VRDC

Augmented Reality 2.0: Developing experiences for Google Tango and beyond

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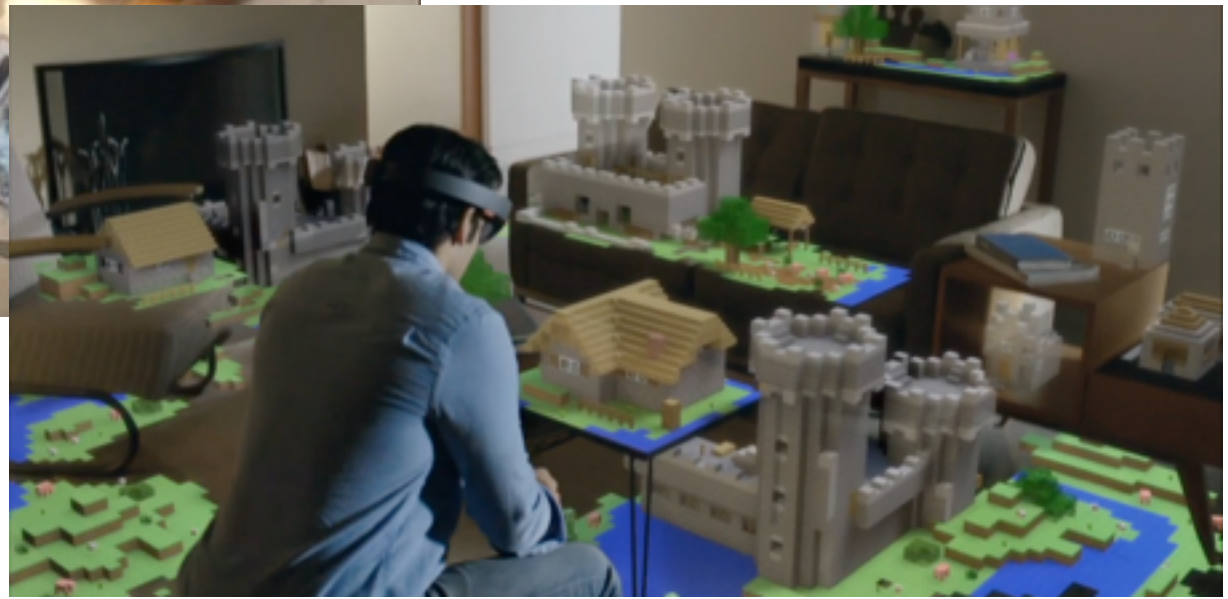
FLARB


EtherDrift


INN A.R WARS


Card Profile
Scope On
Back



vuforia™

by Qualcomm


Ether
Drift


CATBOT STINGER


CATBOT STINGER

Image Target Restrictions

- Recognition time vs tracking time
- Number of simultaneous image targets
- Lighting can confuse recognizer
- Total number of local image targets

