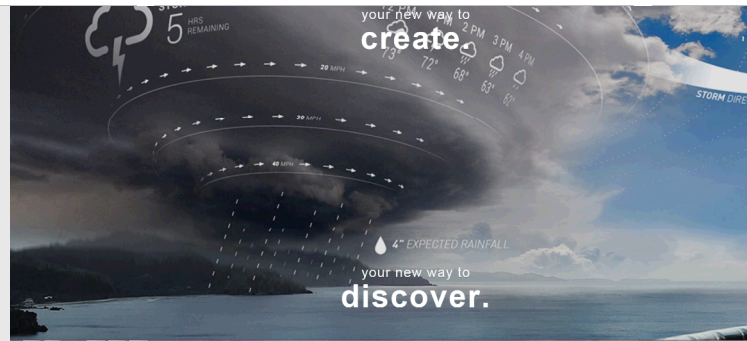


Exceptional service in the national interest



Proposed Use Cases for Augmented Reality for Nuclear Nonproliferation Verification and Training

Zoe N. Gastelum, Jay K. Brotz, Tam D. Le,
Ryan T. Whalen, Jason C. Bolles



Photo Credit: Fitbit

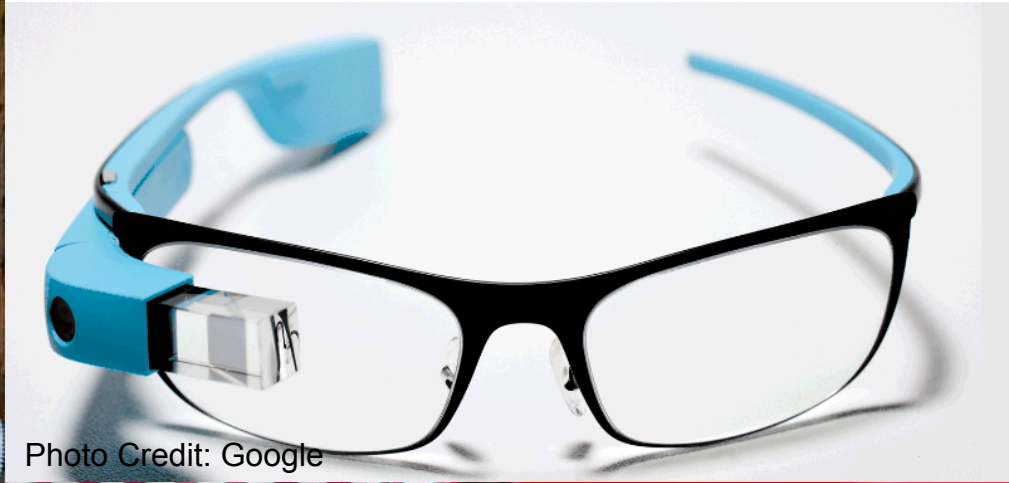


Photo Credit: Google



