Trimble

MAY 2016

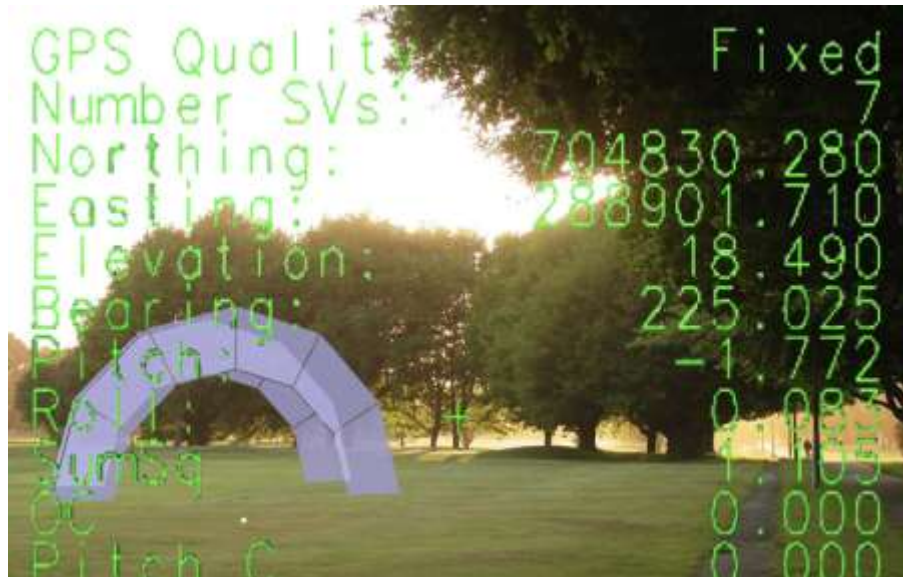# Real AR - for Geospatial Applications and Beyond

"Never mistake a clear view for a short distance"

Paul Saffo, noted Silicon Valley futurist

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1997 Trimble Augmented Reality patent filed

Trimble

. . .but we've arrived at the foothills

61% SMART WATCHES
60% ACTIVITY TRACKERS
49% WEARABLE CAMERA
48% WEARABLE AUDIO
HIGHEST GROWTH 42% SMART GLASSES
7% NOT USING WEARABLES

"The growth and impact of wearable technology in today's workplace has been broadly recognized by industry analysts. Gartner research expects smart glasses to realize $1 billion annual cost savings in the field services industry alone, and IMS Research conservatively estimates the wearable technology market to grow to $6 billion by 2016."

Source: 2015 Zogby study commissioned by APX Labs

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Mixed Reality

Overlaying digital information on the physical world in real time.

Mixed Reality

Real
World Unmodelled

World Partially Modelled
Bridge the gap between the virtual and the physical worlds

Virtual
Completely Modelled

HoloLens MR

Tango AR

Oculus VR

Trimble.

