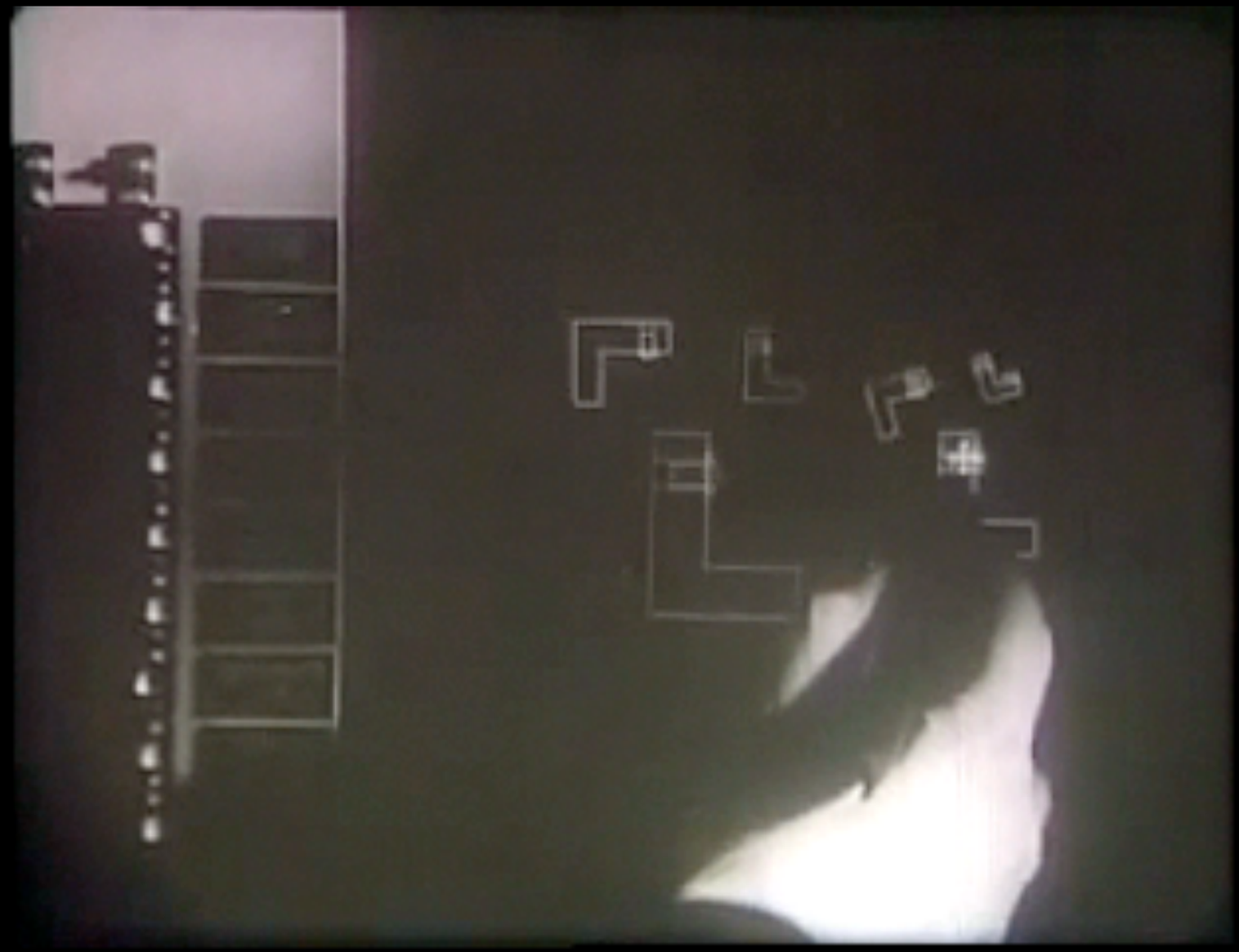
Enabling Technology for the Studio of the Future

Brian Pene
Director of Emerging Technology; Office of the CTO

The Past

Sketchpad – Ivan Sutherland (1962)



The **Sensorama** (1962)

Morton Heilig

Head-Mounted Display (1968)

Ivan Sutherland

AUTODESK.

The Present

AUTODESK.

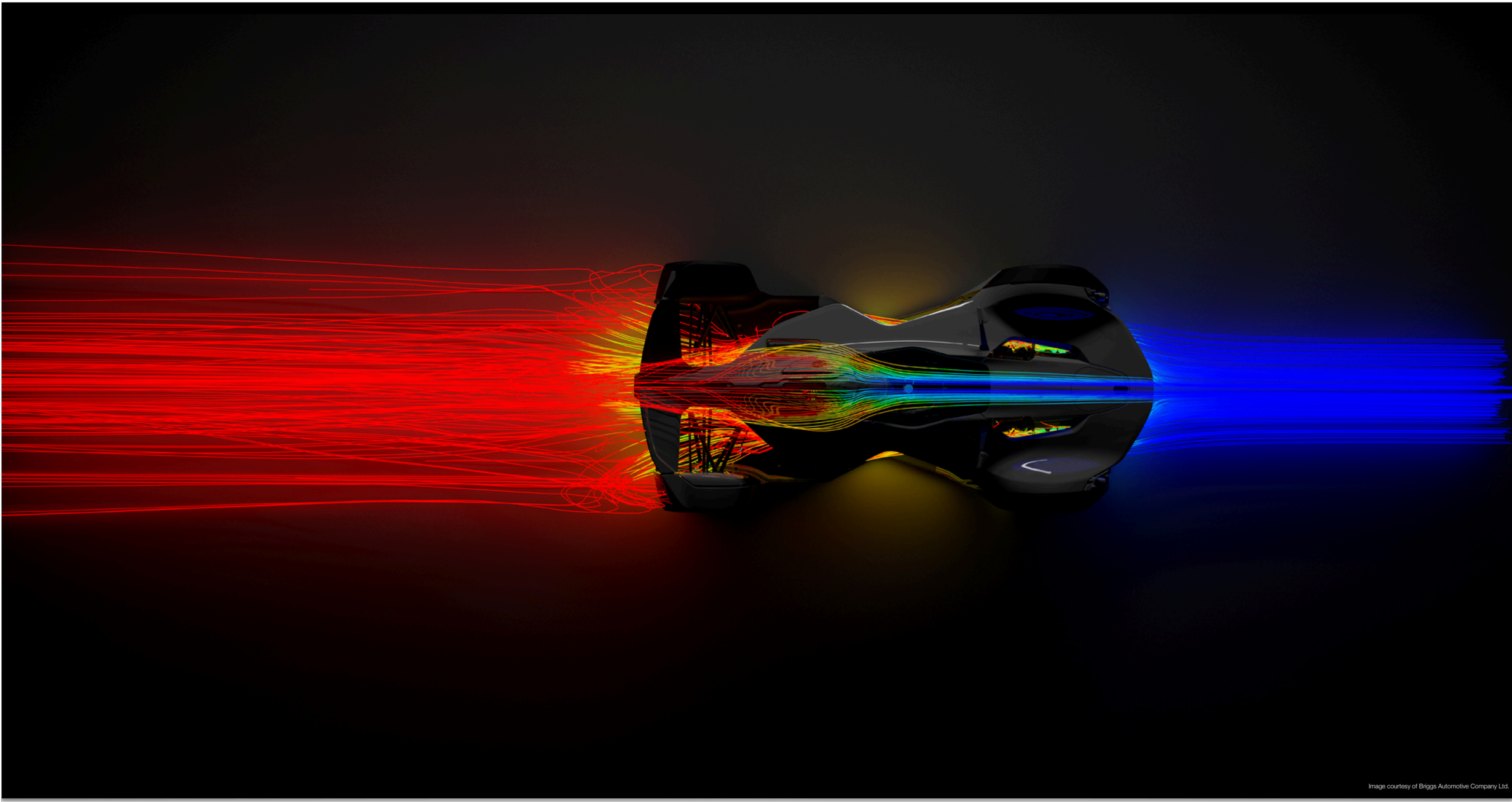
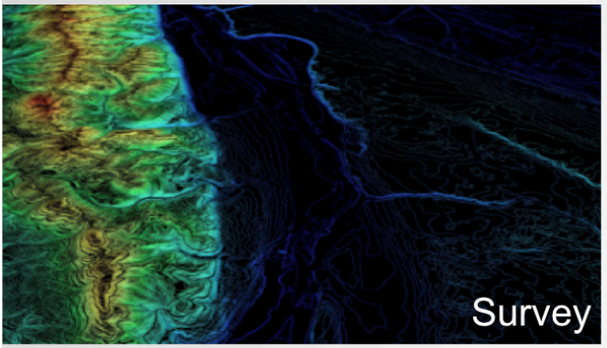
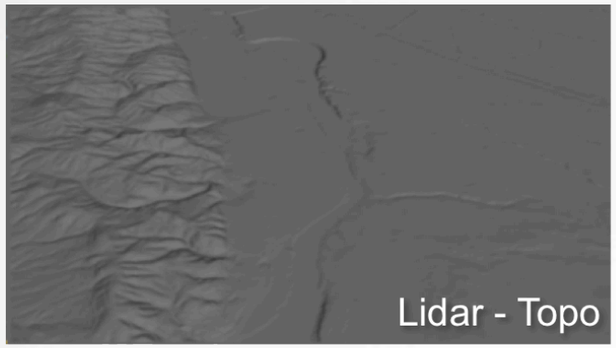
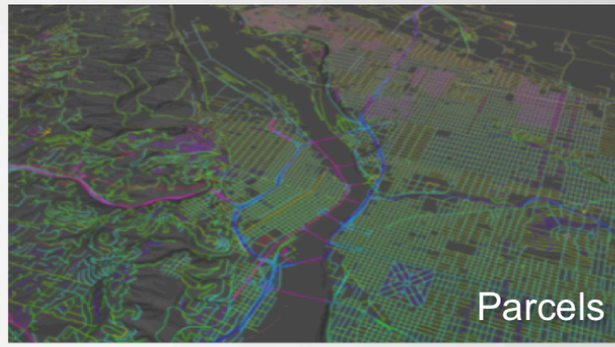


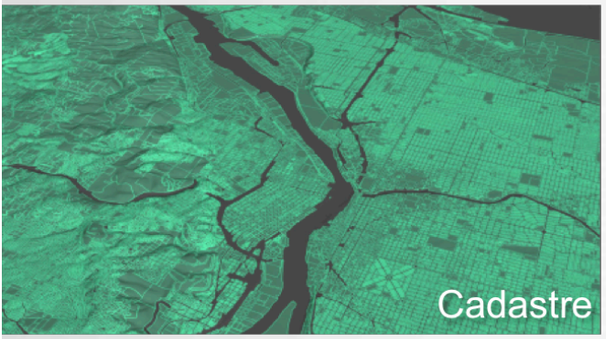
Image courtesy of Briggs Automotive Company Ltd.

