

Augmented Reality: What, how and why?

Presented in reduced reality by António Lima

Disclaimer

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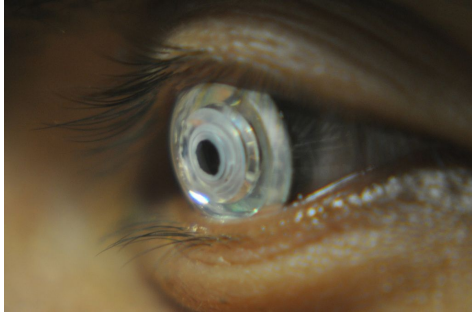
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Let's get serious.

Let's play a game.



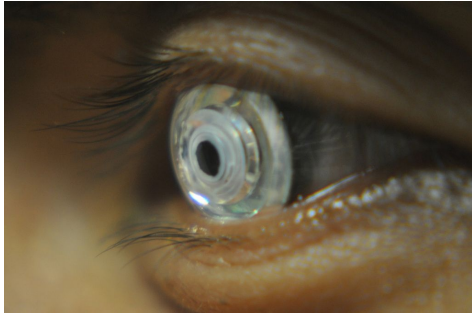
Which of these are AR? Why (not)?

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Telescopic contact lenses

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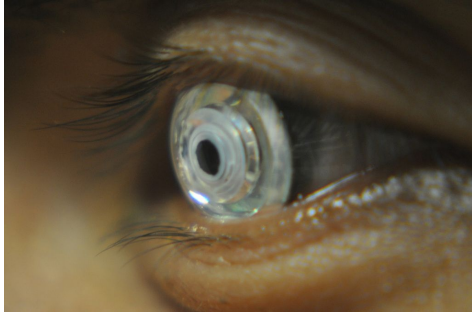


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Projection on pool table

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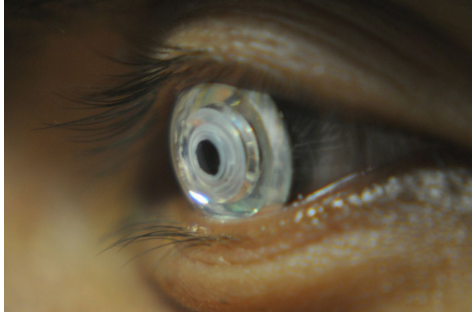


Projection on pool table



Parking assistant

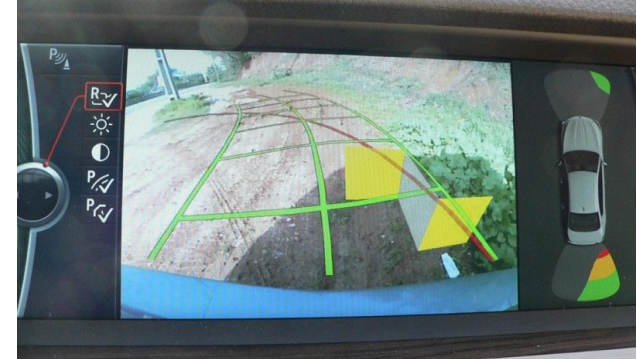
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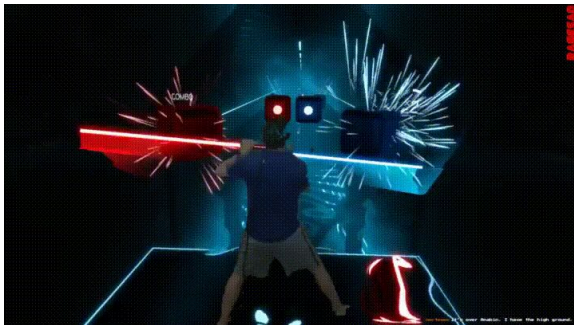
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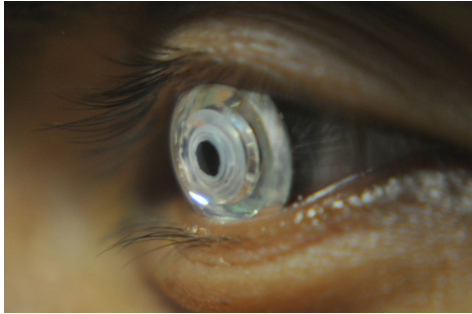


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Beat Saber

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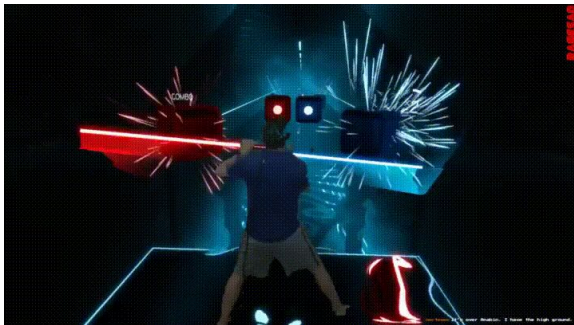
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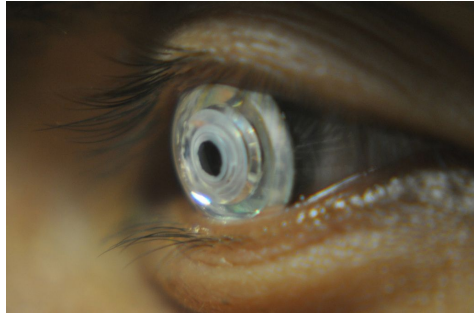


Beat Saber



Snapchat Spectacles

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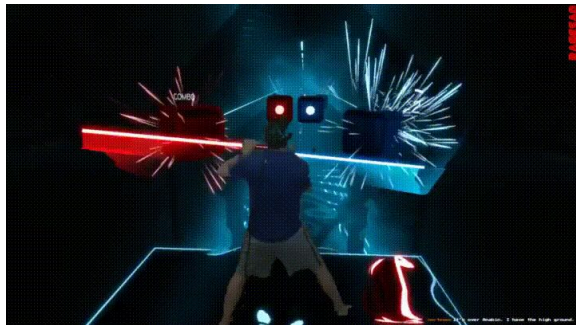
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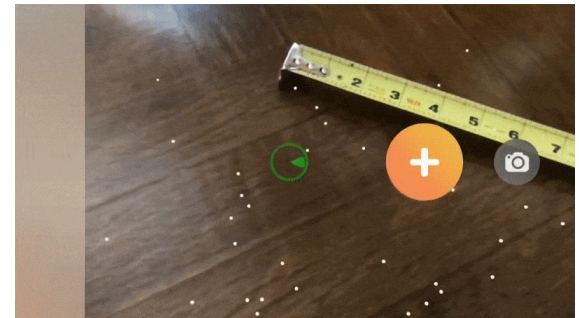
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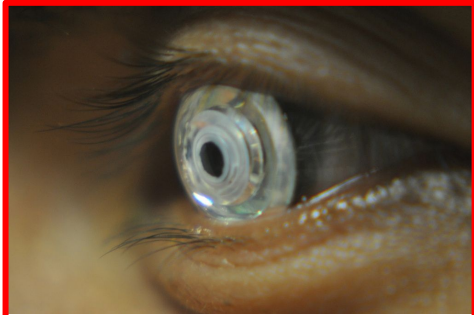


Measuring App

Think you got everything right?

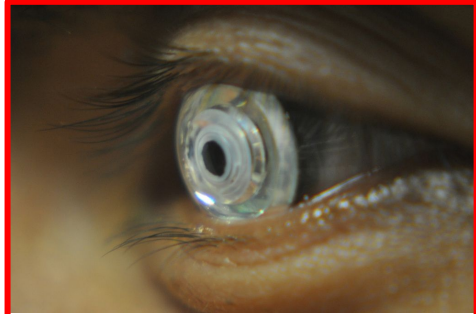


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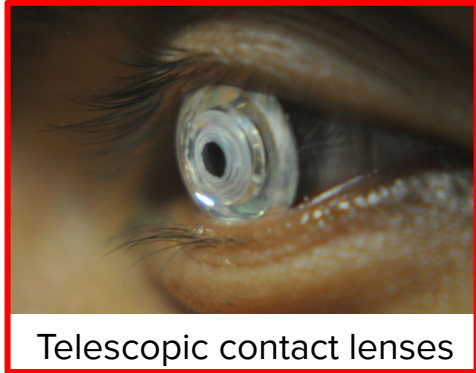


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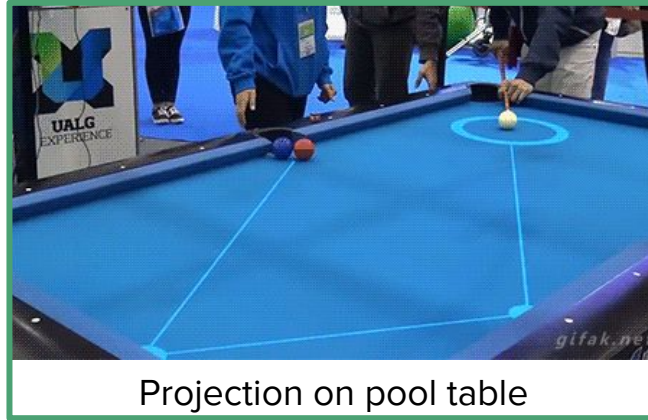


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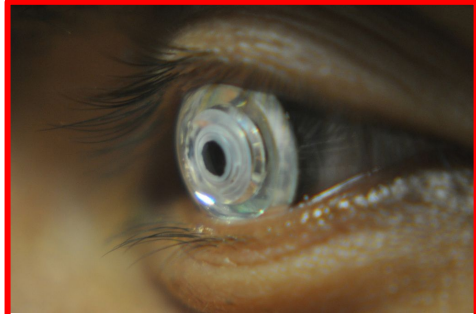


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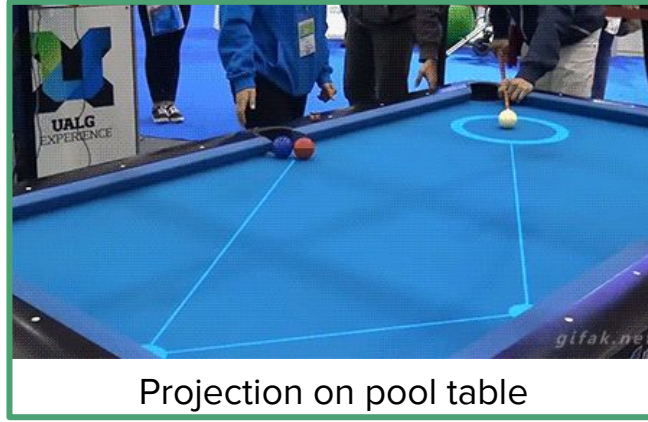


