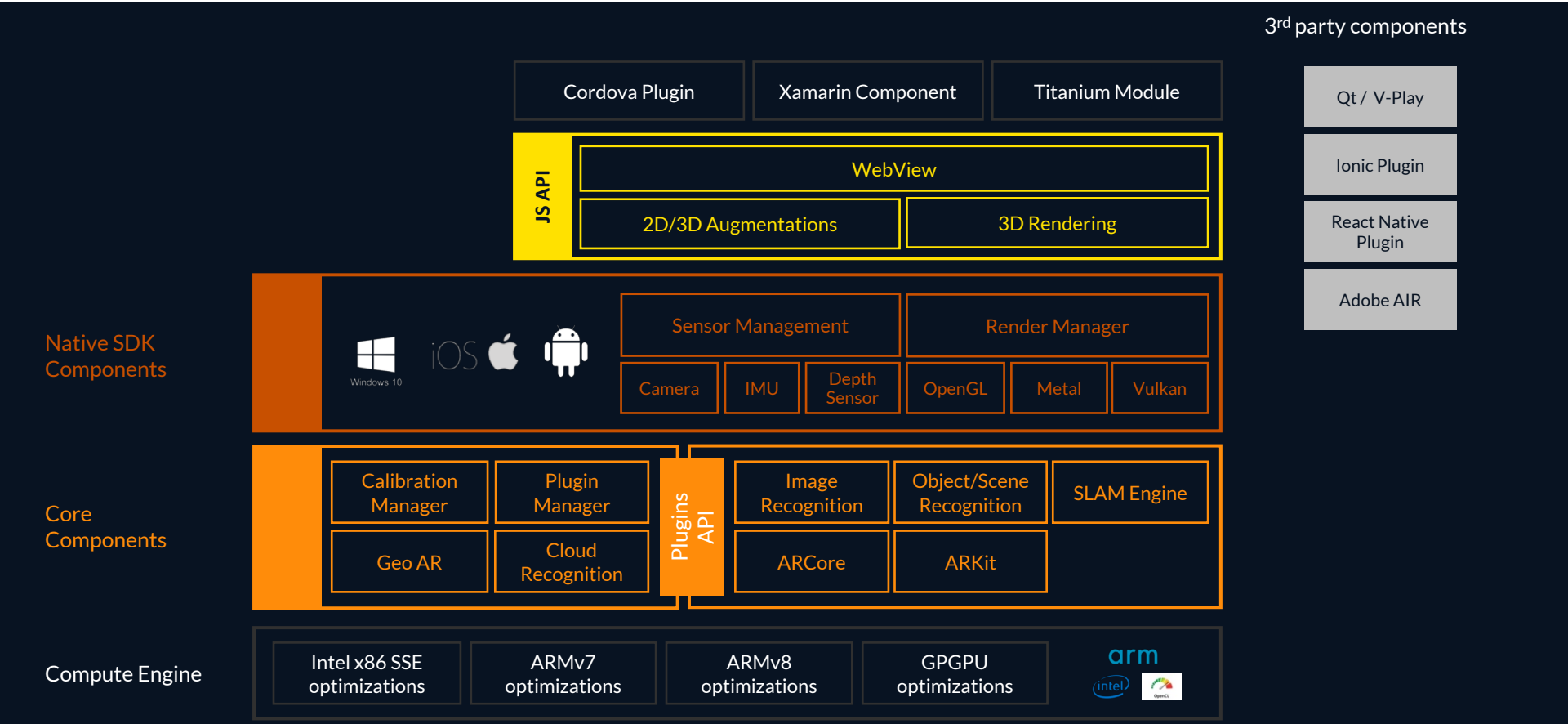
=

Relevance

Part II
Cross-platform AR experiences



Wikitude Platform Architecture 2018

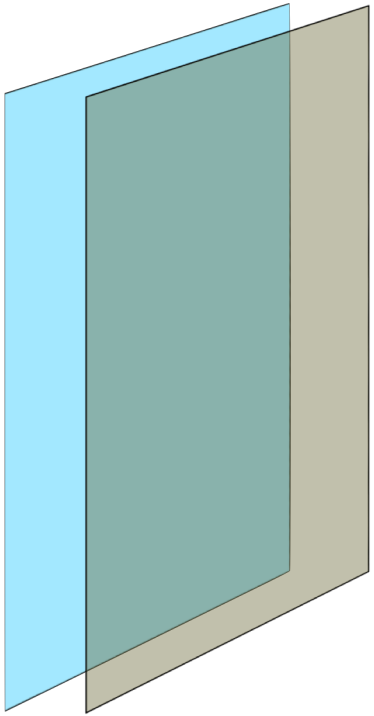


Advantages using a JavaScript Content API

- Regular development process as known from website development
- Runs cross-platform
- Can be hosted anywhere – own CDN, own servers
- Hot-deployable – changes for the experience don’t require updates of the app itself (no appstore review cycle)
- Existing JavaScript frameworks or tools can be used as well