50-100


TEKKEN
PLAY WITH YOUR SKYLANDERS®
THROUGH AUGMENTED REALITY

AR 2.0: The Next Generation

Elements of AR 2.0

- SLAM
  - Localization
- Depth Mapping
  - Occlusion

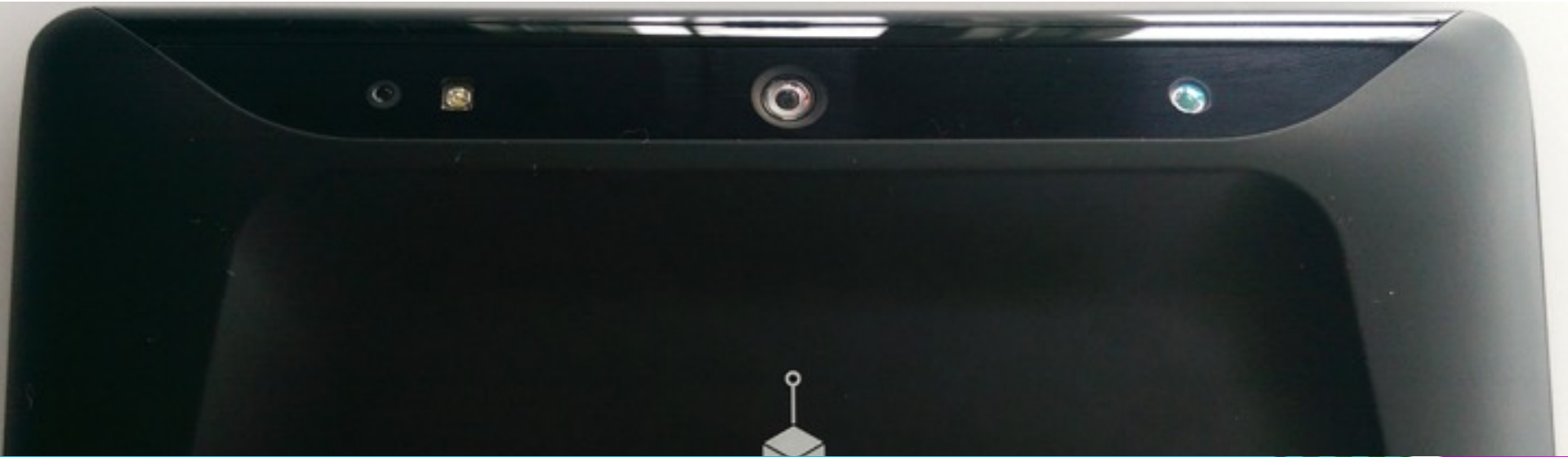
Simultaneous Localization and Mapping

- Creating a map while simultaneously tracking your position inside it
- Originally developed for robotics, including the first Mars rover
- Can be done in AR 1.0, new devices have extra processing power including so-called “MVU”s to aid in processing

SLAM Limitations

- A messy room is better than a clean room
- Motion blur, lighting causes similar issues to image target recognition and tracking

Depth Camera



Depth Camera Restrictions

- Resolution is lower than color camera
  - Need to interpolate depth points
- Low frame rate
  - Must move camera very slowly when meshing
- IR doesn’t work with reflective surfaces
  - Windows, mirrors, etc.