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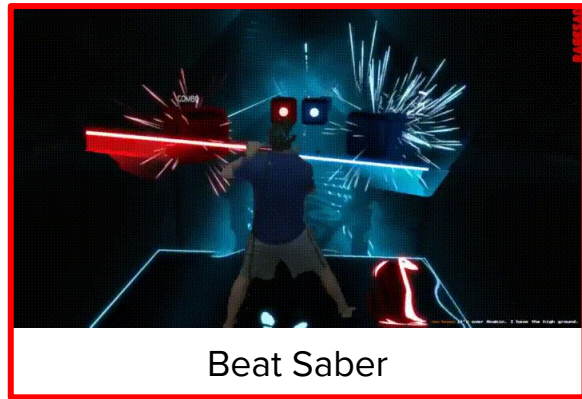
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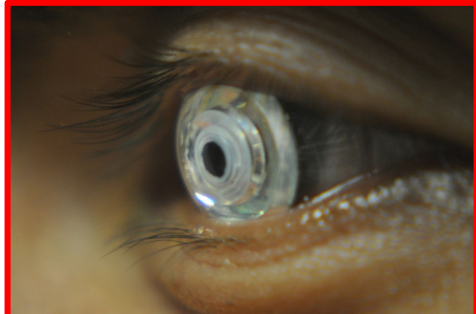


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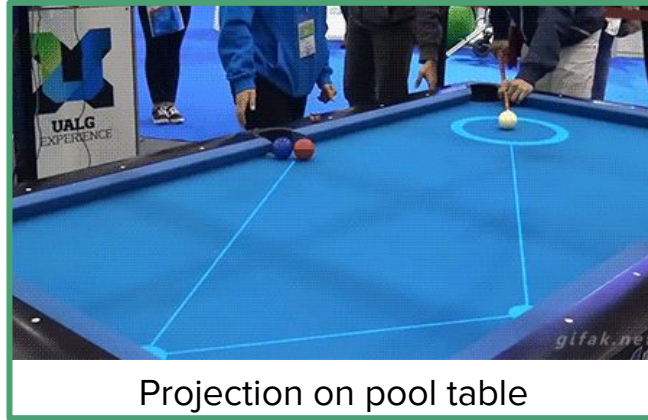


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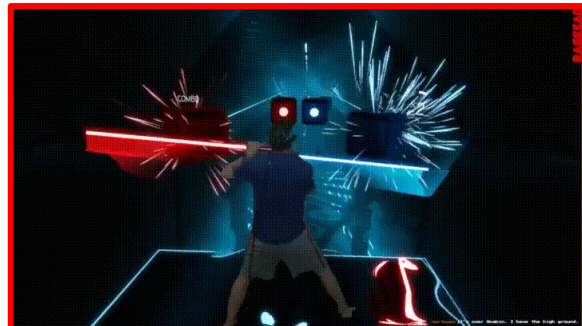
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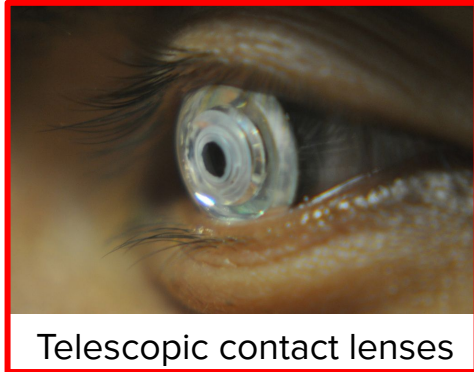


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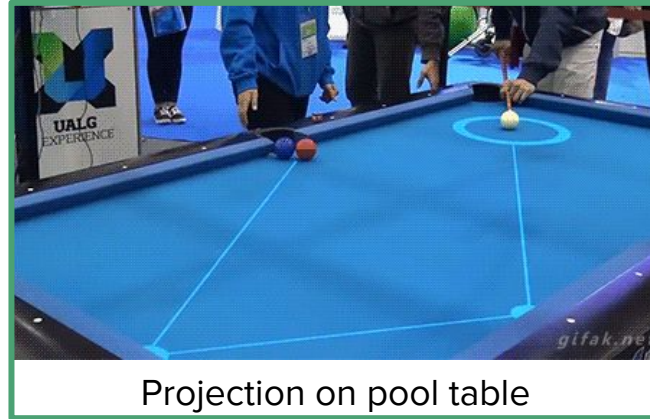


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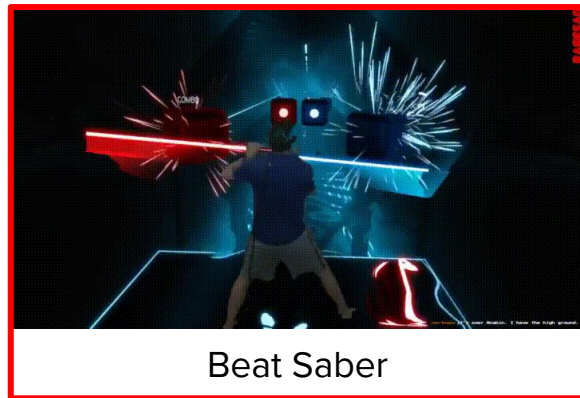
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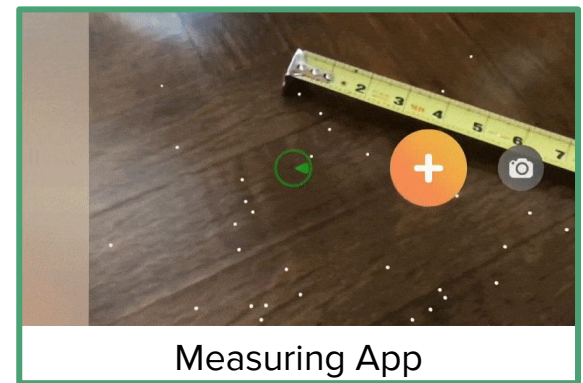
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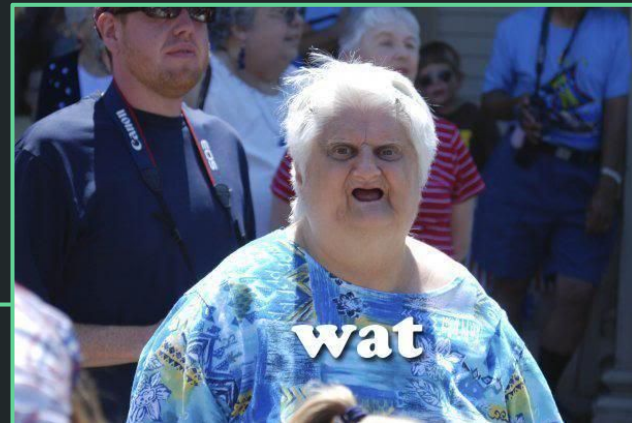


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Measuring App

Augmented Reality: What?



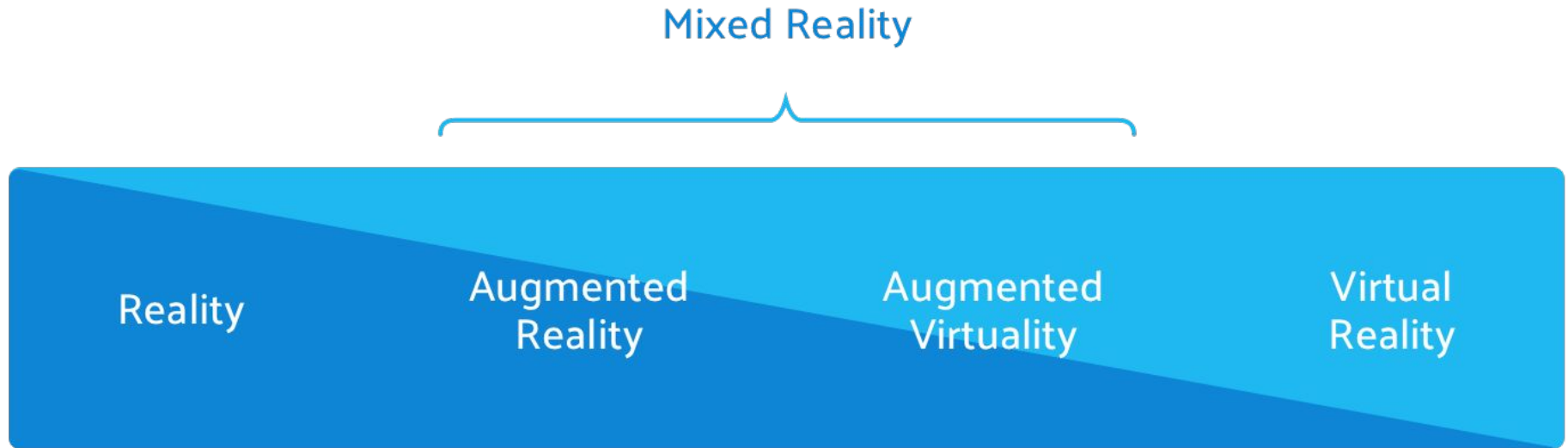
What's the difference?