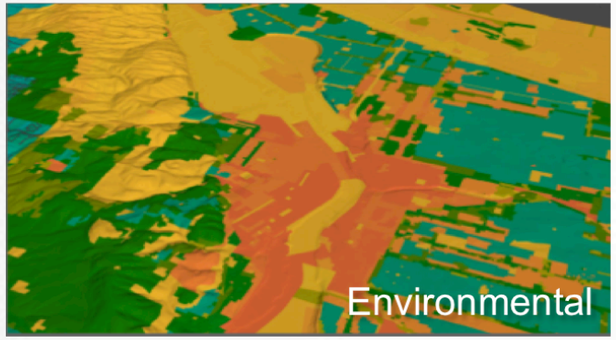
AUTODESK.

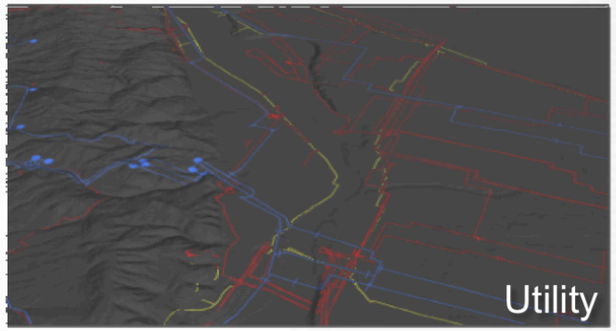


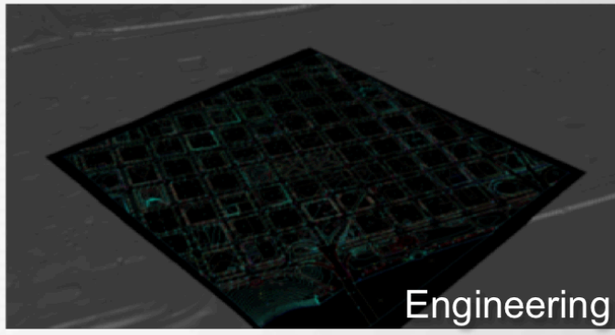


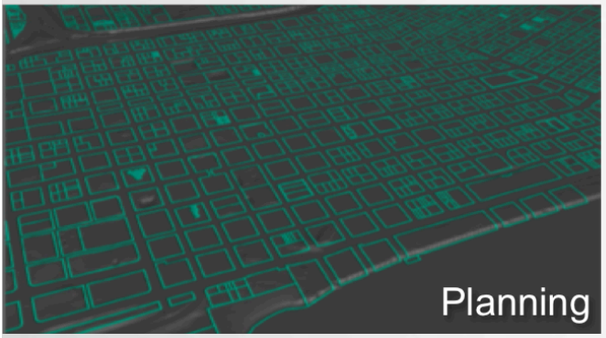












AUTODESK.

Enabling Technology for a Studio of the Future

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New Input Interfaces

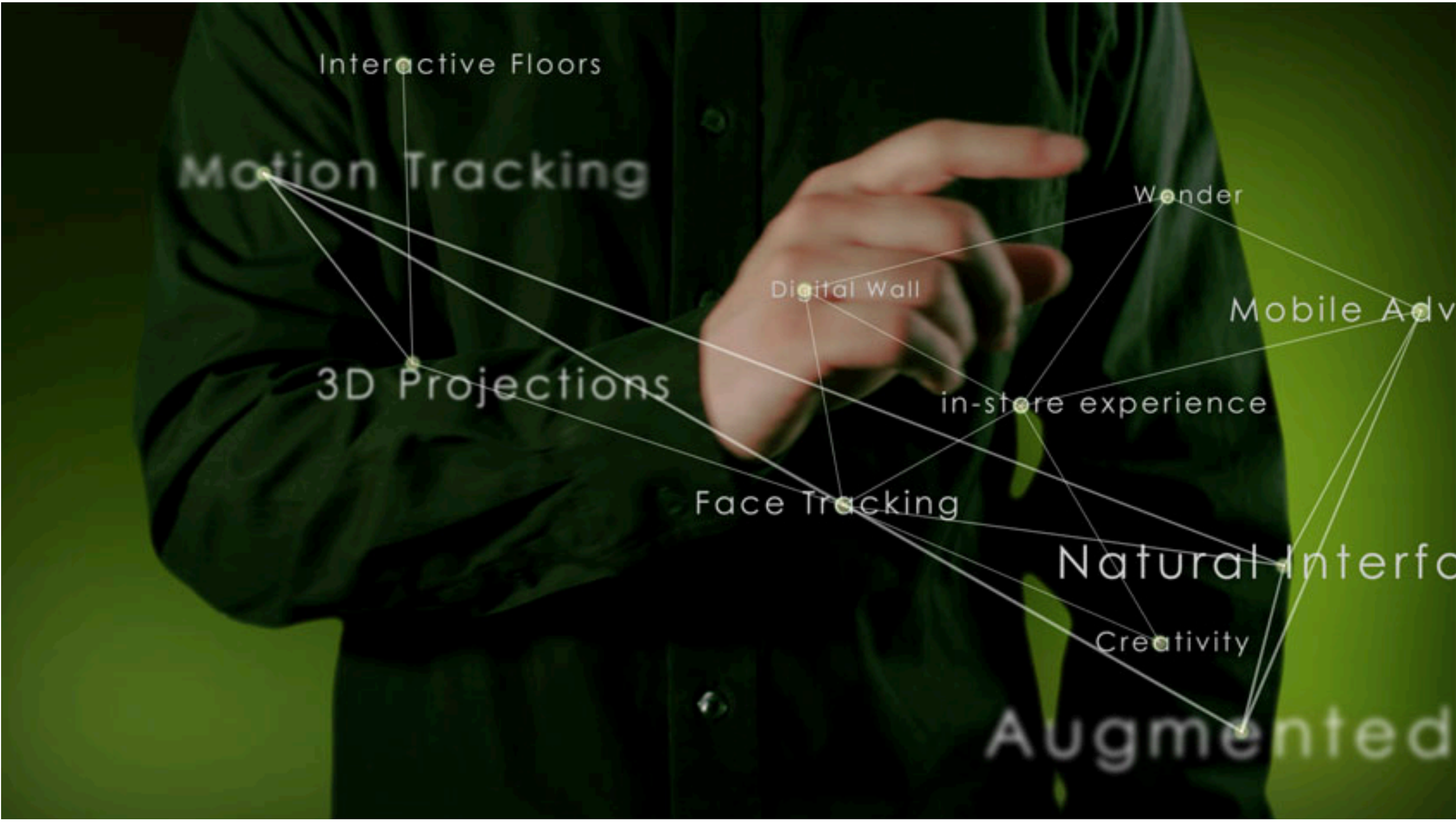
New Display Interfaces

Interactive 3D Experiences

AUTODESK.