Architect view composition

OpenGL ES view
* Renders camera stream
* Renders augmentations



Web view
* Loads main .html file
* Transparent background

JavaScript Augmented Reality Experience

Architect Worlds consist of:

- *.html* **file(s)**
- *.js* **file(s)**
- *.css* **file(s)**

- **Defines your augmented reality experience**
- **Use the Wikitude JS API provided within the Architect view context**

```
<script src="https://wikitude.com/libs/architect.js"></script>
```

- **Loaded by the Wikitude SDKs Architect view**

Architect world

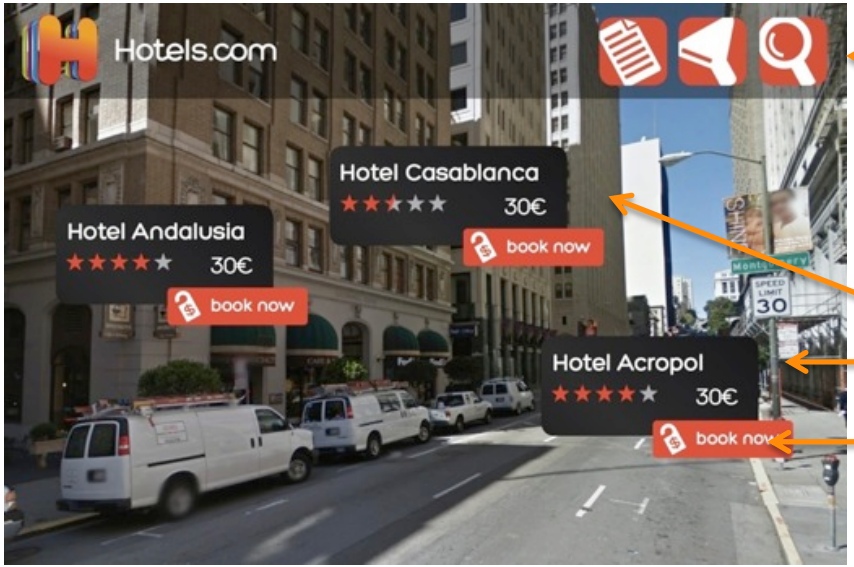
Javascript execution triggers actions in the underlying C++ layer

Types of augmentations

Augmentations are represented by *AR.Drawable* subclasses

- **Images -** *AR.ImageResource / AR.ImageDrawable*
- **Videos (also with alpha channel) -** *AR.VideoDrawable*
- **3D models -** *AR.Model*
- **Web views -** *AR.HTMLDrawable*
- **Labels** - *AR.Label*

GeoObjects & HTML content



Web View

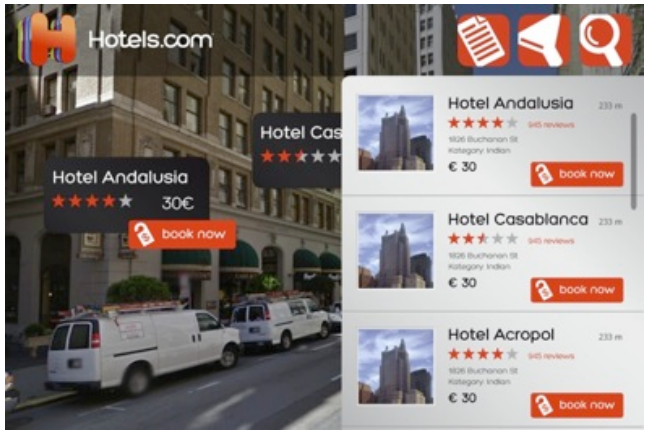
Menu bar
Any JS library support

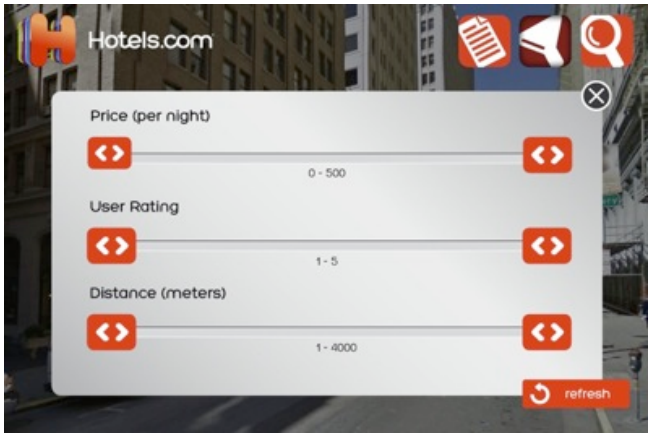
Augmented Reality View

Geo-located POIs

Multiple Drawables
- 3 images
- 3 text labels

Support for 3rd party JavaScript libraries





wikitude
See more.

Basic Example

wikitude
See more.

Thank you!

Please

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