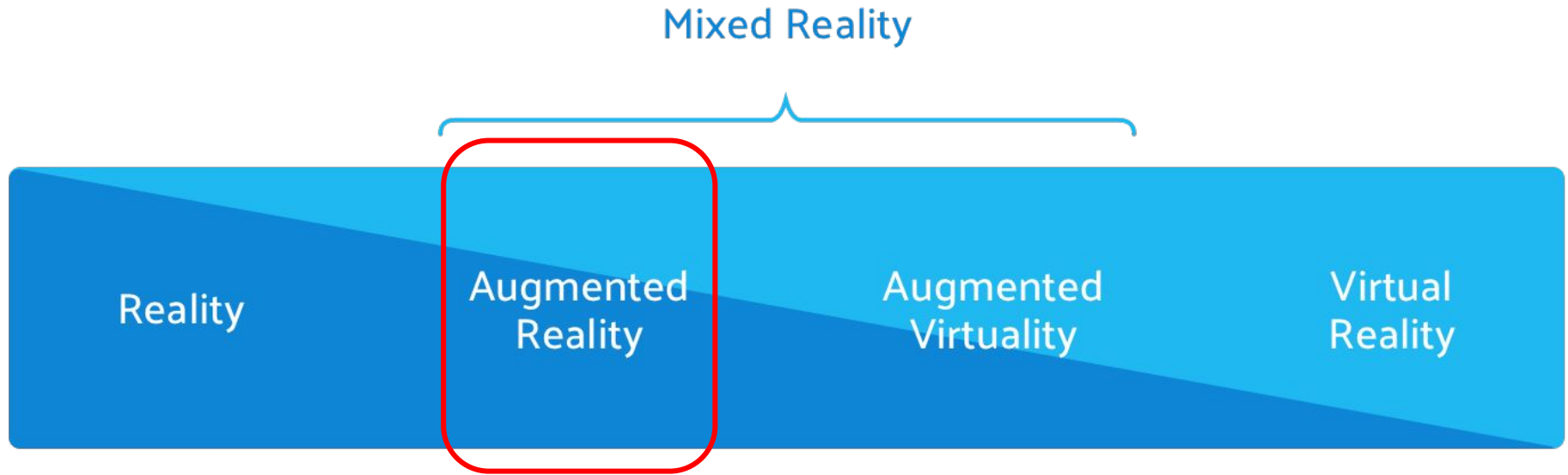
Types of reality



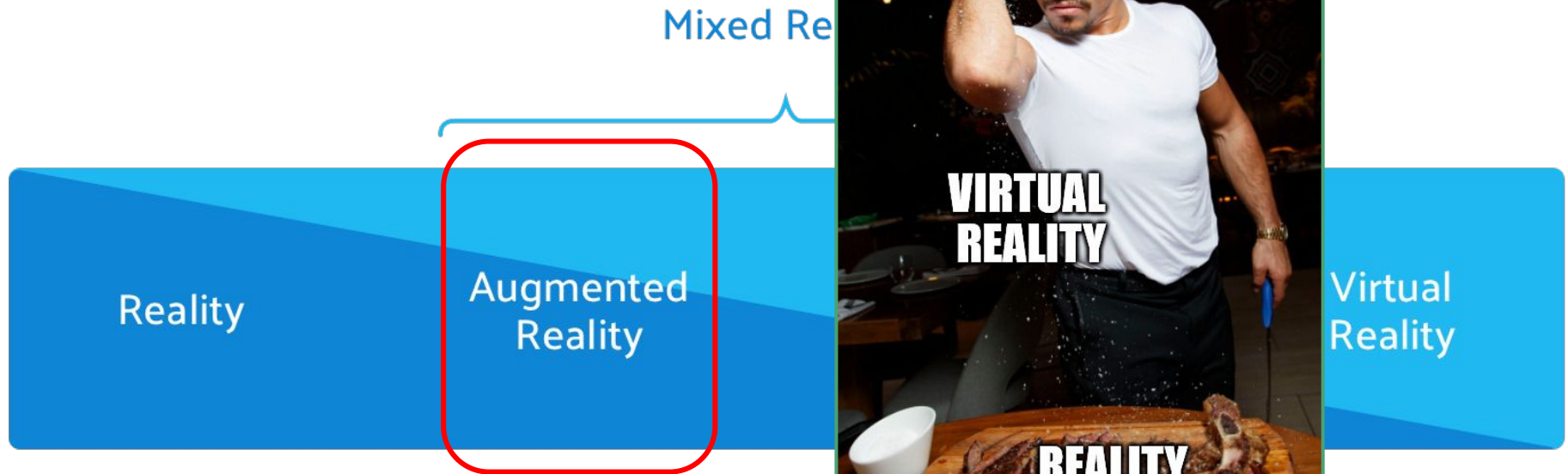
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Three key components of AR

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- Auditory
- Haptic (Kinesthetic, Tactile)
- Olfactory
- Gustatory



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BOSE[®]
Better sound through research[®]

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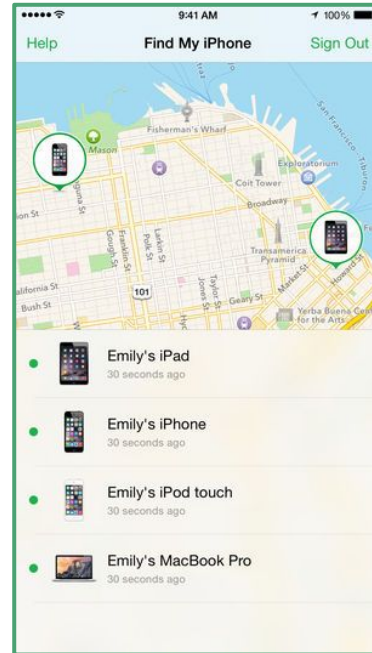
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- Direction
- etc.

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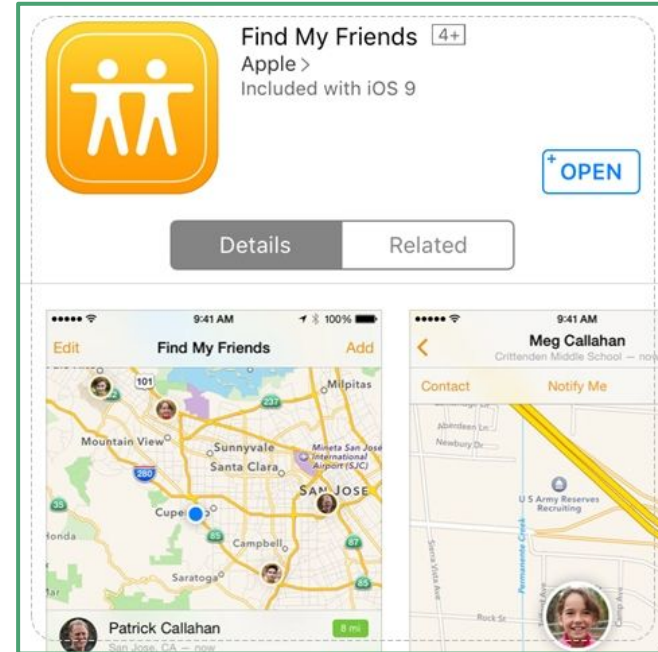
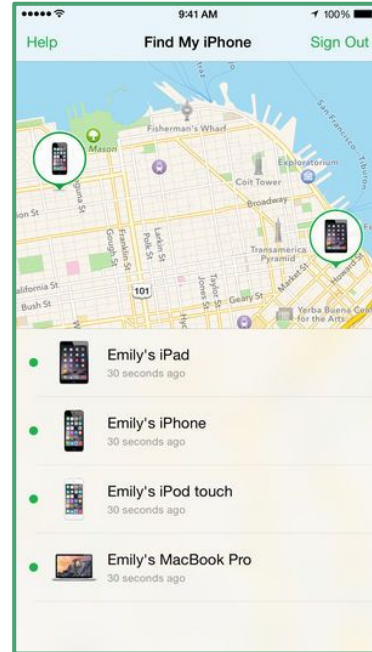


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What?

Takeaways

1. AR is an extension of reality using virtual elements.
2. AR responds to changes in real-time.
3. AR isn't limited to vision.
Enhance the world around you.

Augmented Reality: How?

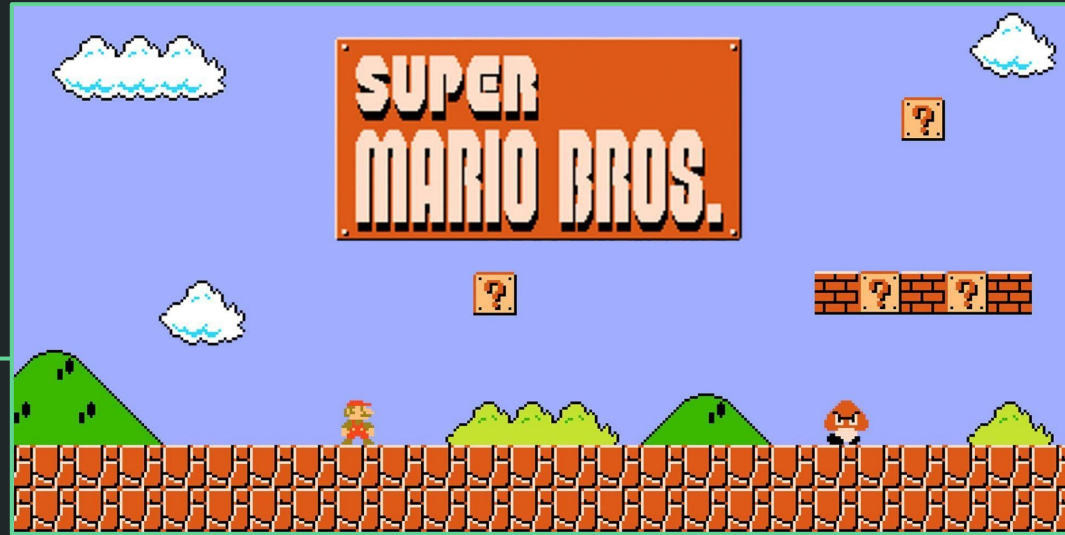


How?

Platform & Technology

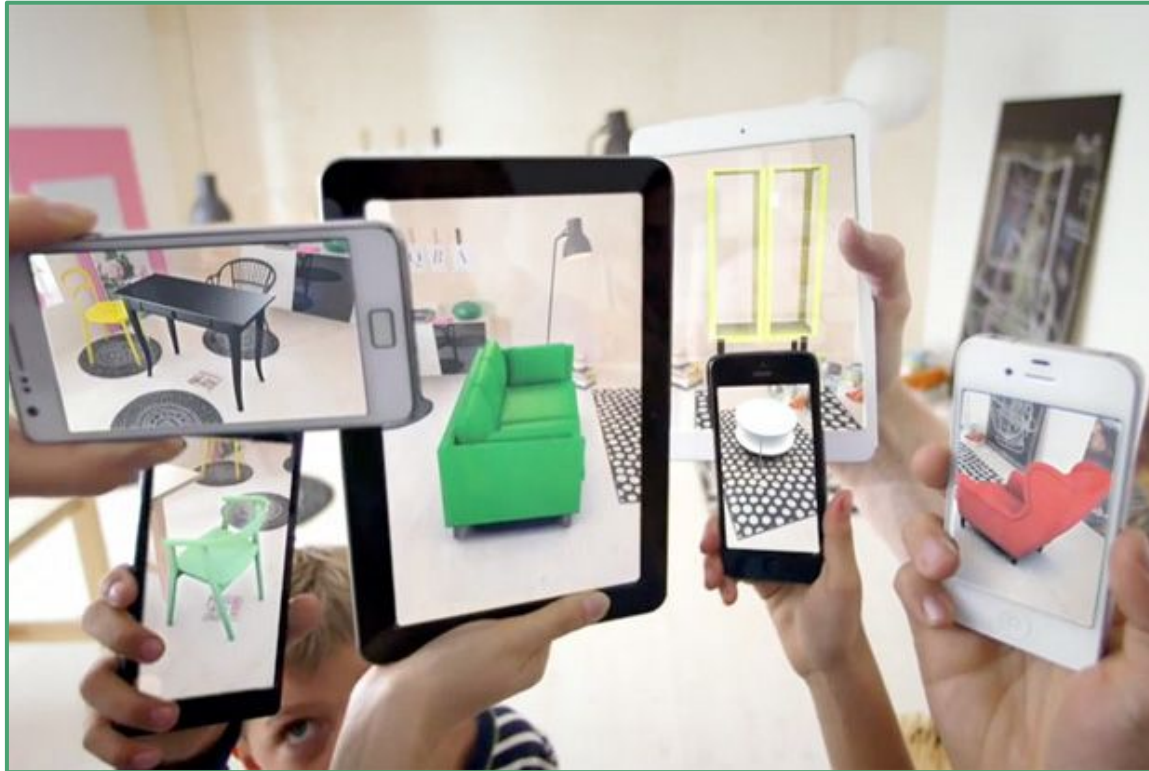
How?