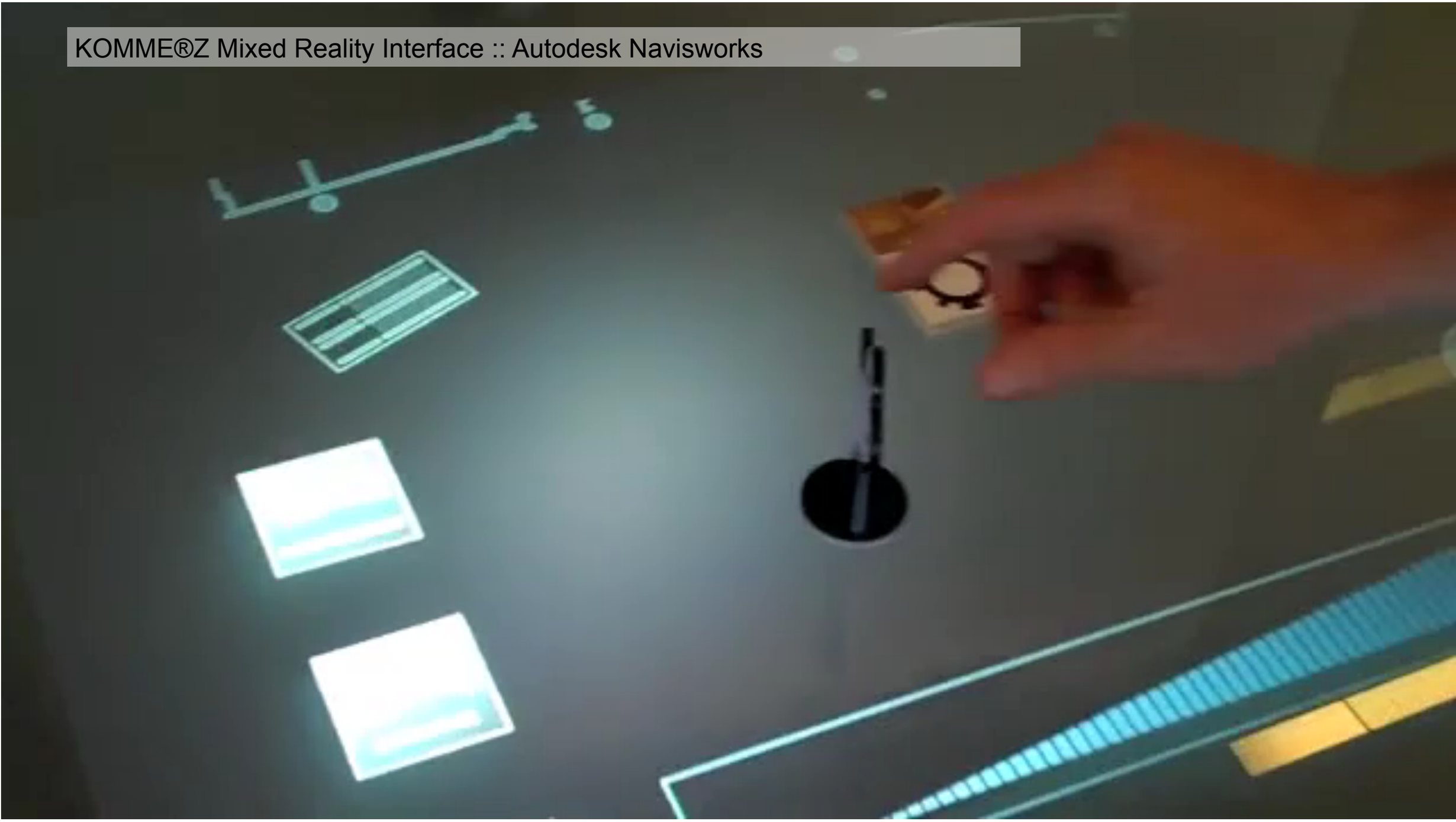
New Input Interfaces

AUTODESK.

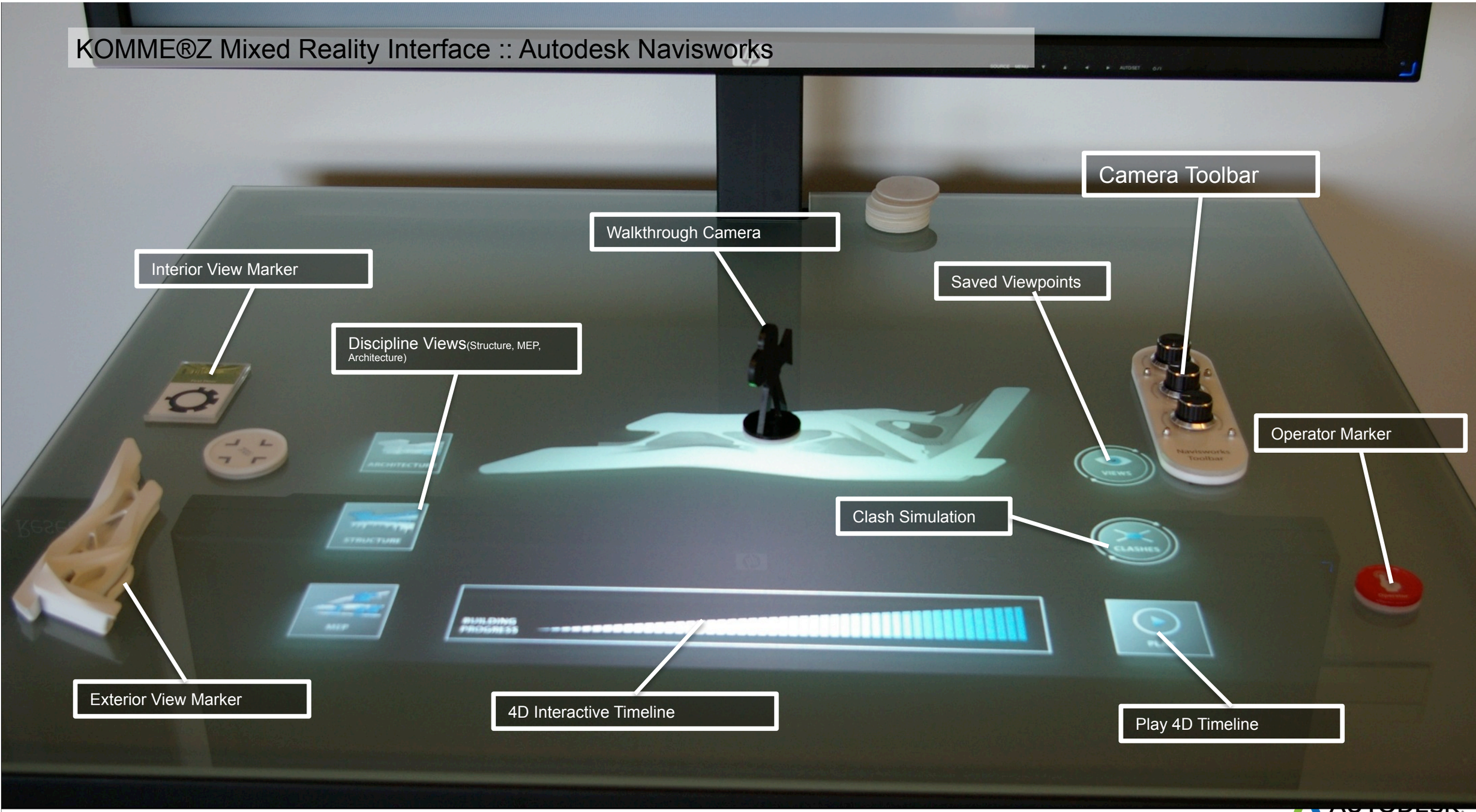

Interactive Floors
Motion Tracking
Wonder
Digital Wall
Mobile Adv
3D Projections
in-store experience
Face Tracking
Natural Interfa
Creativity
Augmented