Photo Credit: GoPro



Photo Credit: Apple



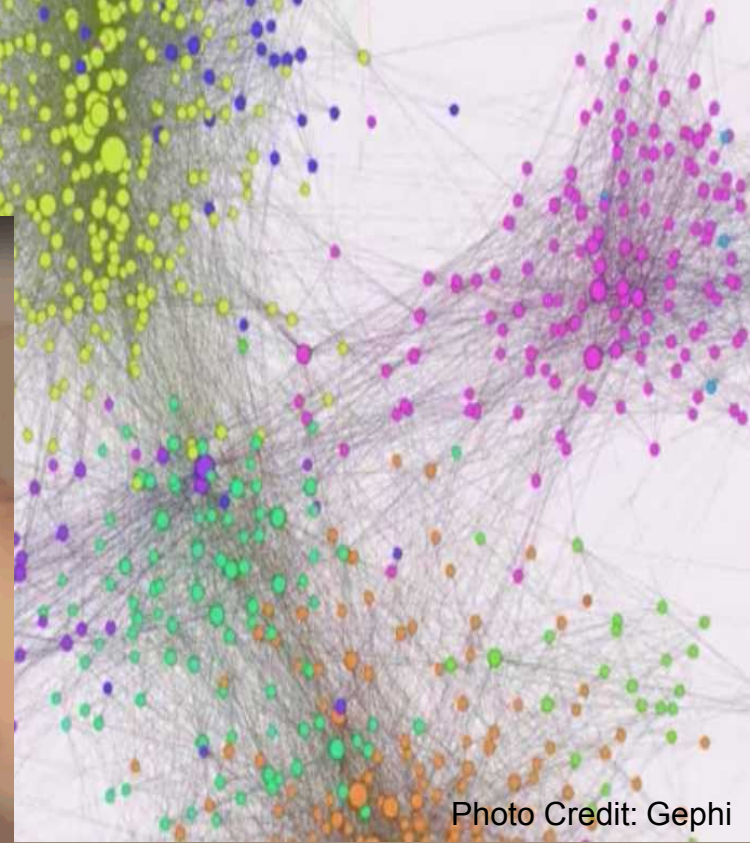
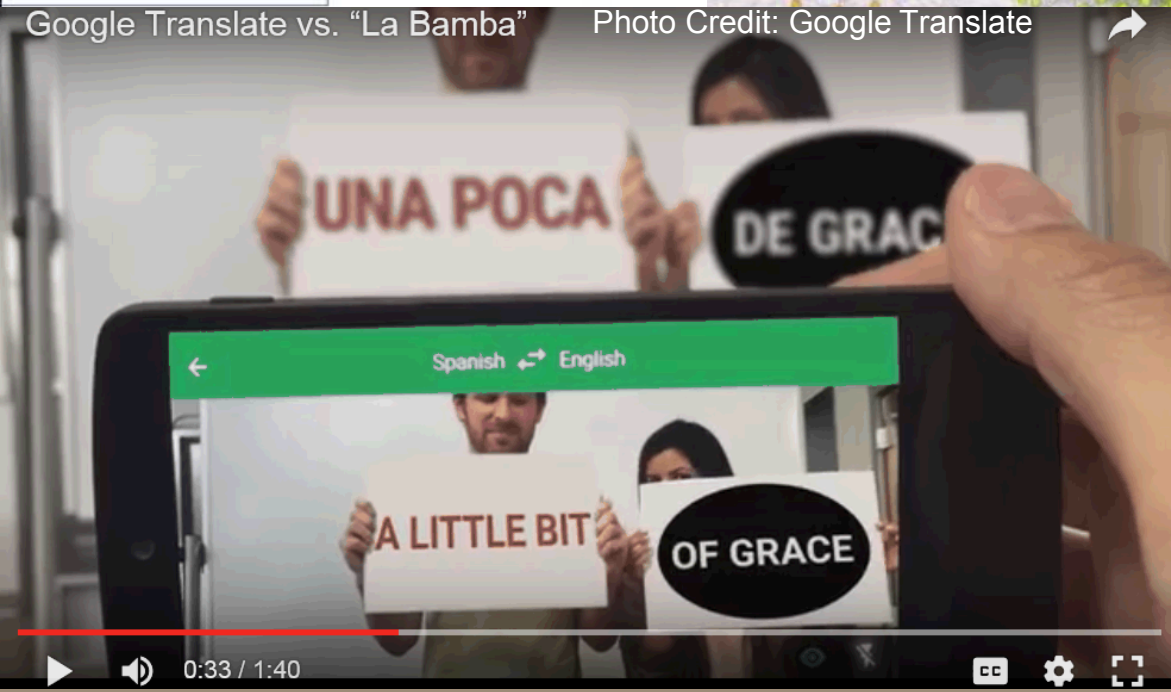
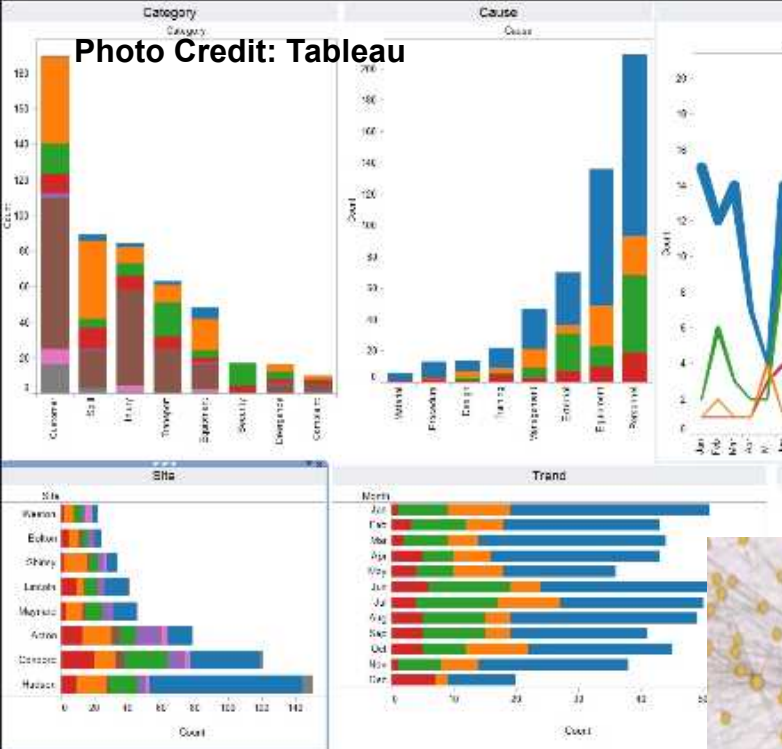