Platform



Handheld & Head Mounted Display

Handheld Display

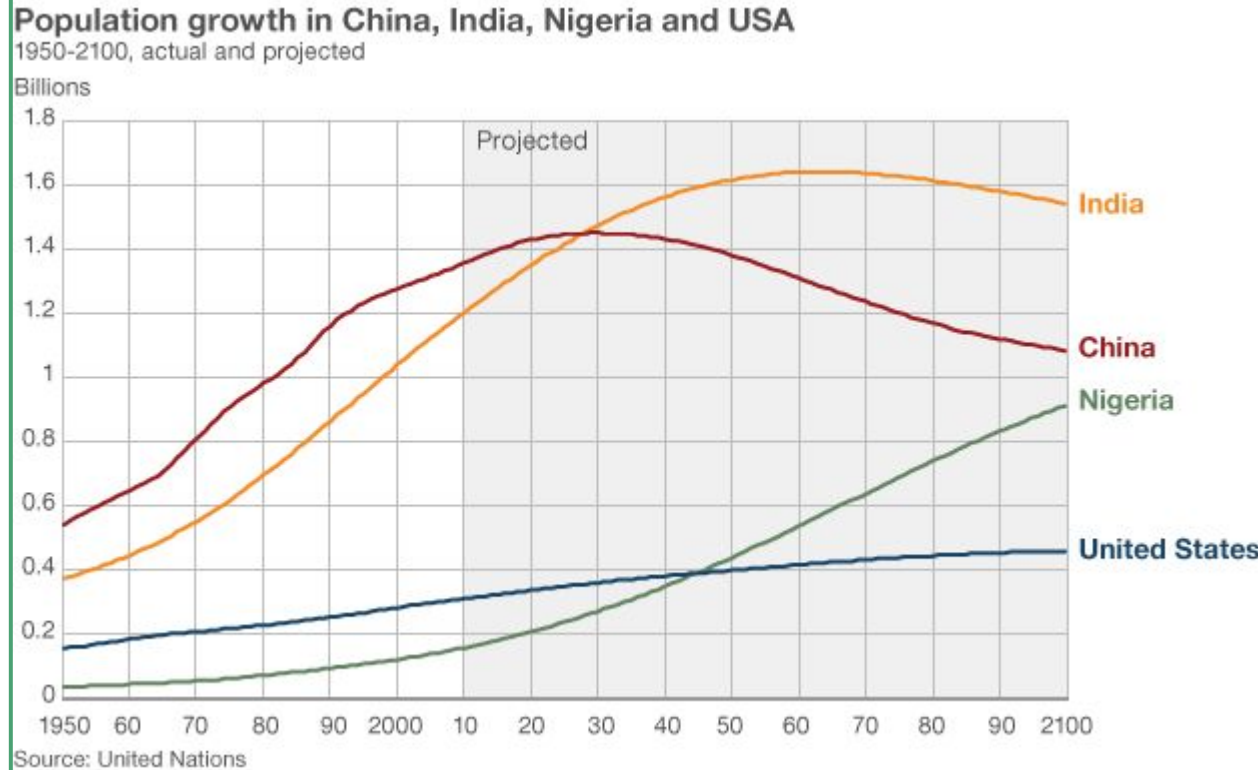


Head Mounted Display

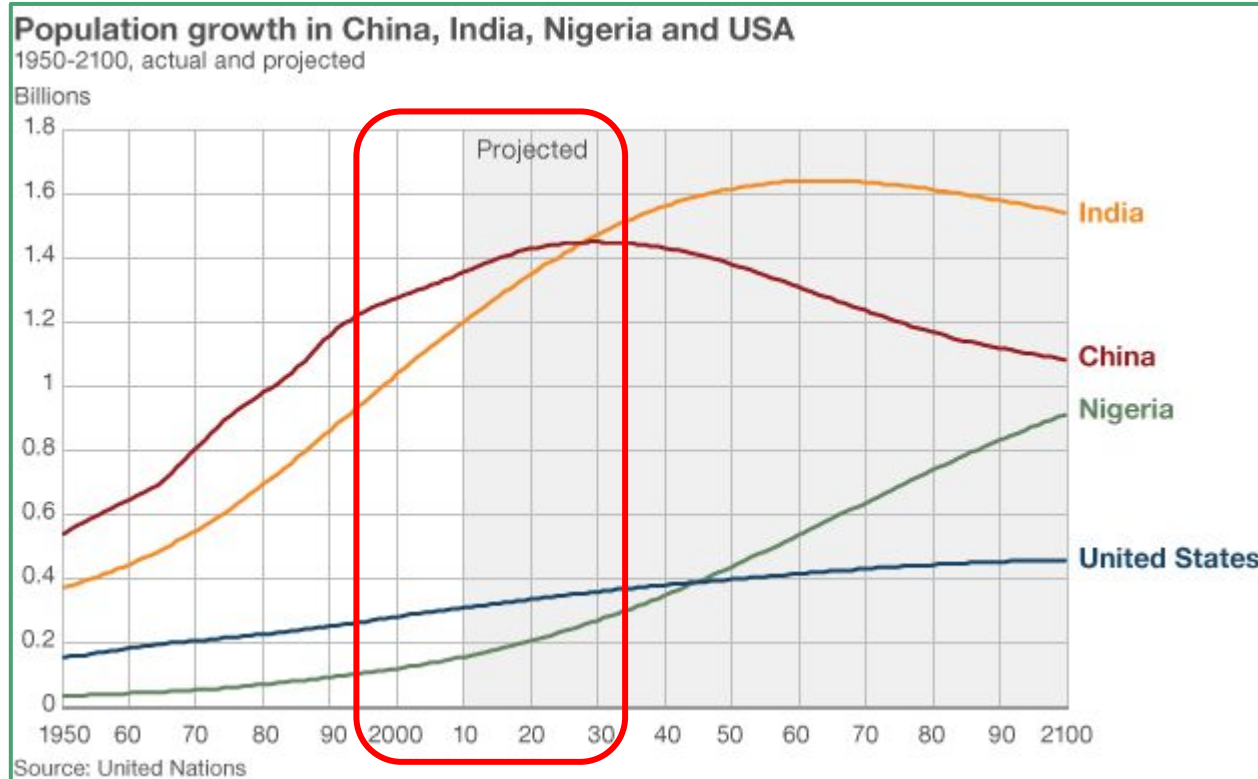


Handheld Display - Population Boom

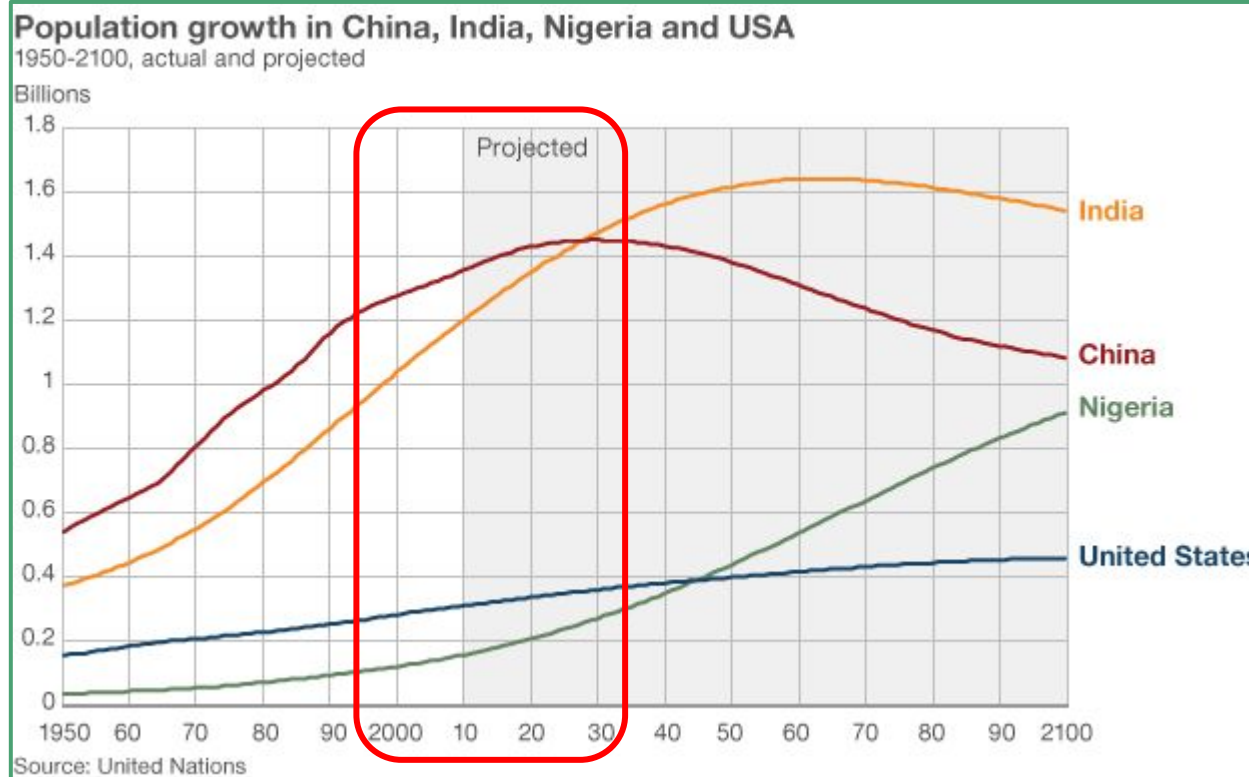
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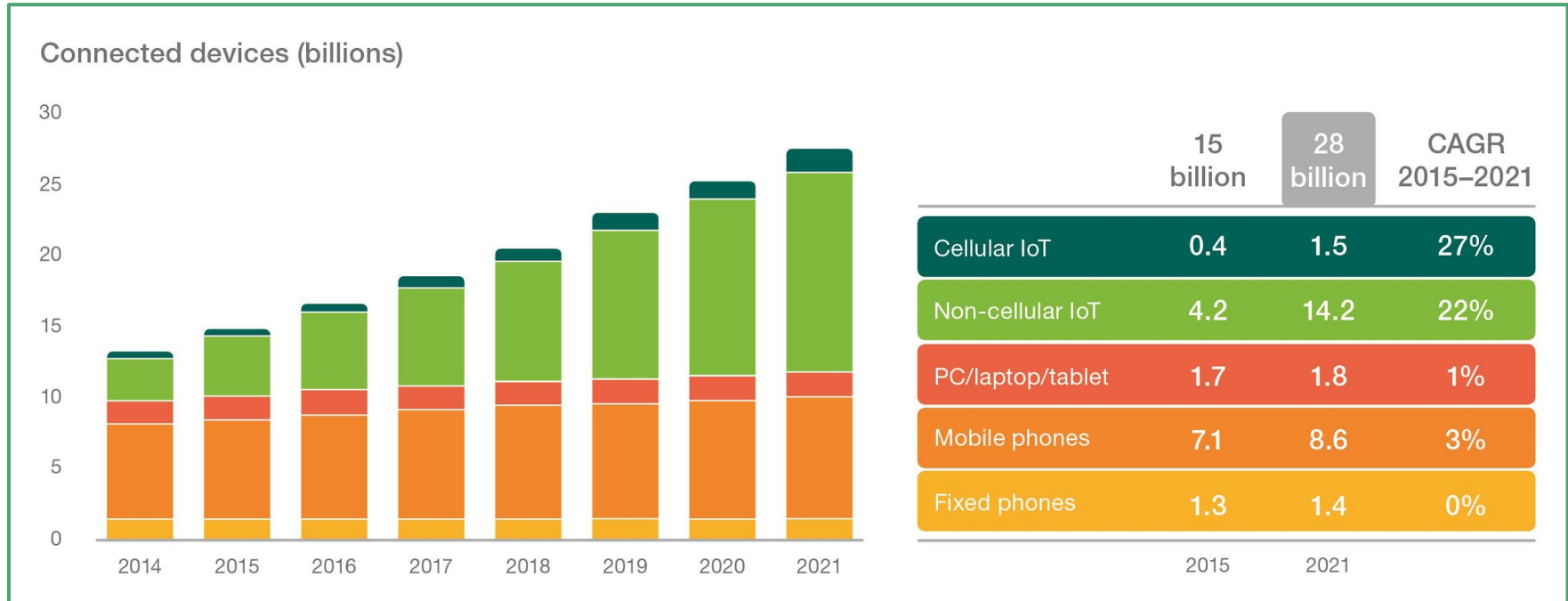