Leap Motion – Motion Controlled Engine Assembly/Disassembly

KOMME®Z Mixed Reality Interface :: Autodesk Navisworks

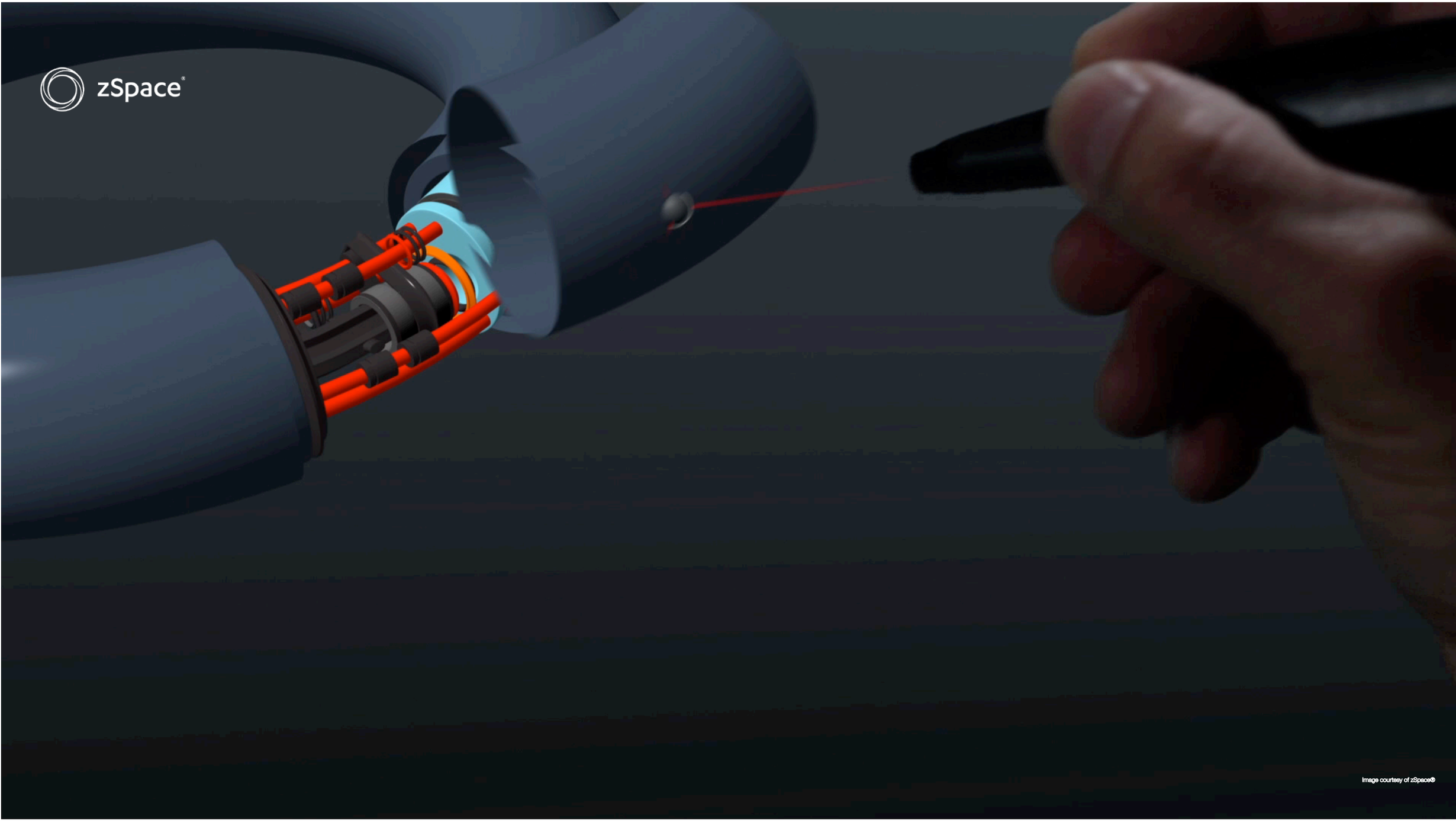


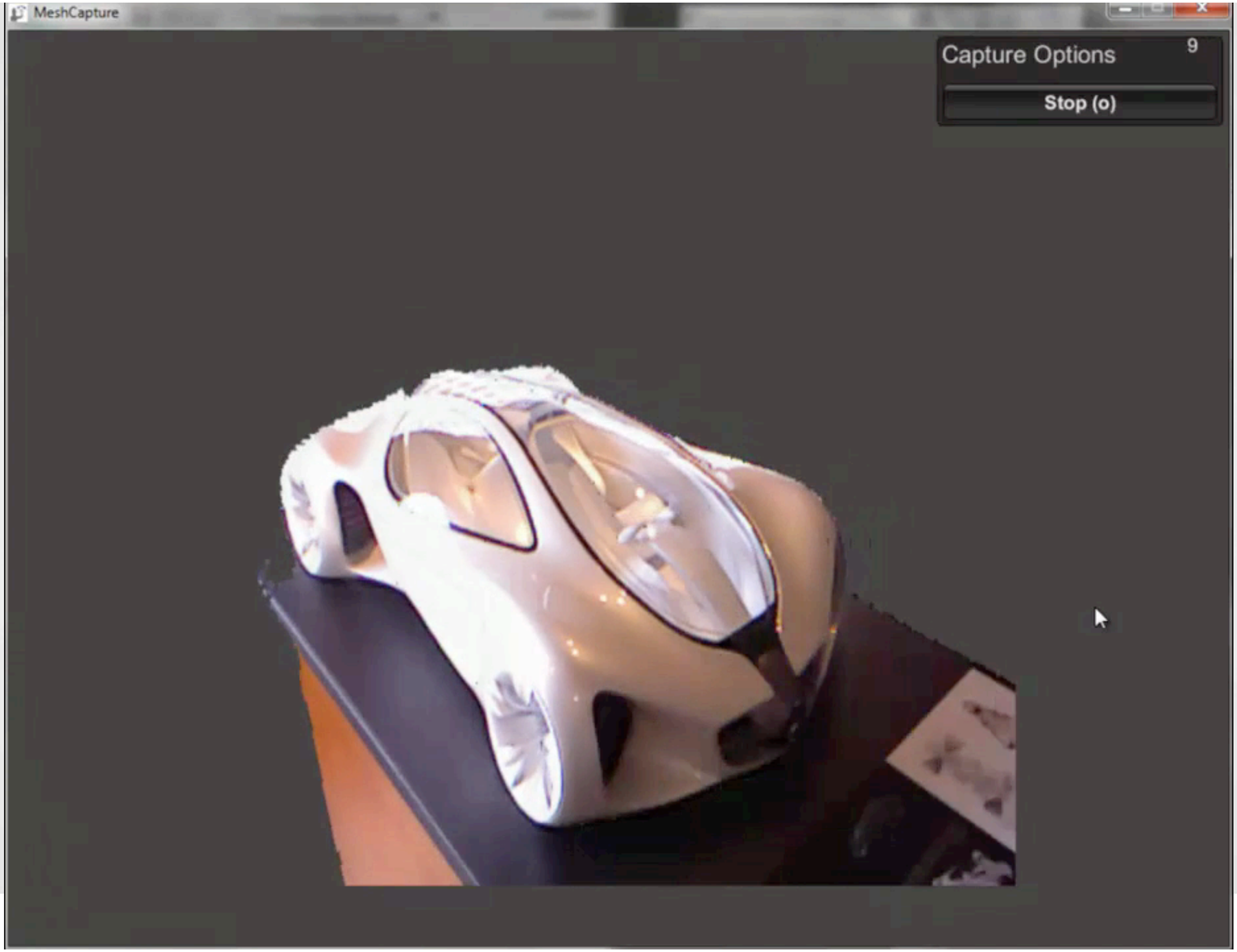
KOMME®Z Mixed Reality Interface :: Autodesk Navisworks



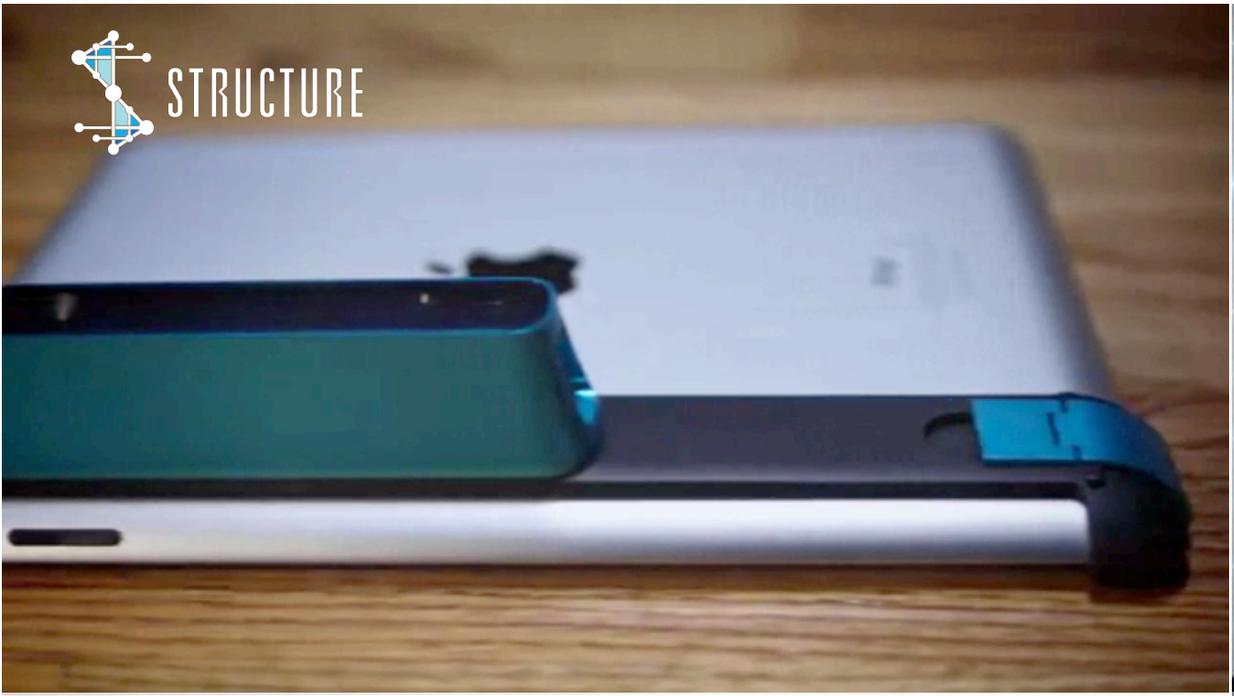

edddison
Image courtesy of KOMMEØZ

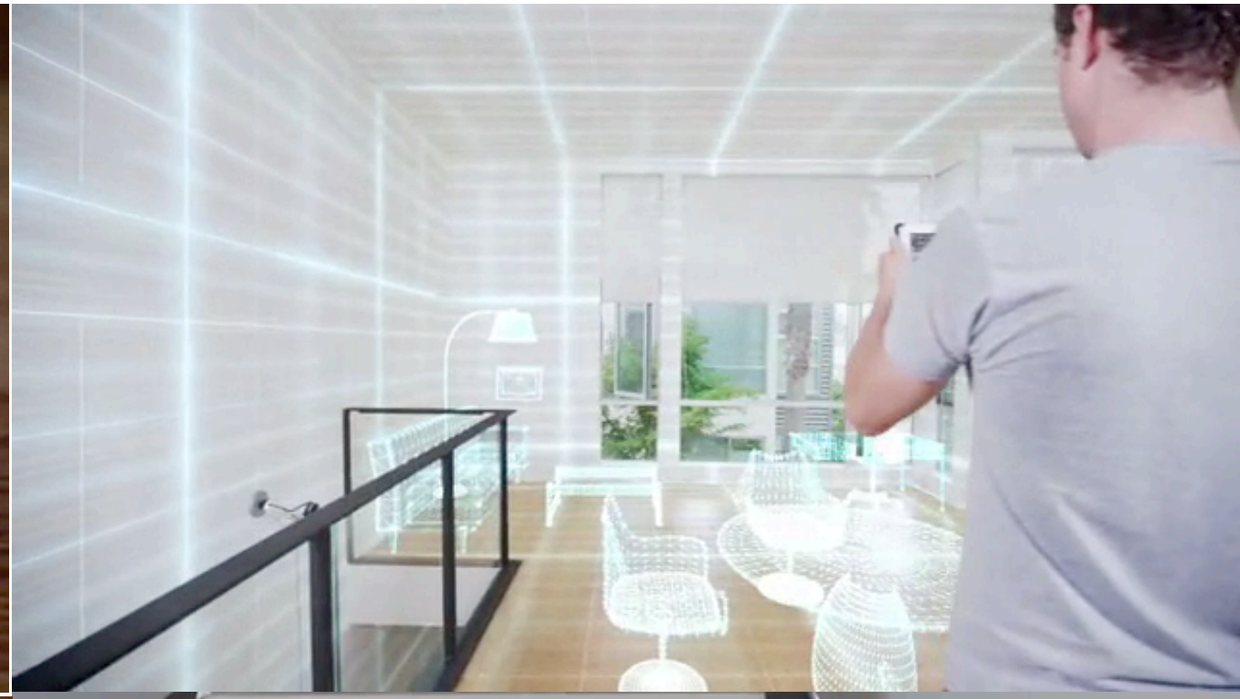

edddison
Image courtesy of KOMMEØZ


zSpace
Image courtesy of zSpace®



AUTODESK.