Photo Credits: IAEA



AUGMENTED REALITY CAPABILITIES

Way-finding



Monitoring Data

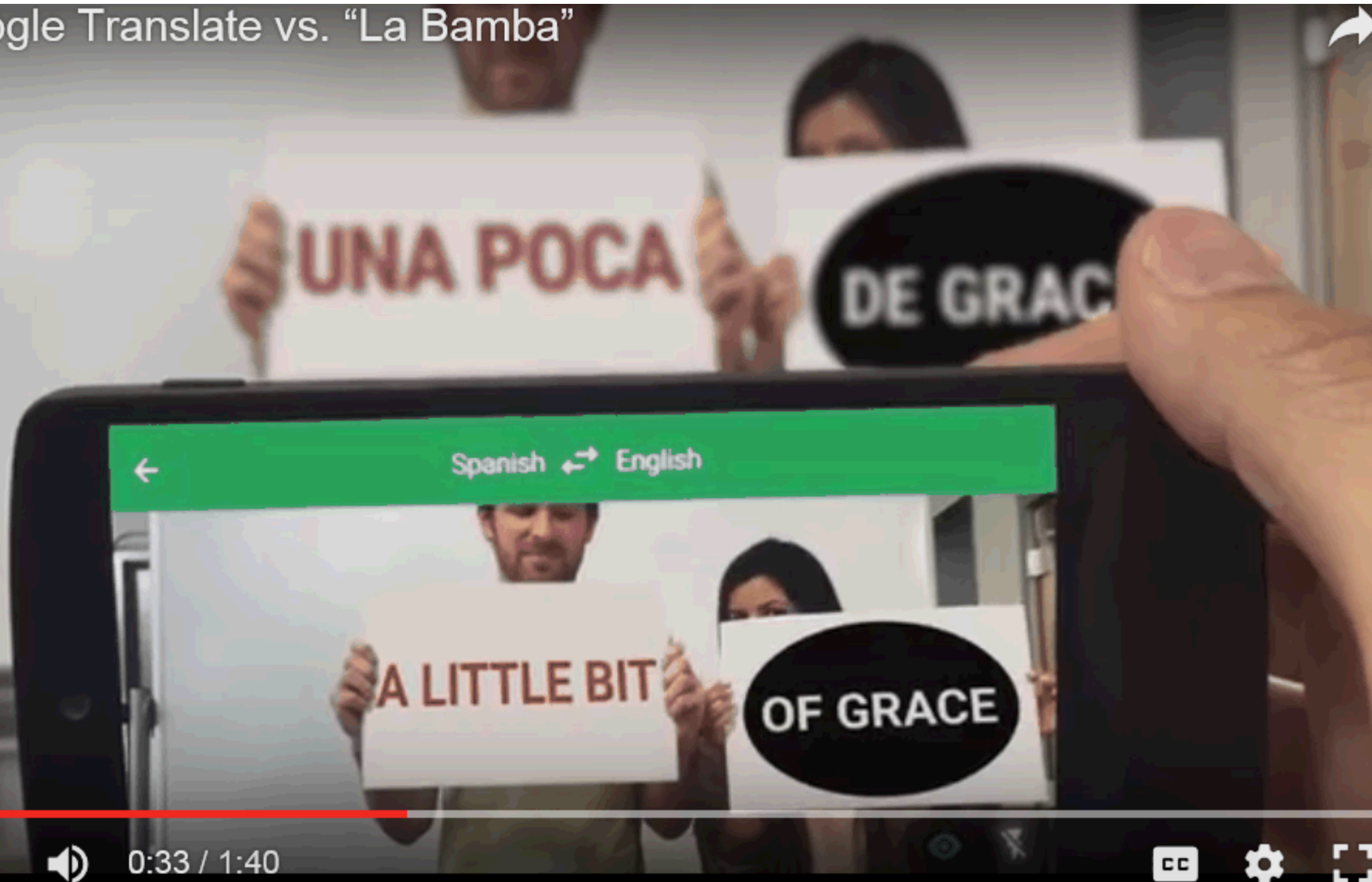
your new way to
create.