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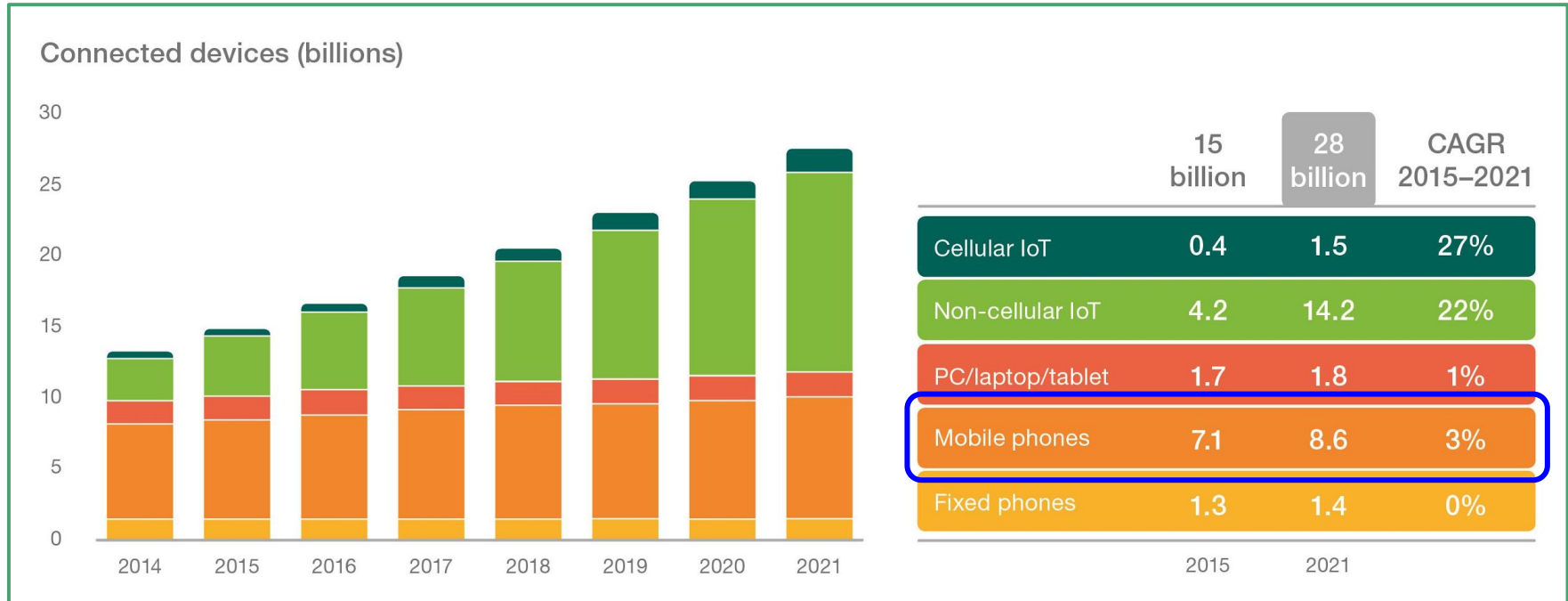
Handheld Display - Mobile Device Boom

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Source: Ericsson Mobility Report, Jun 1, 2016

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**Almost everyone has a
handheld device.**

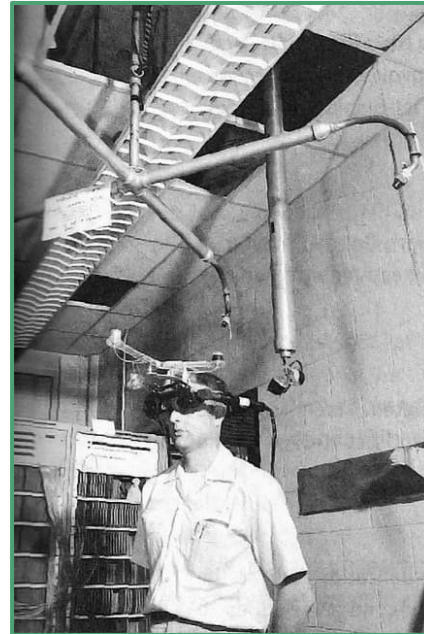
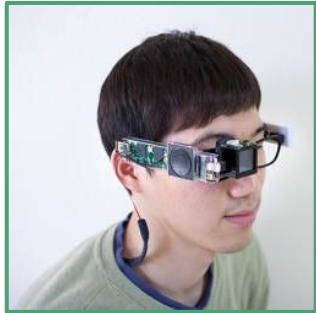
Handheld Display - Mobile Device Boom



Head Mounted Display

Head Mounted Display

Thinking of these intrusive aberrations?

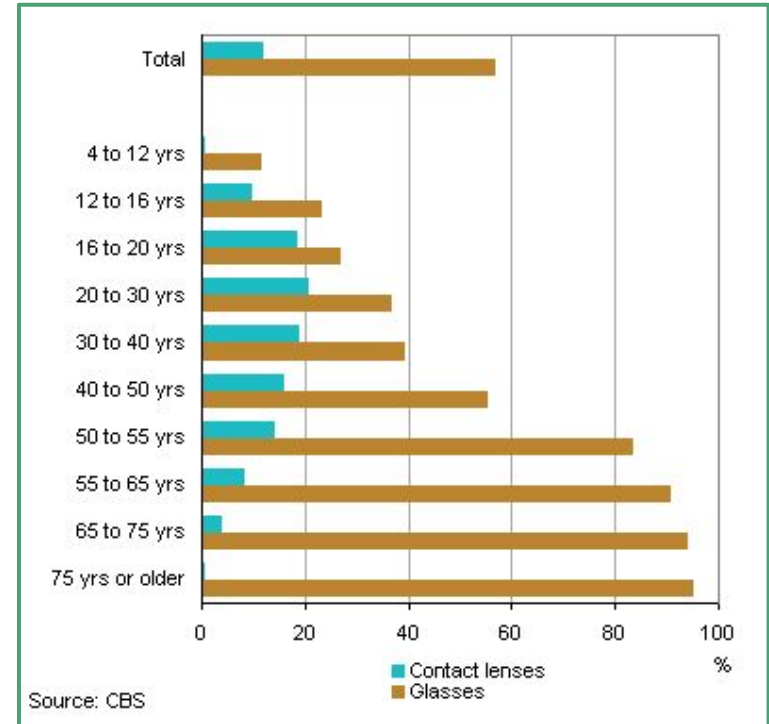


Head Mounted Display

You're being too short-sighted...

Head Mounted Display

You're being too short-sighted... literally!

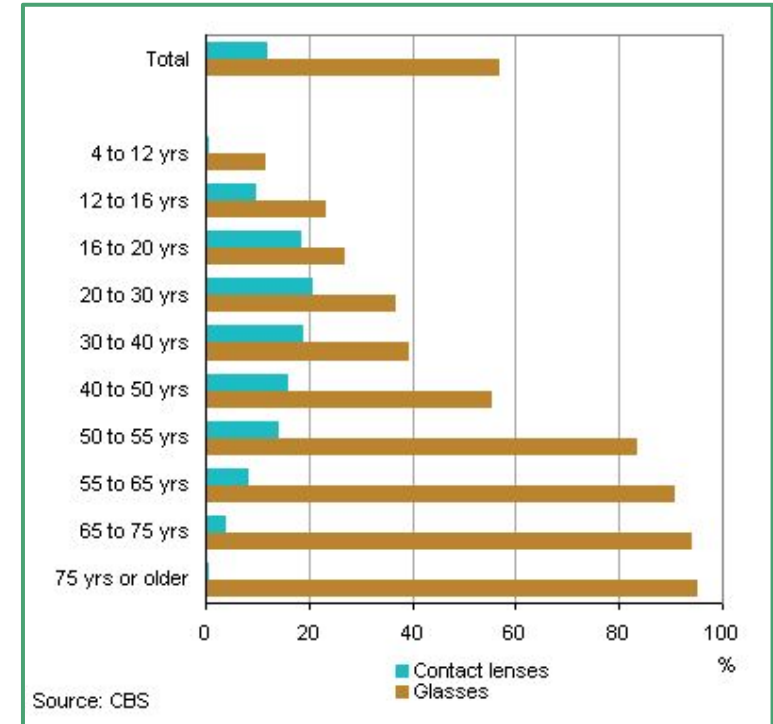


Head Mounted Display

You're being too short-sighted... literally!