STRUCTURE




Done
occipital
Image courtesy of Occipital


Structure Sensor – Real-time Mobile 3D Scan
Done

LEAP MOTION FOR VIRTUAL REALITY BETA

3D OUTPUT MEETS 3D INPUT

Near-zero latency

Virtual reality should feel as smooth and seamless as the real world. With Leap Motion control, it feels instantaneous.

Bare hands

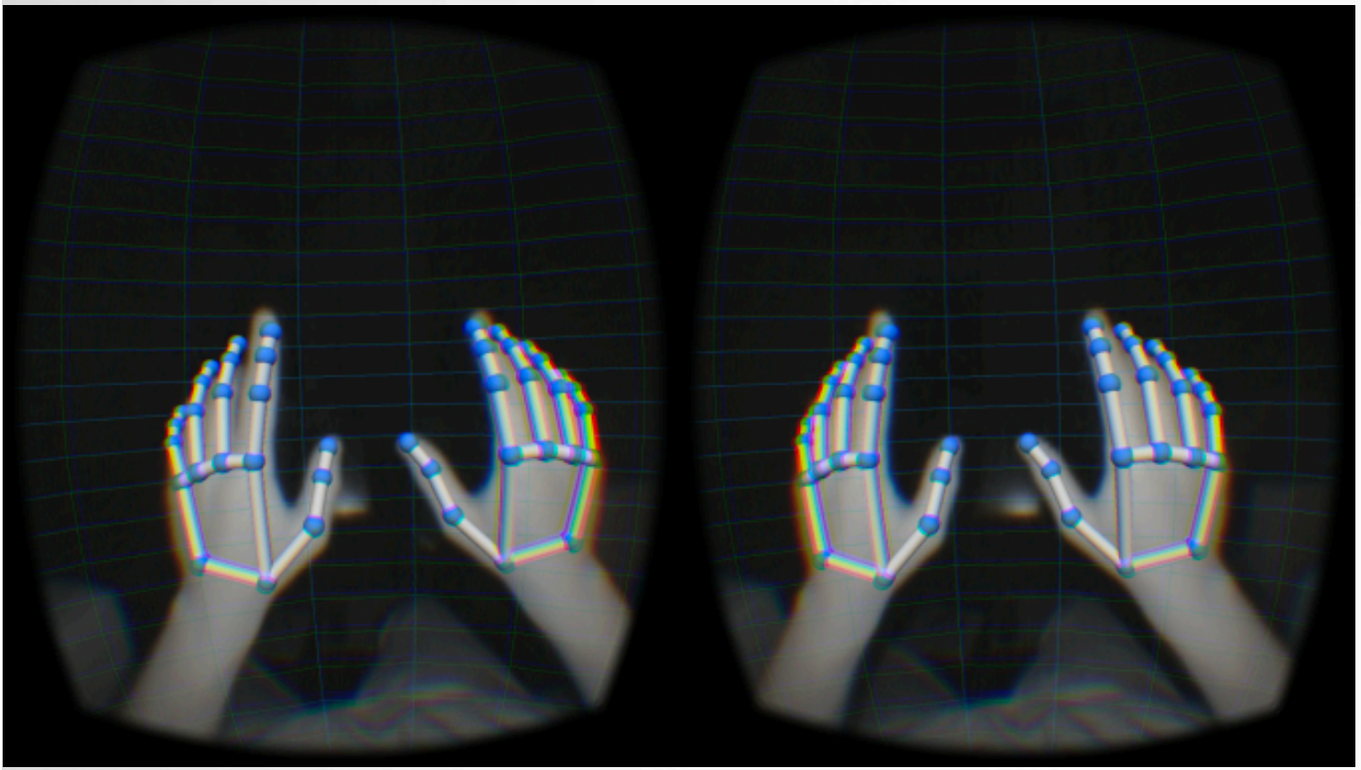
The most powerful motion tracking in the world doesn't need wearable sensors or bulky gloves. All you need is your hands.

Next-generation tracking

Pinpoint accuracy and massively improved robustness are just the beginning. The future of truly immersive VR starts here.

AUTODESK.

LEAP MOTION VR WITH OCULUS RIFT HMD



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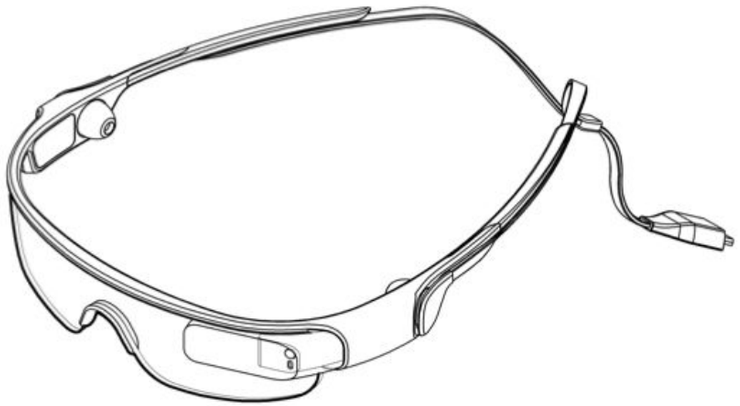
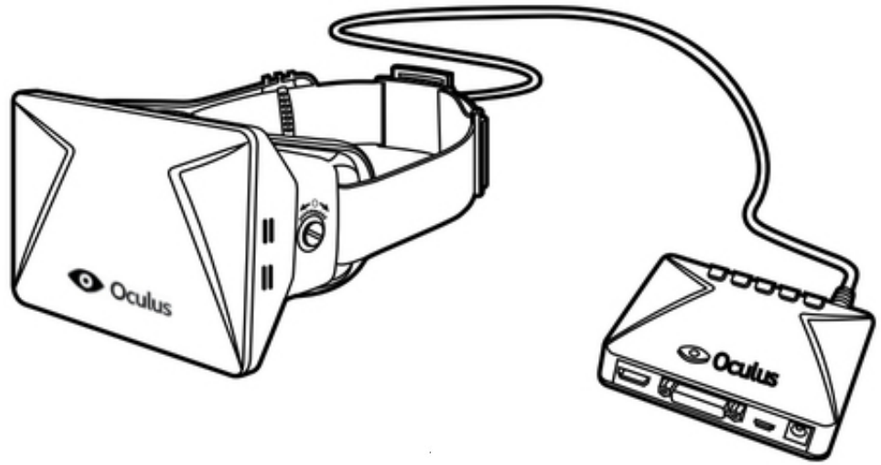
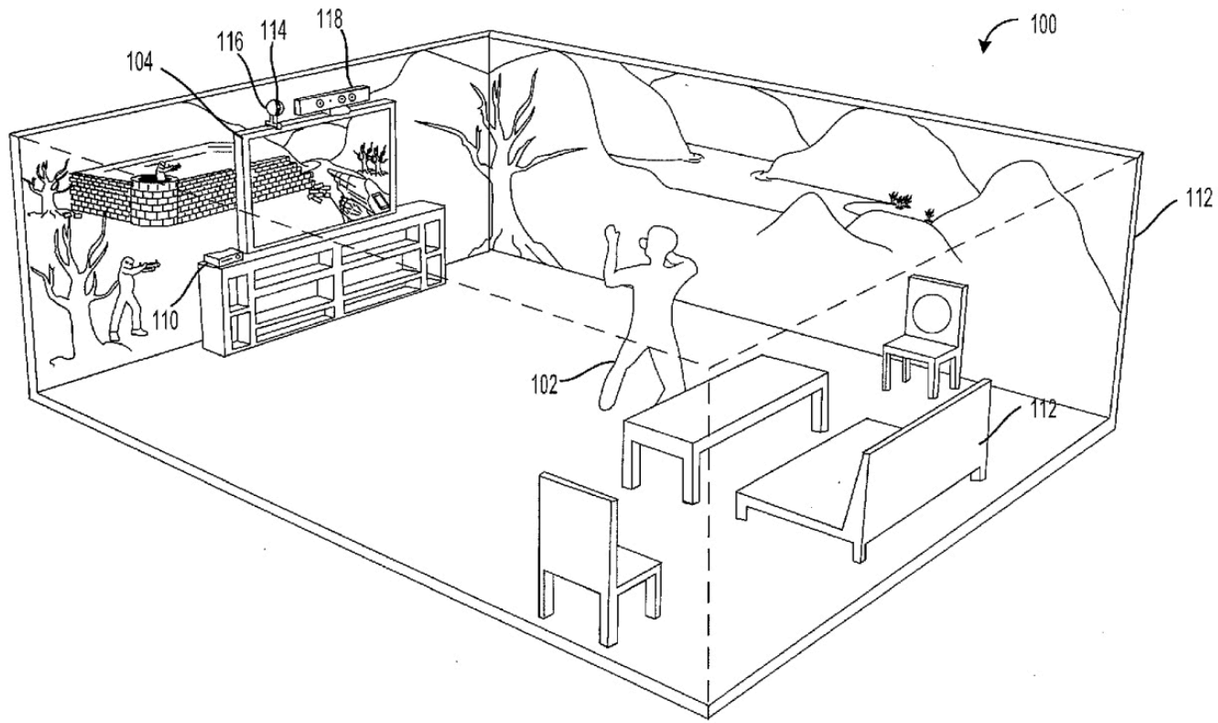
New Display Interfaces

AUTODESK.