What is HoloLens

Wearable, self-contained computer

Sensors that map the environment

See-through holographic display

Windows 10

- -

**Interaction with
3D holograms blended
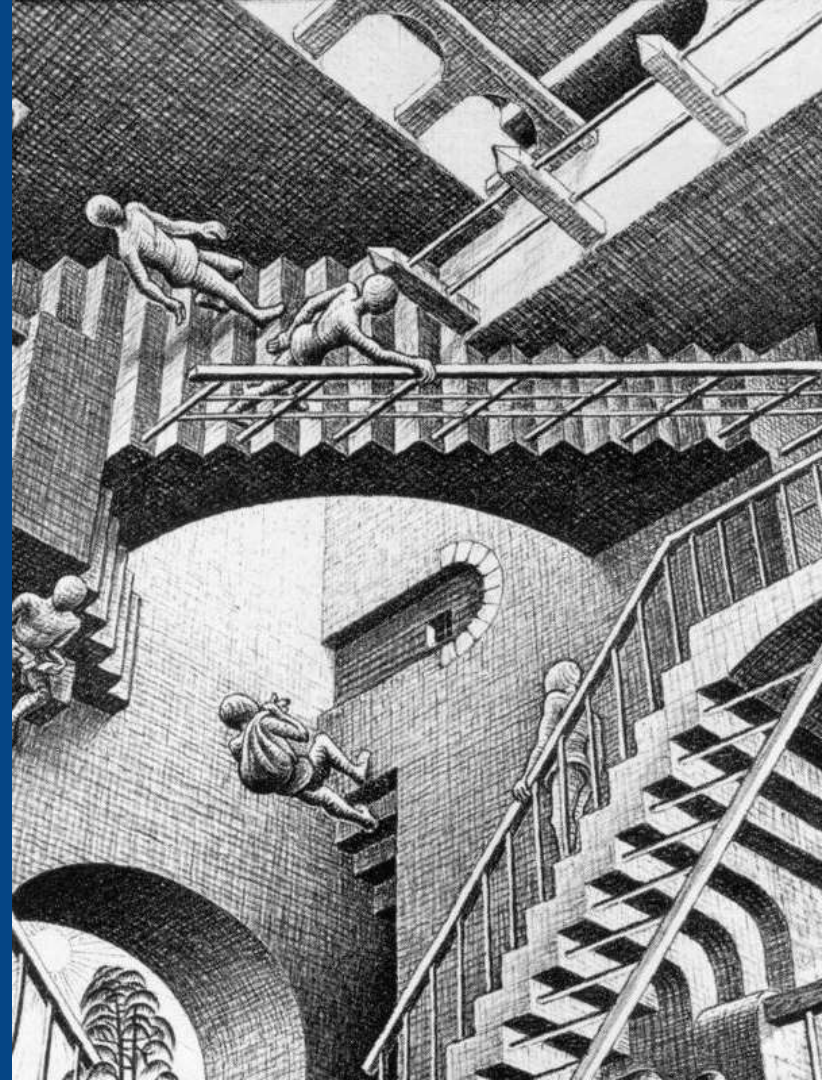into the real world**

Transforming the way professionals consume, interact, and communicate information