Many people already wear glasses or contact lenses.

A vast majority of people end up wearing glasses!



Head Mounted Display



VS



Head Mounted Display



- Amount of information?
- Screen size?
- Wireless?
- Battery life on device?
- Passive or active experience?
- Consumers?



Head Mounted Display



Pas

ce?



How? Platform

Takeaways

1. Handheld Display,
check your pocket.
2. Head Mounted Display
 - a. Eyewear
 - b. Headwear
3. Know your use case
and target audience.

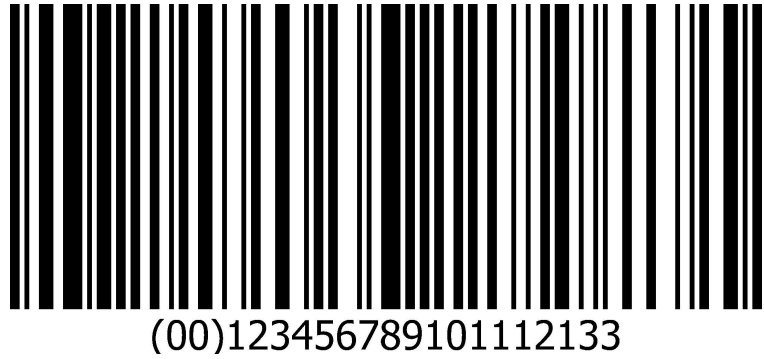
How?

Technology



Fiducials & Spatial Mapping

Fiducials & Spatial Mapping



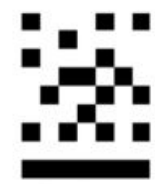
Fiducials & Spatial Mapping



Intersense



Reac-TIVision



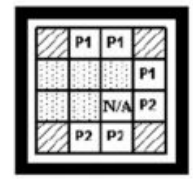
Cyber-code



Visual Code



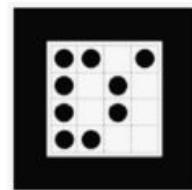
Canon Markers



Binary Square Marker



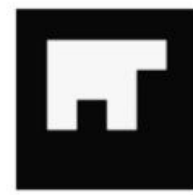
Matrix



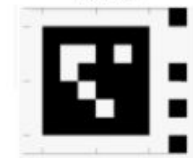
SCR



BinARyID



IGD



HOM

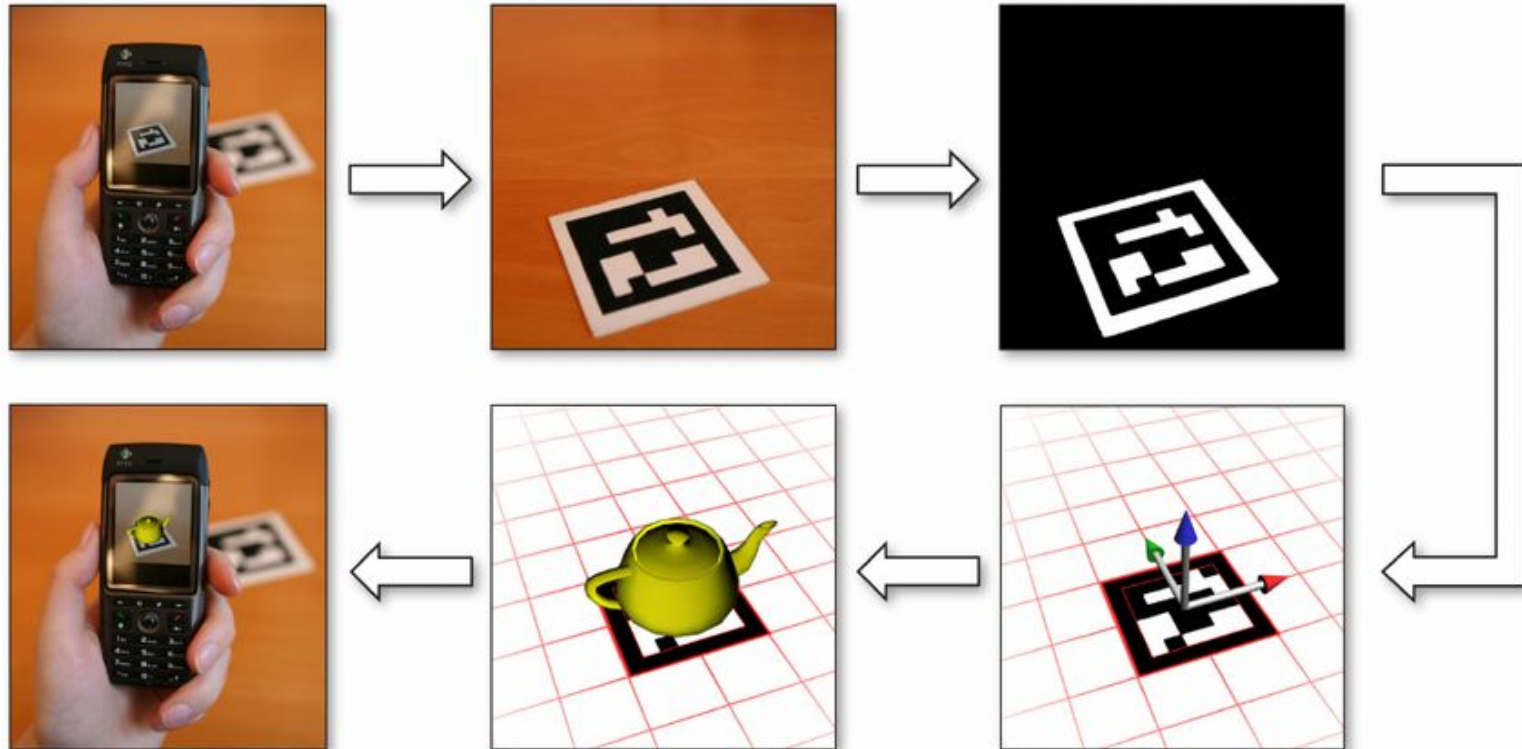


ARToolkit
(2 examples)

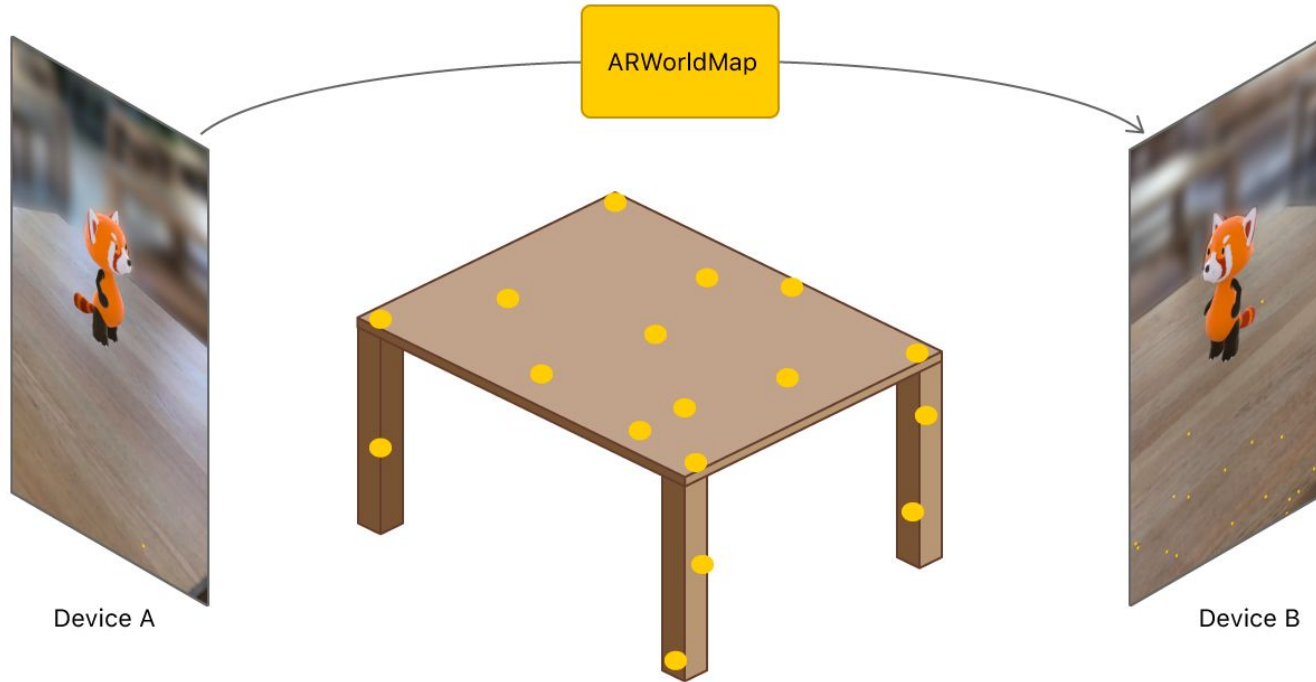


ARTag
(2 examples)