Oculus
Oculus


100
104
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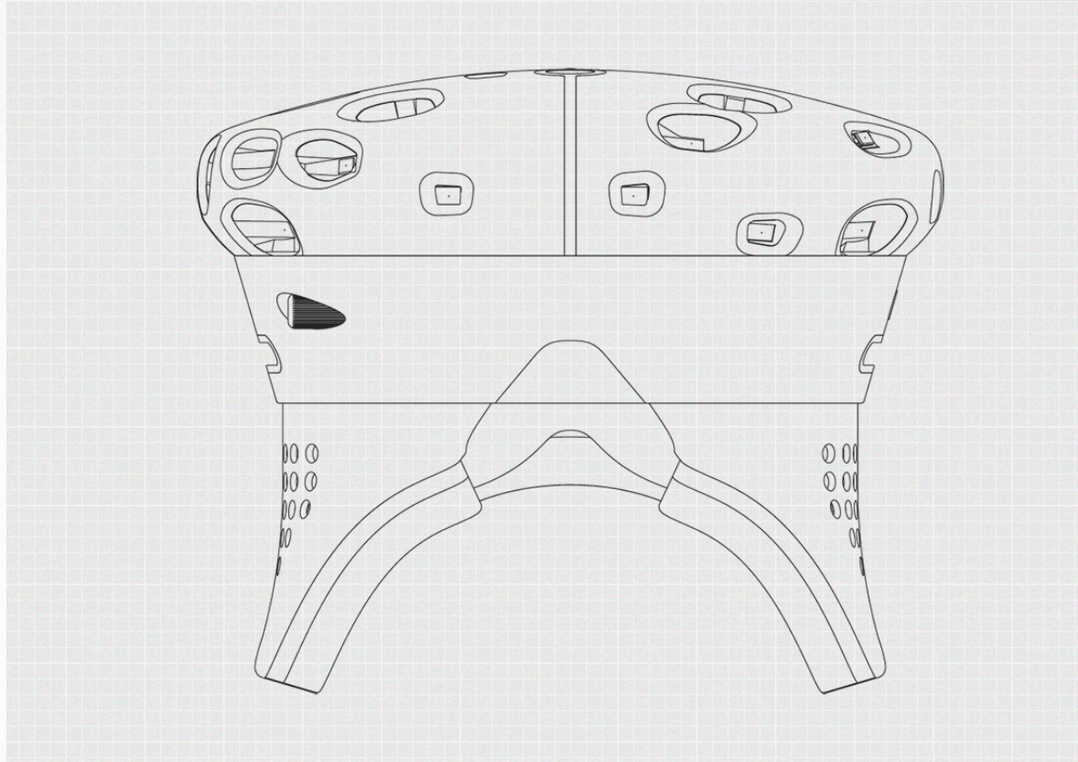
htc vive



TRACKING @ ROOM SCALE | NO MOTION SICKNESS | FULL HD DISPLAY

http://www.htcvr.com/

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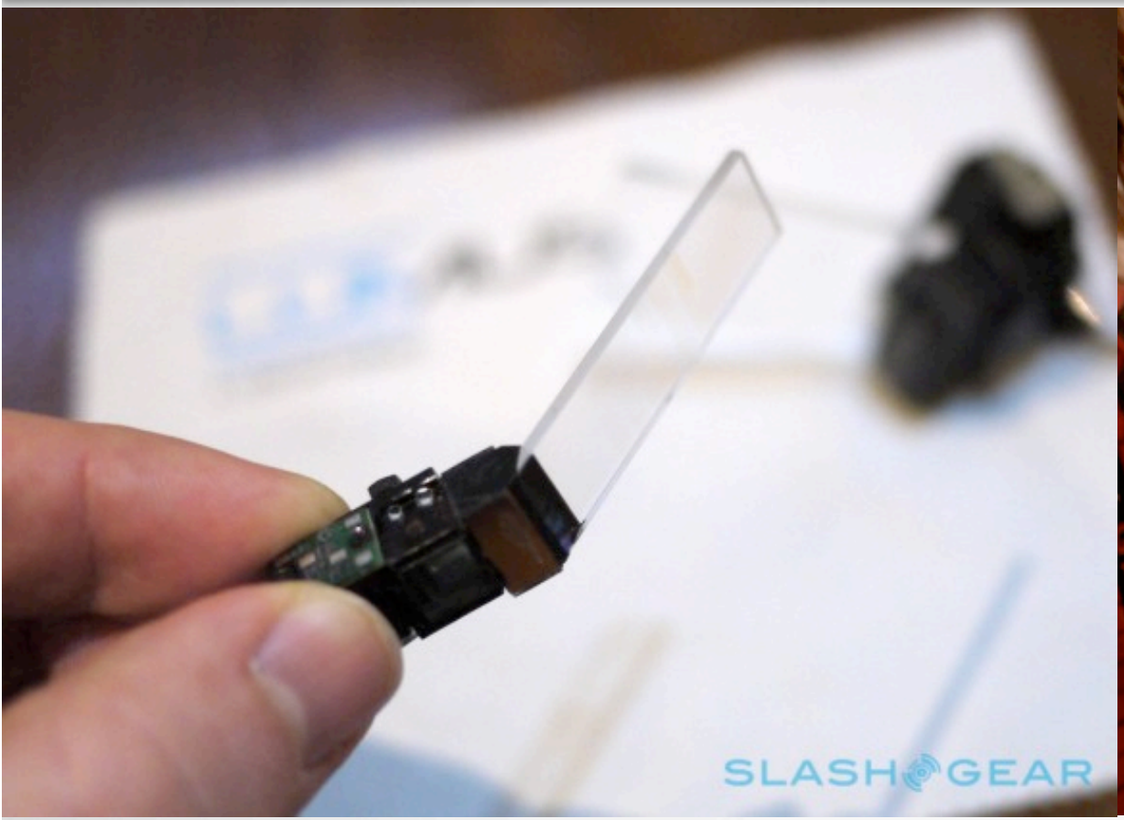
LUMUS

A VISION AHEAD



OE-31 optical engine

720p twin-display wearable prototype

AUTODESK.

LOCKHEED MARTIN

AUTODESK.

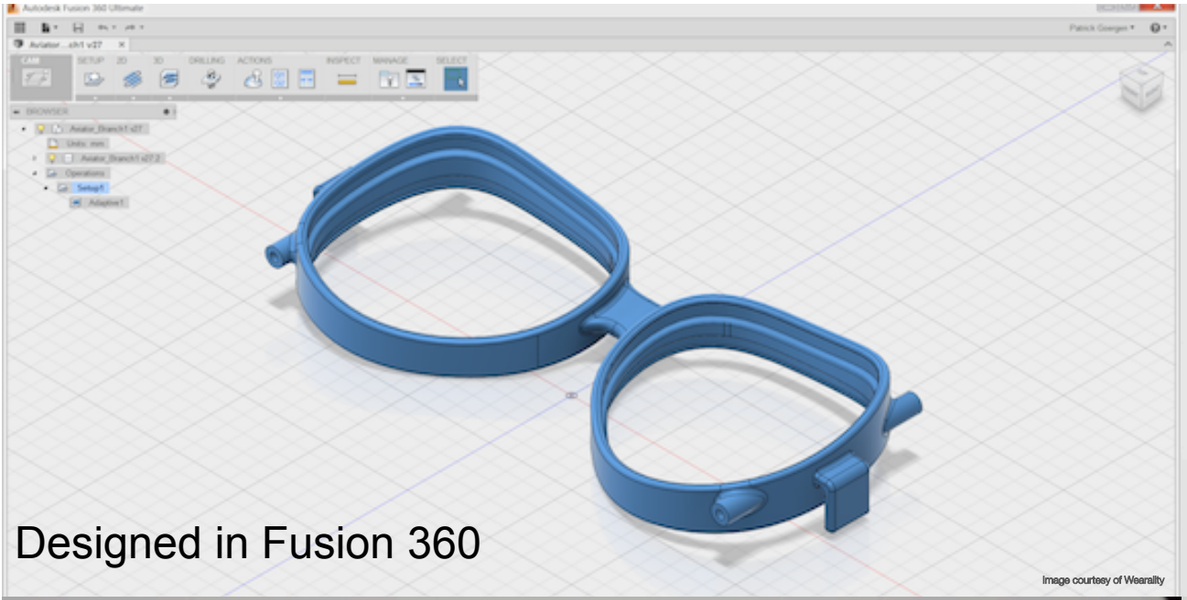
Wearality Sky: Limitless Virtual Reality (VR)

Explore the limitless possibilities of the Sky. The next generation of VR wearables is here, with an astonishing 150 degrees FOV.

Created by

Wearality

1,091 backers pledged $117,650 to help bring this project to life.