From information *communication* to Information *experience*

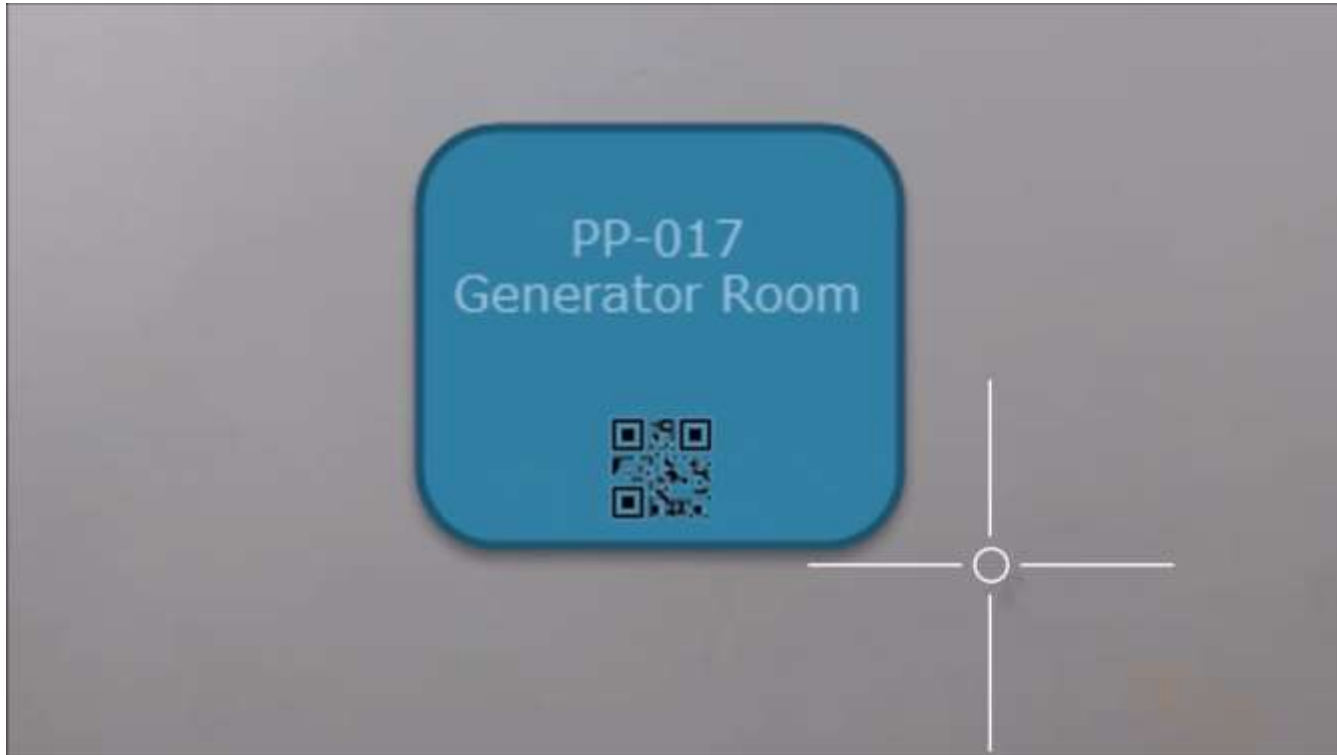"Ascending and Descending"
M.C.Escher

AR in Design

AR in Facilities Management

CyArk and the Annaberg Plantation (USVI)

http://archive.cyark.org/annaberg-sugar-plantation-intro
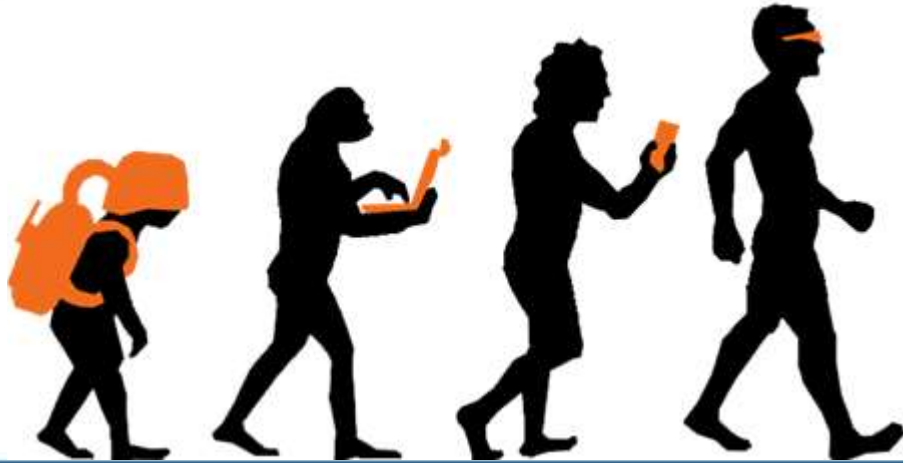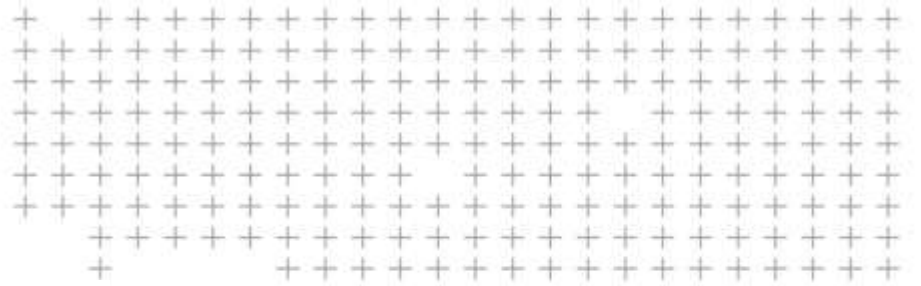
AR in Site Visualization

…and a Tango Example

Key Functional Capabilities

- Inspection

- Service

- Attributes everywhere

- Connecting the Internet of Un-connected things

- Collaboration and first-person presence – across disciplines and geography

The evolution continues. . .

Abstract I submitted

- Augmented Reality is now real, and it is personal. Practical commercial devices - Microsoft HoloLens and Google Tango to name two - offer the ability to mix our digital reference data and designs with the real world. And, they allow us to collaborate across disciplines, geography and time zones. While some of the largest consumer-oriented companies are enabling this change, the primary applications over the next five years will be to commercial and government workflows, benefitting Geospatial professionals.

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  While these new devices are amazing, the hard work remains to integrate them into the workflows and tools people use to do their jobs for data collection, validation, inspection, and more.