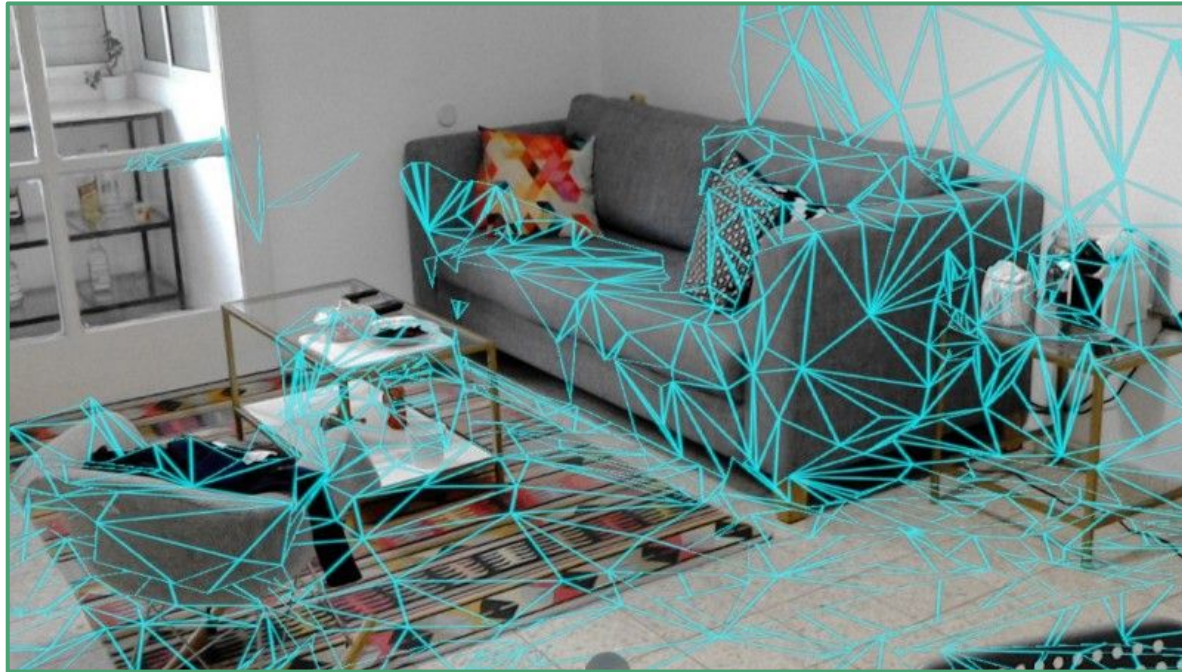
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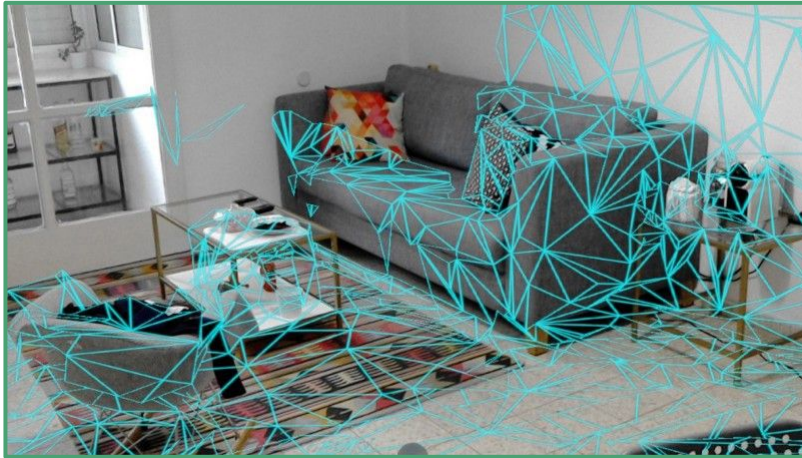
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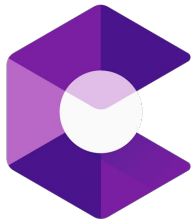
Popular tools & frameworks

Popular tools & frameworks

ARTOOLKIT

Popular tools & frameworks

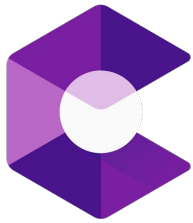
AR**TOOLKIT**



AR**Core**

Popular tools & frameworks

AR TOOLKIT

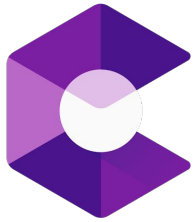


ARCore

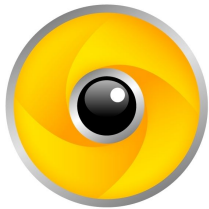


Popular tools & frameworks

ARTOOLKIT



ARCore



wikitude

See more.



et al.



vuforia

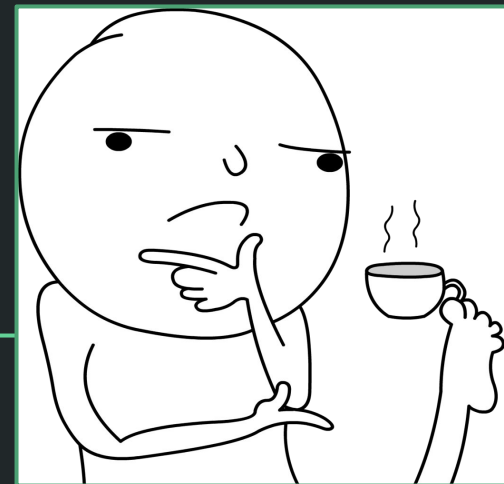
How?

Technology

Takeaways

1. There are distinct ways of interpreting the world for AR.
2. There are many tools and frameworks to develop for AR.

Augmented Reality: Why?



We've achieved so much

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We got the internet 30 years ago.

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We embraced social media in the last 15 years.

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**We depend on them.
They changed our lives.**

We've achieved so much

We got th

We embr

We witne
smart frid

Smart ass



So much to be done

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No one imagined that facebook and reddit would come about from the internet.



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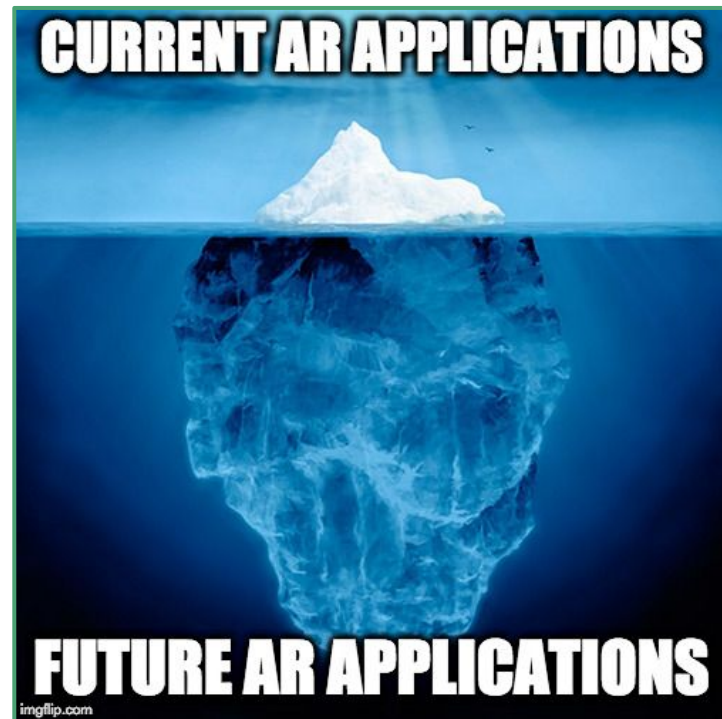


So much to be done

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No one imagined that ride sharing, uber or tinder would come about from mobile phones.

Who's to say what will come about from AR?



Reality is meh...



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... most of the time. We could/should create a **better man-made reality™** !

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However...

(dramatic pause)

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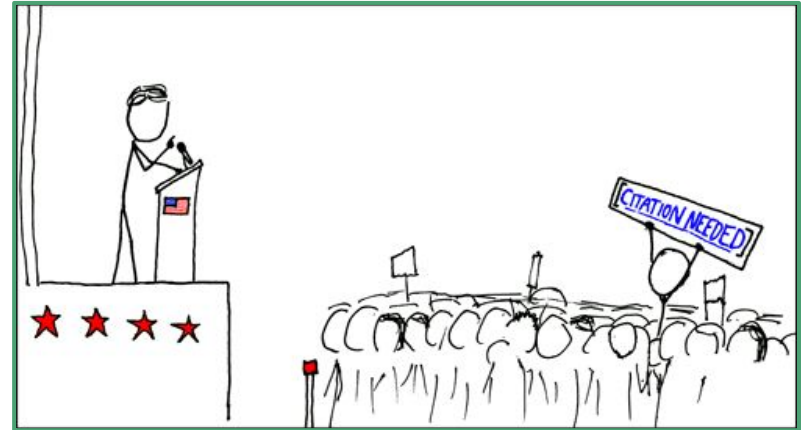
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However...

Reality is bound by physical limitations.

Augmented Reality is boundless.



Practical applications?