Designed in Fusion 360

Image courtesy of Wearality

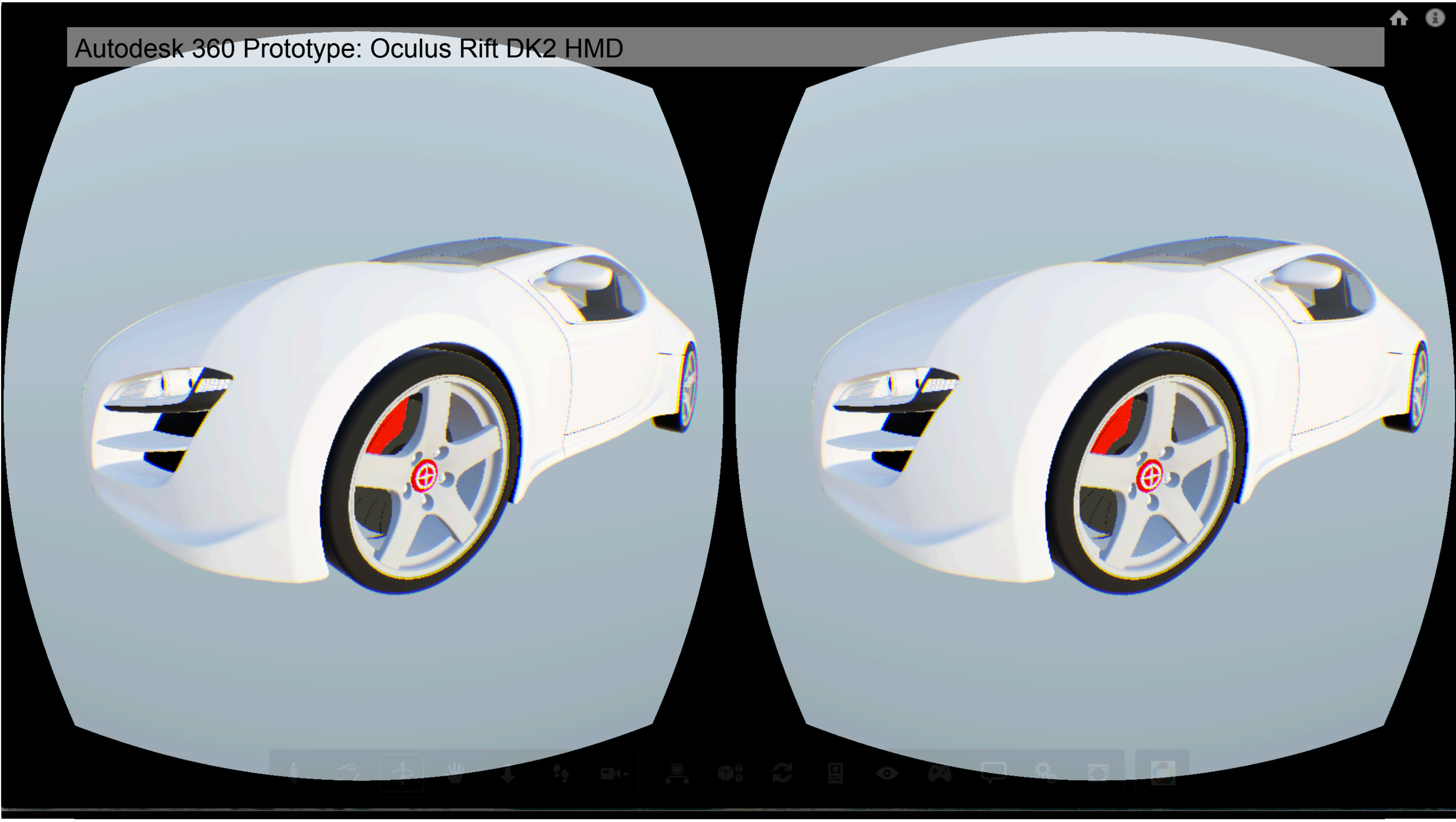
100% 3D Printed Frames and Optics

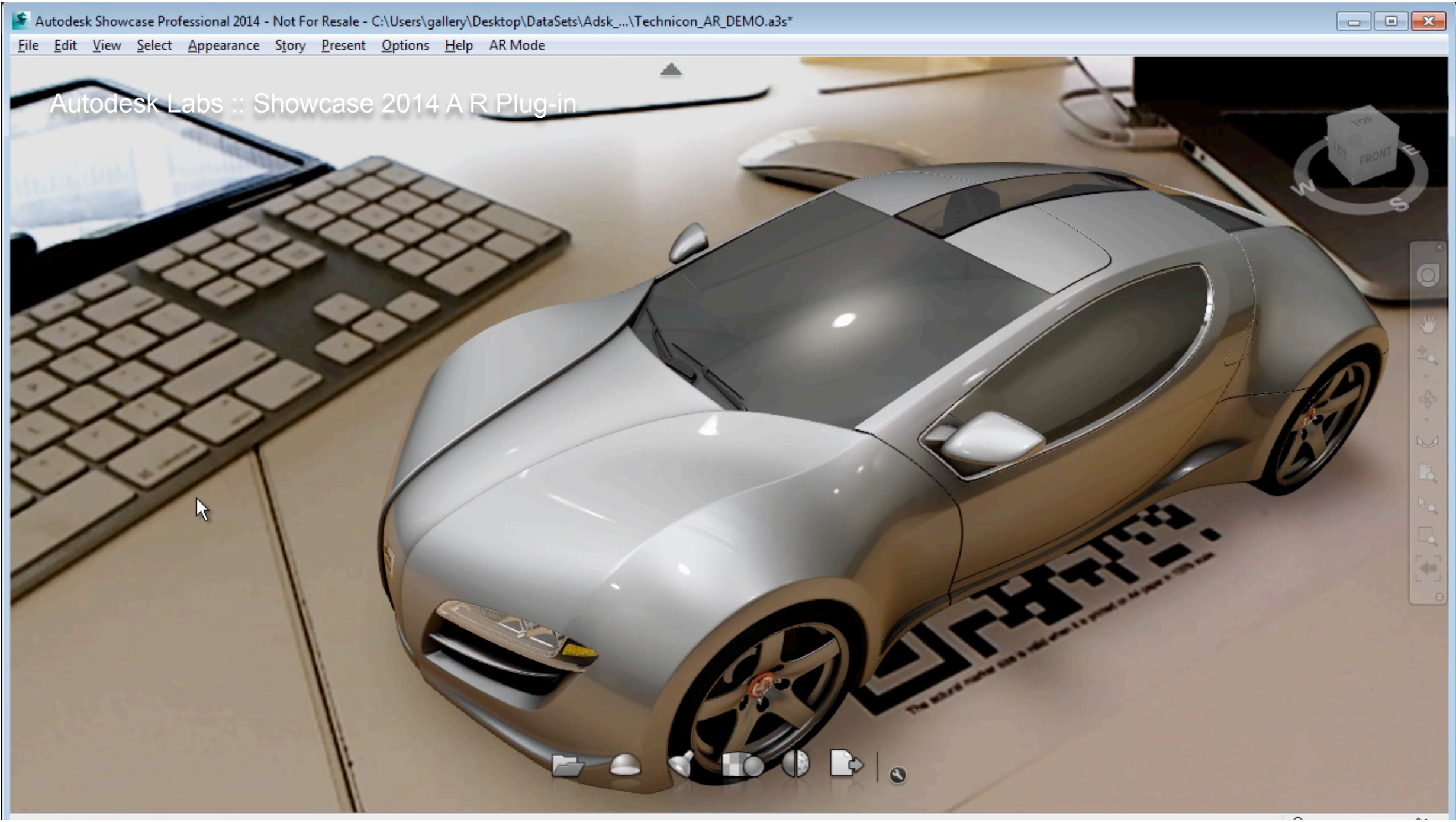
Wider FOV than Oculus Rift

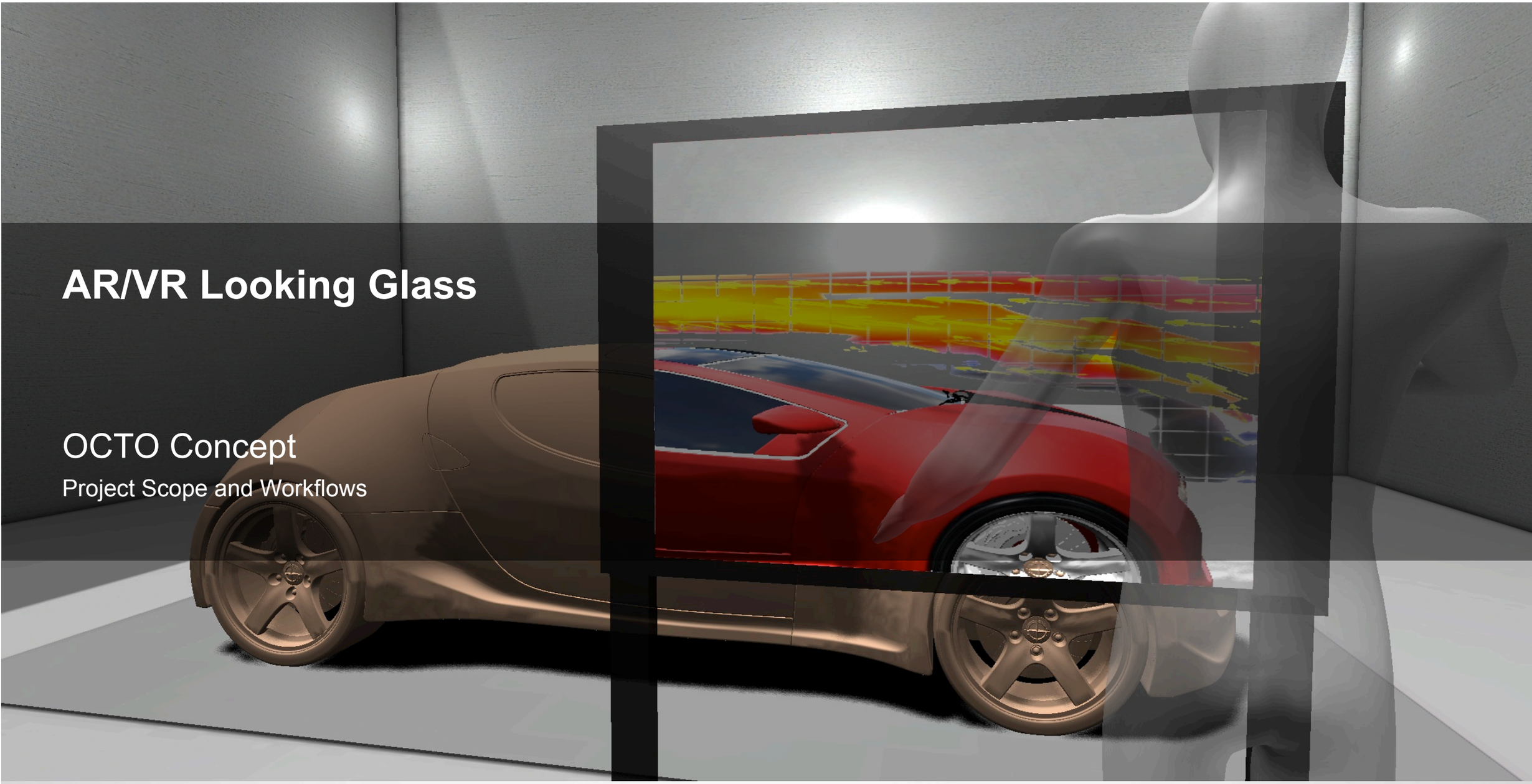
Cost < $50

Images courtesy of Wearality


Autodesk 360 Prototype: Wearality Sky HMD
BACK
LEFT


Autodesk 360 Prototype: Oculus Rift DK2 HMD


Autodesk Showcase Professional 2014 - Not For Resale - C:\Users\gallery\Desktop\DataSets\Adsk_...\Technicon_AR_DEMO.a3s*
File Edit View Select Appearance Story Present Options Help AR Mode
Autodesk Labs :: Showcase 2014 A R Plug-in