your new way to
discover.

OCR and Translation

Photo Credit: Google

Google Translate vs. "La Bamba"



Item Identification



Range

↓ 0

↑ 10

Playback

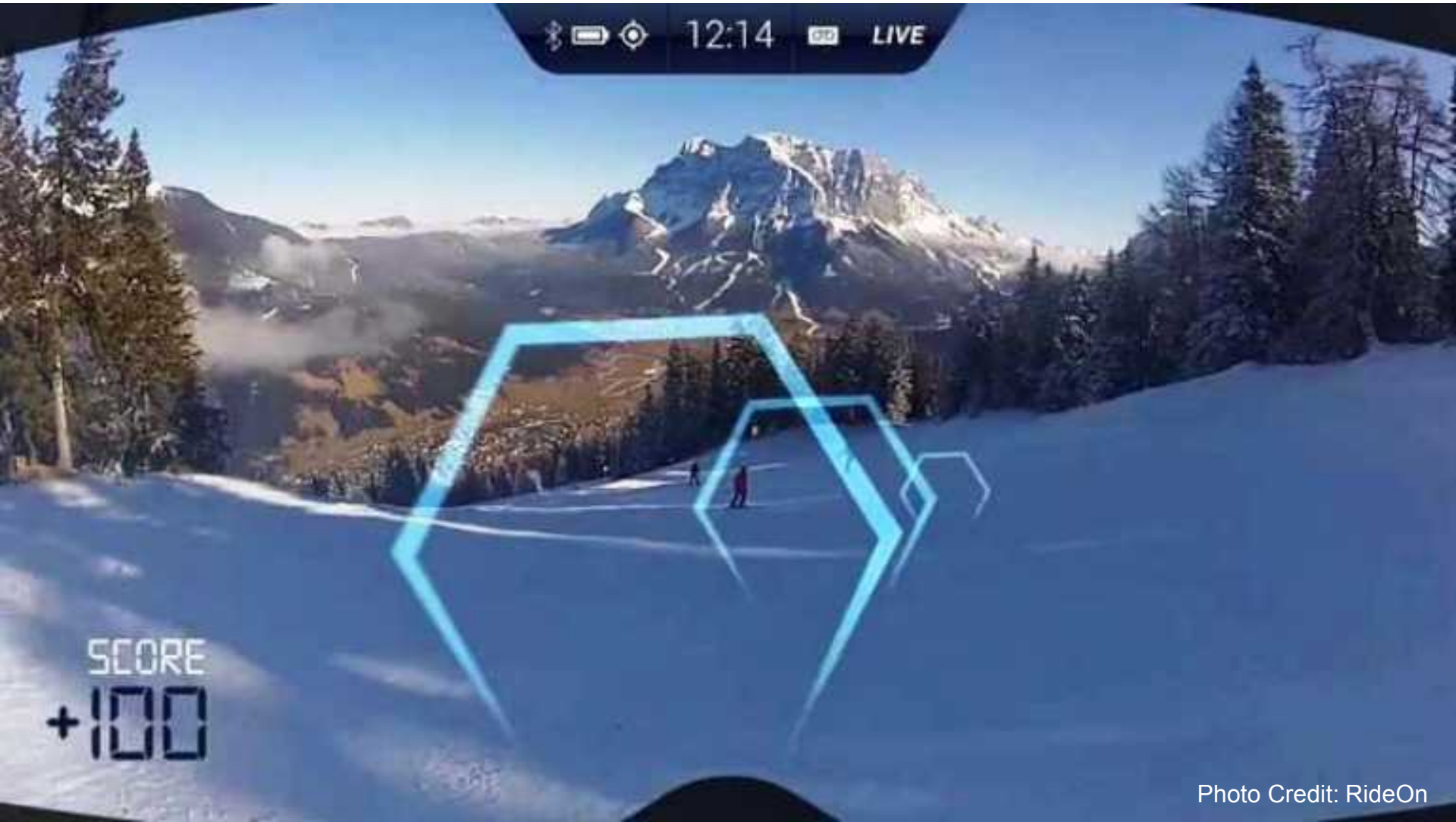


Photo Credit: RideOn

USE CASES

Treaty-Accountable Warhead Inspection

Mode: Inspect

VIEWING:

Tag 12345AH
Type: Warhead
W88-001



Declared Items in area:

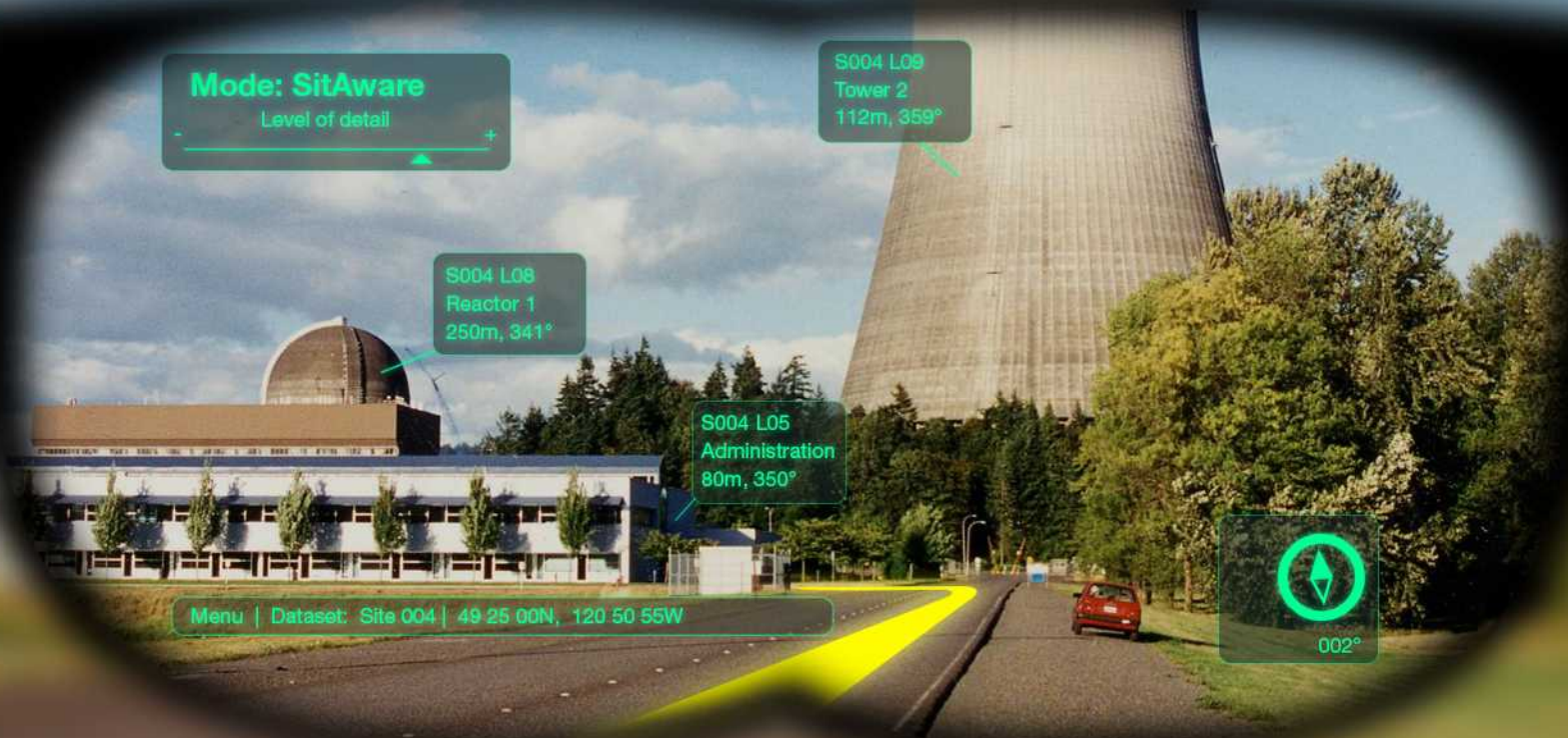
Tag 12345AA
Tag 12345AB
Tag 12345AC
Tag 12345AD
Tag 12345AE
Tag 12345AF
Tag 12345AG
Tag 12345AH
Tag 12345AB
Tag 12345AB
Tag 12345AB
Tag 12345AB

Menu | Dataset: Backbone System Query <DATETIME> | Loc: Bunker 8013

Design Information Verification



Complementary Access



Physical Inventory Verification

Mode: Inspect

Seals removed: Seals applied:

...	...
IAEA 540163	IAEA 358935
IAEA 801368	IAEA 895315
IAEA 510336	IAEA 368452
IAEA 881695	IAEA 916428
IAEA 138984	IAEA 324861
IAEA 788510	IAEA 589375
IAEA 369712	IAEA 753158
IAEA 257992	IAEA 129856
	IAEA 463698

C/S > Seals > Single Use > CAPS


Menu | Dataset: Site 004, Loc 08t | 48 25 00N 120 50 55W

Nav hidden

Technical Assistance

Mode: Inspection

Monitoring system interrogation

 Active seal
#1000129
State of Health: 1
Correct location



038°

Menu | Dataset: Site 004, Loc 08s, | 49 25 00N, 120 50 55W

Logistics and Situational Awareness

Mode: SitAware
Lang: Czech

Translated from Czech:
"ATTENTION - GUARDED
OBJECT - NO ENTRY"



Menu | Dataset: Site 004 | 49 25 00N, 120 50 55W

Pre-Inspection Training

Mode: Rehearse

VIEWING:
Outflow facility, room 1004s

Menu | Dataset: Site 4, Loc. 10s


VIRTUAL 002°

Conclusions



Photo Credit: Microsoft