INN A.R WARS

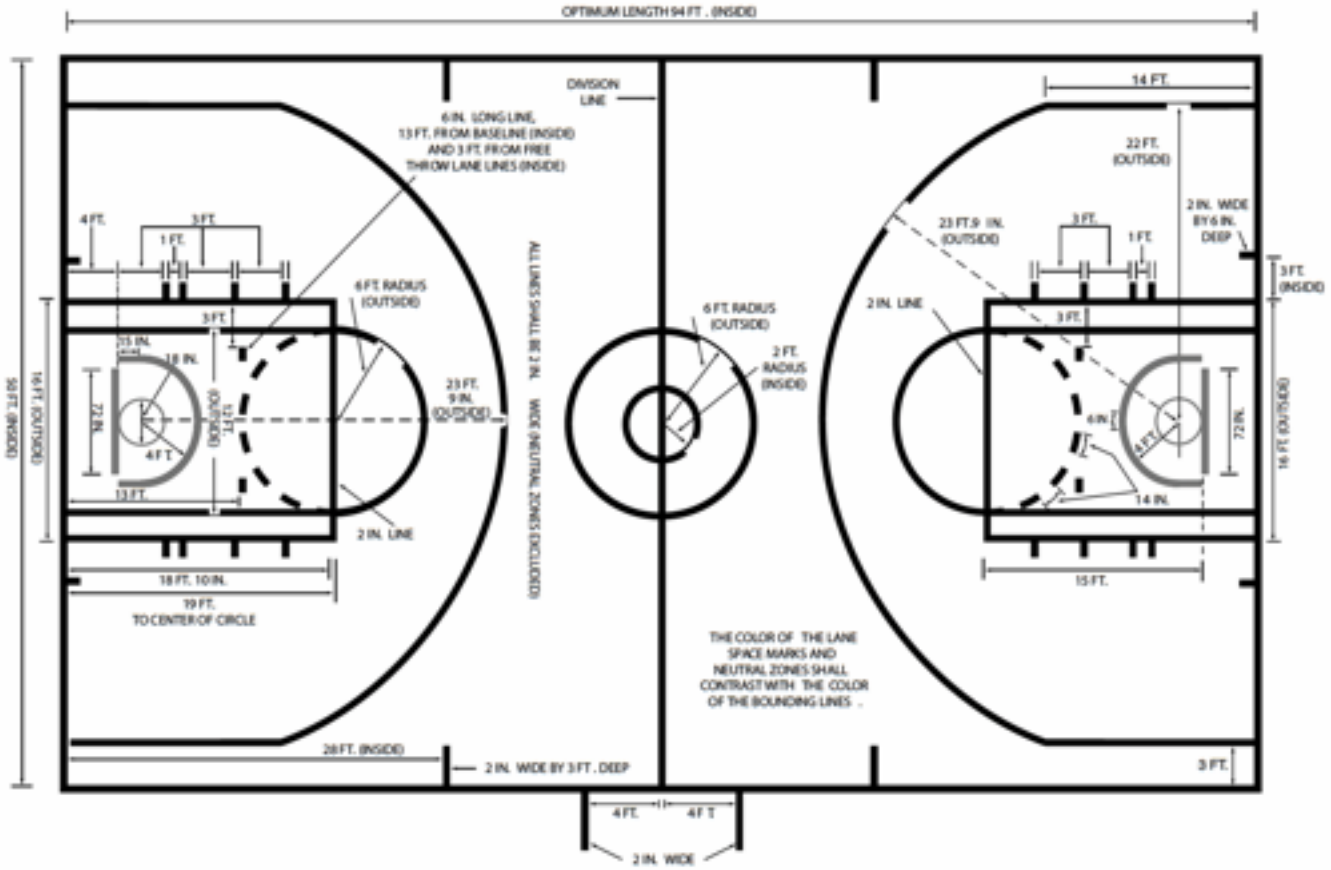
AR 2.0 features in InnAR Wars

- SLAM
  - Coordinating movement of two tablets in same space
- Depth Camera
  - Placement of objects (traps) on floor
- Persistence
  - Objects remain in world, synced between devices


INN A.R WARS
FLARB

Two Kinds of AR Games

- Defined playspace
- Arbitrary playspace


OPTIMUM LENGTH 94 FT . (INSIDE)
DIVISION LINE
6 IN. LONG LINE, 13 FT. FROM BASELINE (INSIDE) AND 3 FT. FROM FREE THROW LANE LINES (INSIDE)
ALL LINES SHALL BE 2 IN. WIDE (NEUTRAL ZONES EXCLUDED)
4 FT.
3 FT.
1 FT.
6 FT. RADIUS (OUTSIDE)
3 FT.
15 IN.
18 IN.
72 IN.
4 FT.
13 FT.
23 FT. 9 IN. (OUTSIDE)
2 IN. LINE
18 FT. 10 IN.
19 FT. TO CENTER OF CIRCLE
94 FT. (INSIDE)
14 FT. (OUTSIDE)
28 FT. (INSIDE)
2 IN. WIDE BY 3 FT . DEEP
4 FT.
4 F T
2 IN. WIDE
14 FT.
22 FT. (OUTSIDE)
23 FT.9 IN. (OUTSIDE)
2 IN. WIDE BY 6 IN. DEEP
3 FT. (INSIDE)
6 FT. RADIUS (OUTSIDE)
2 FT. RADIUS (INSIDE)
2 IN. LINE
6 IN
72 IN.
14 IN.
15 FT.
16 FT. (OUTSIDE)
THE COLOR OF THE LANE SPACE MARKS AND NEUTRAL ZONES SHALL CONTRAST WITH THE COLOR OF THE BOUNDING LINES .
3 FT.


PEOPLE UNDER THE STAIRS
DK2


Project Tango
Development Kit
NVIDIA TEGRA

Next Generation Platforms


ARI
ON
Konsolifin.net

HoloLens

- Really works!
- MUCH better performance than Tango
- Real-time meshing
- High resolution meshes
- Multiple headsets in same room means no IR crosstalk?

HoloLens

- FOV Restriction
  - Postcard held at arm’s length
- Fundamental problem with physics
- FOV is still better than competing devices

Current AR 2.0 Design Restrictions

- Playfield needs to be filled with trackable features
- Have to make assumptions about play space
- What do I know?

Thanks!

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- Special thanks of Paracosm for the video (paracosm.io)