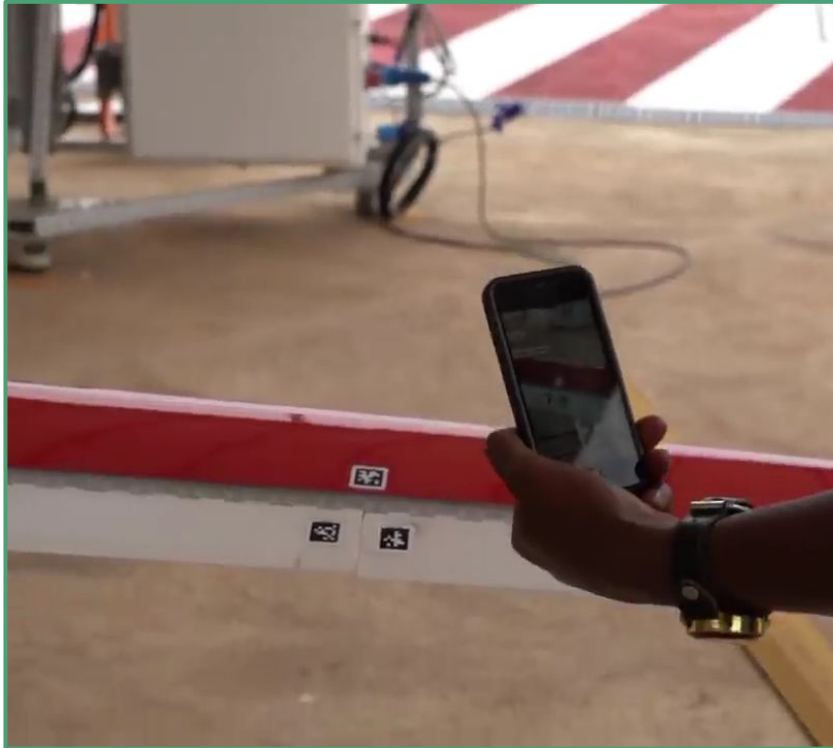
Practical applications

zipline



Practical applications

zipline



Practical applications





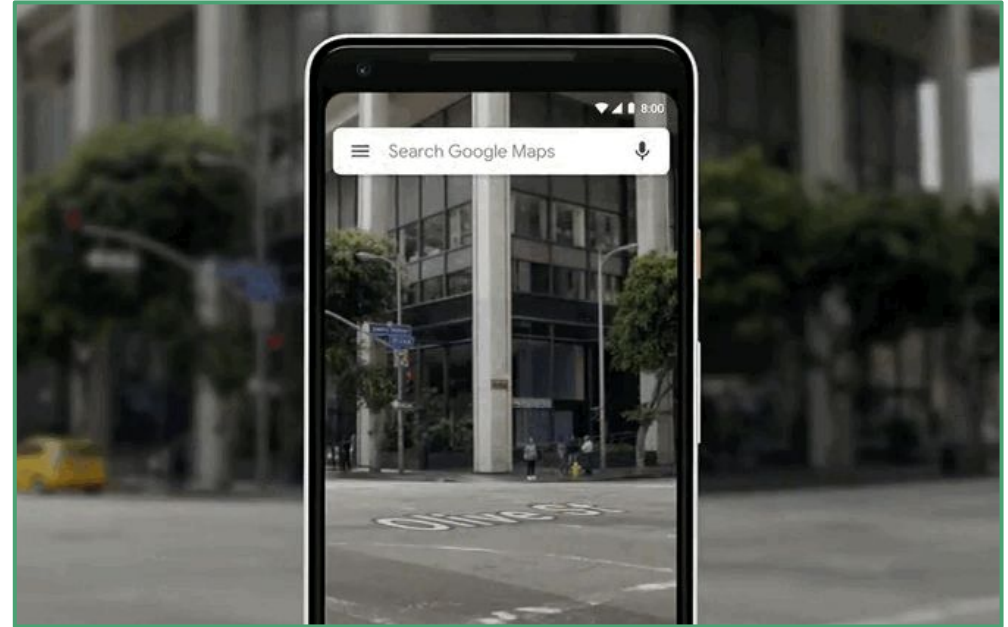
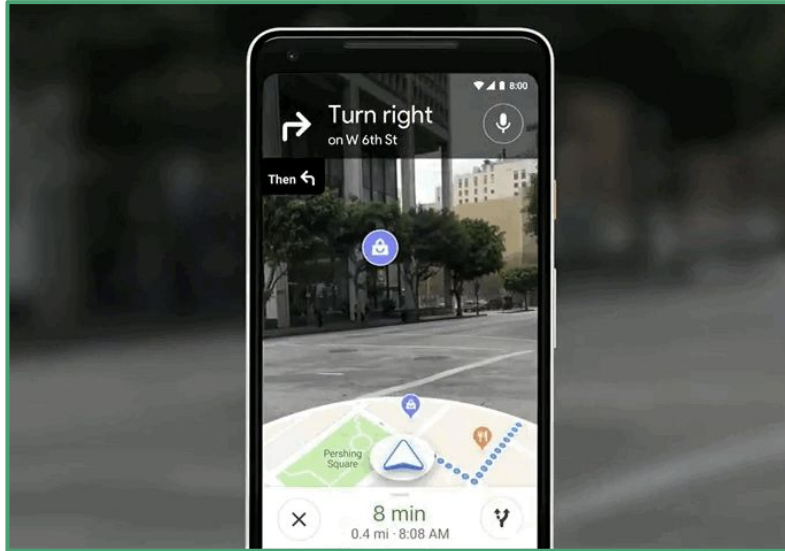
Practical applications



Practical applications



Practical applications



Practical applications





Practical applications





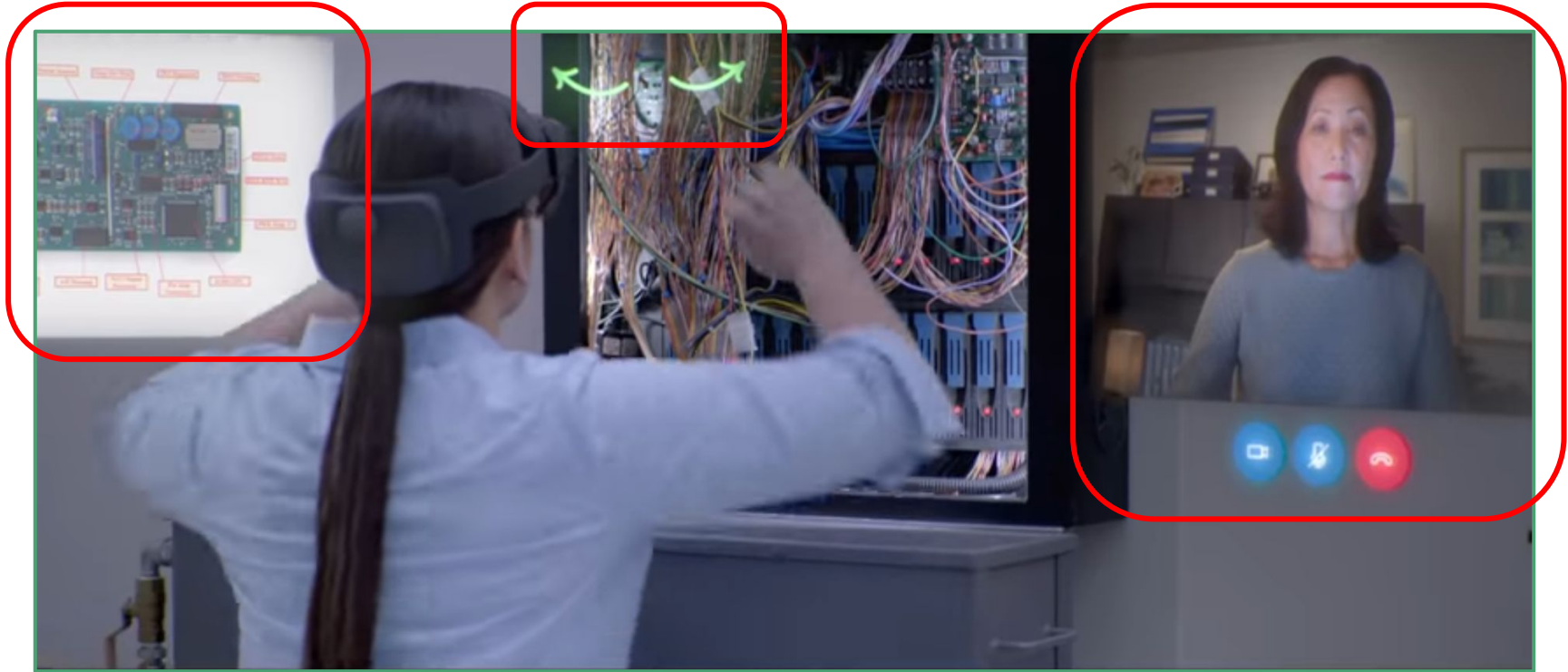
Practical applications



Practical applications

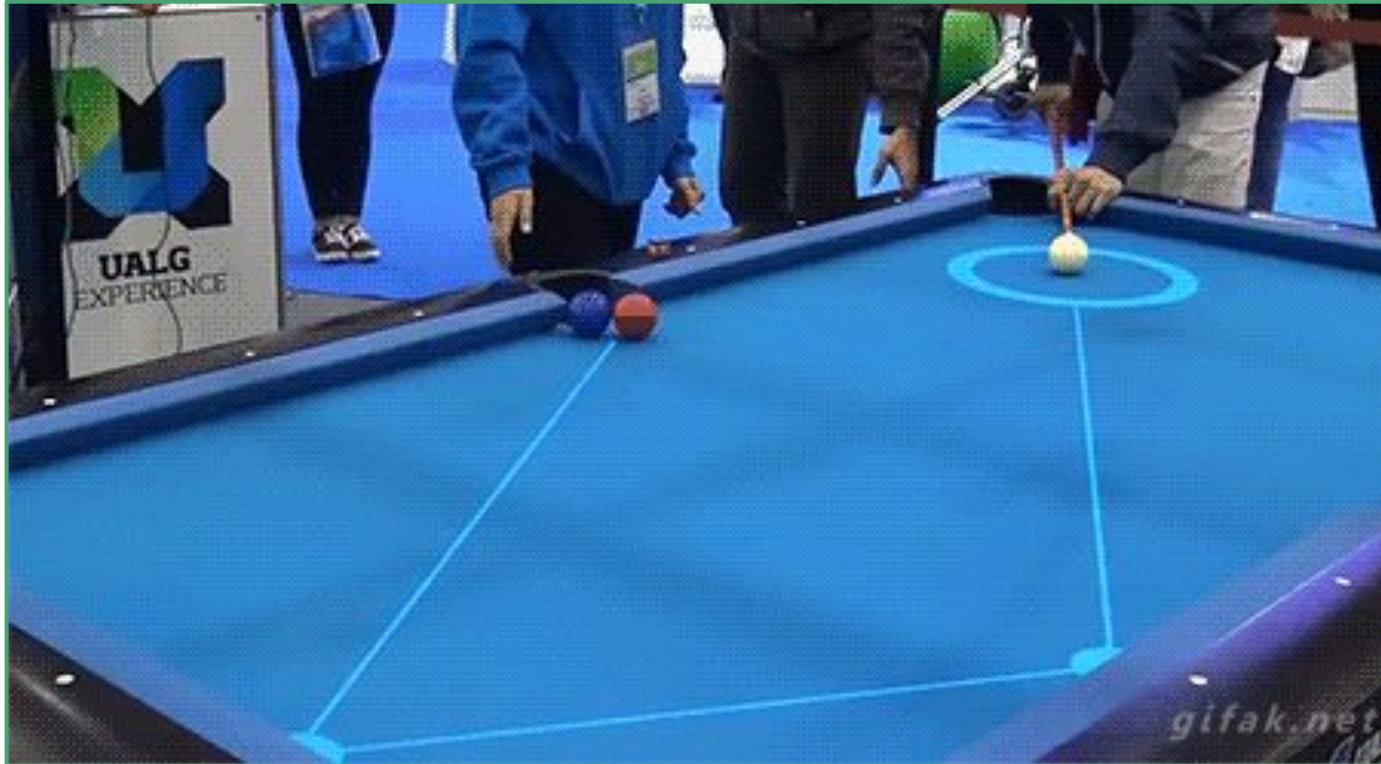


Practical applications



Practical applications

Pool Live Aid



Practical applications



Practical applications



beep

Beep Beep

BEEEEEEEEEEEP

HAZARD



LOUD NOISE

So many practical applications!

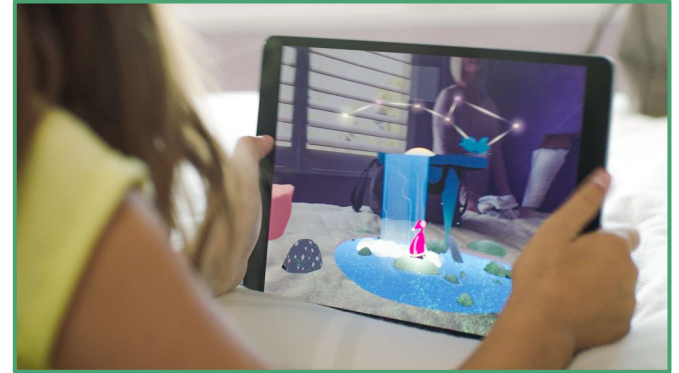
Drawing

Storytelling

Gaming

Measurements

etc.



Why?

Takeaways

1. Technology progresses quickly.
 2. Technology progresses unpredictably.
 3. Reality has room for improvement.
 4. AR can be useful, it's not just a gimmick.
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Thank you for coming!

See you around in the real world.

Questions?