AR/VR Looking Glass

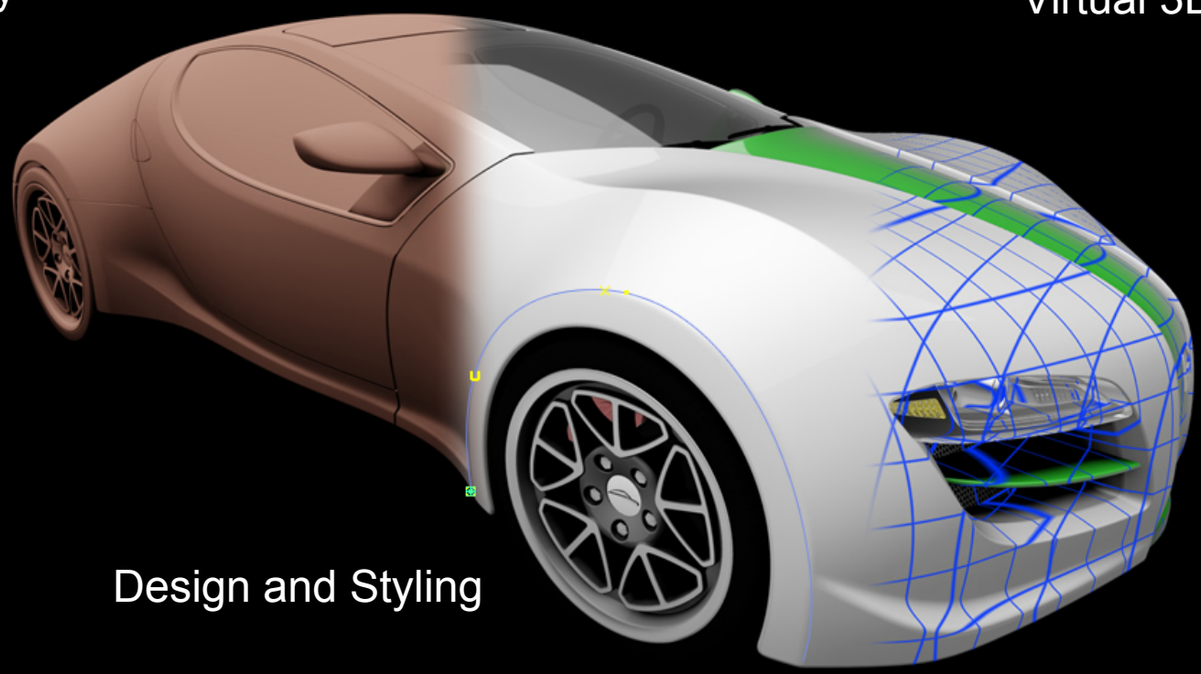
OCTO Concept

Project Scope and Workflows

AUTODESK.

Physical Clay Model

Virtual 3D Model



Design and Styling

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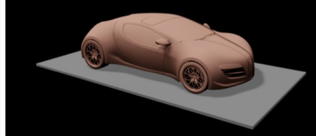
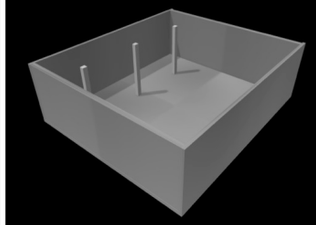
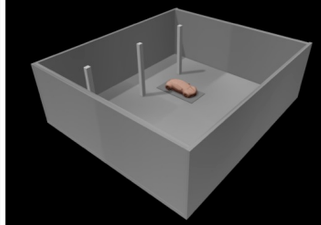
3D Tracking



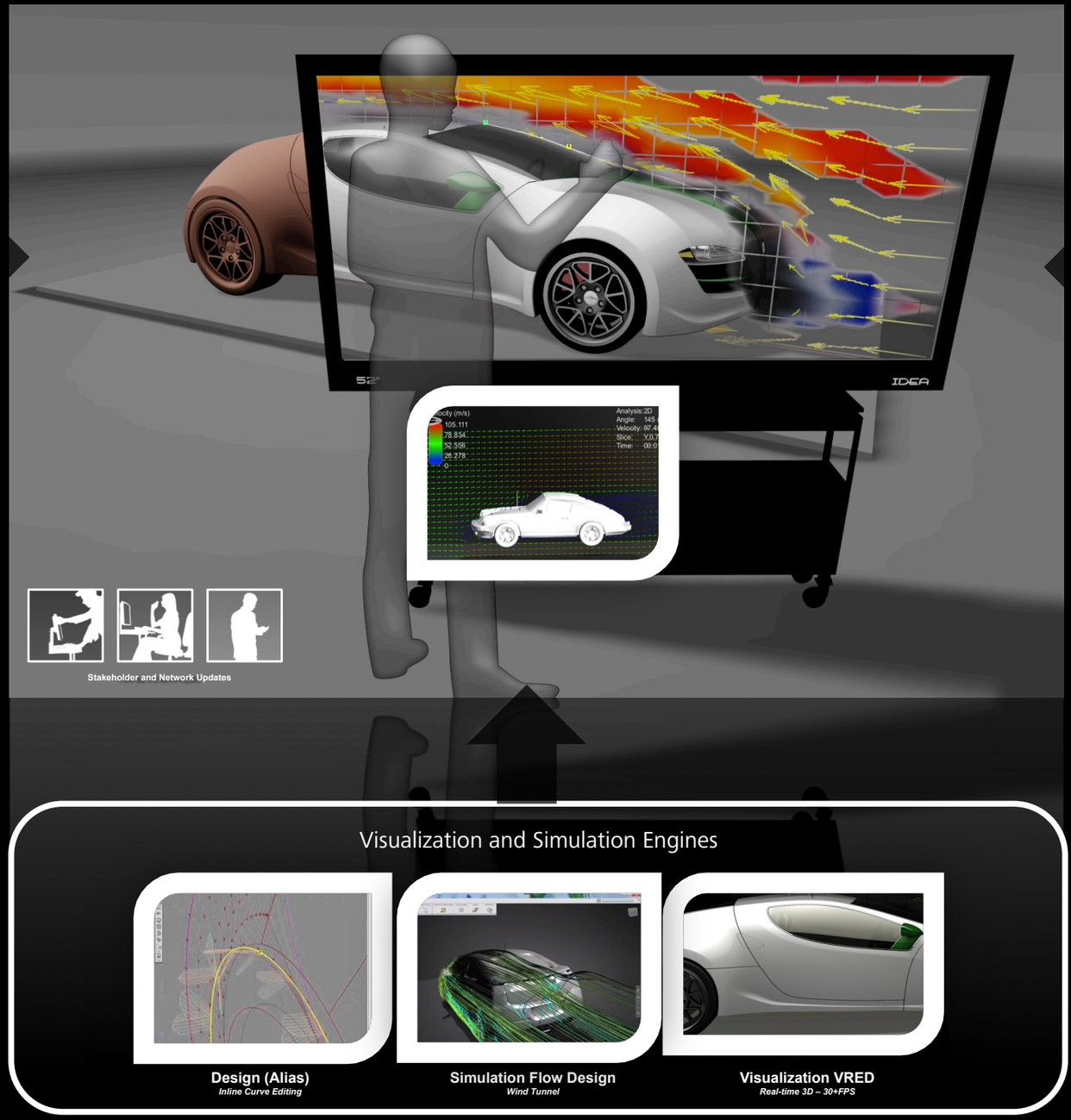
Scan 3D Reference Map



Styling Dome 3D Model



Combined Model/ 3D Tracking Map



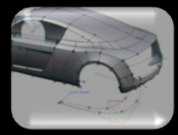
Visualization and Simulation Engines

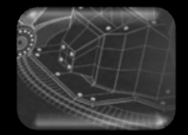
Design (Alias)
Inline Curve Editing

Simulation Flow Design
Wind Tunnel

Visualization VRED
Real-time 3D – 30+FPS

Design and Engineering Data





Project Tango

About Project Tango Hardware Developer Resources

Request a dev kit

A mobile device that can see how we see

NVIDIA Tegra K1 Processor Motion Tracking Camera 4MP 2µm Pixel Camera Integrated Depth Sensing

Project Tango combines 3D motion tracking with depth sensing to give your mobile device the ability to know where it is and how it moves through space.

See how it works

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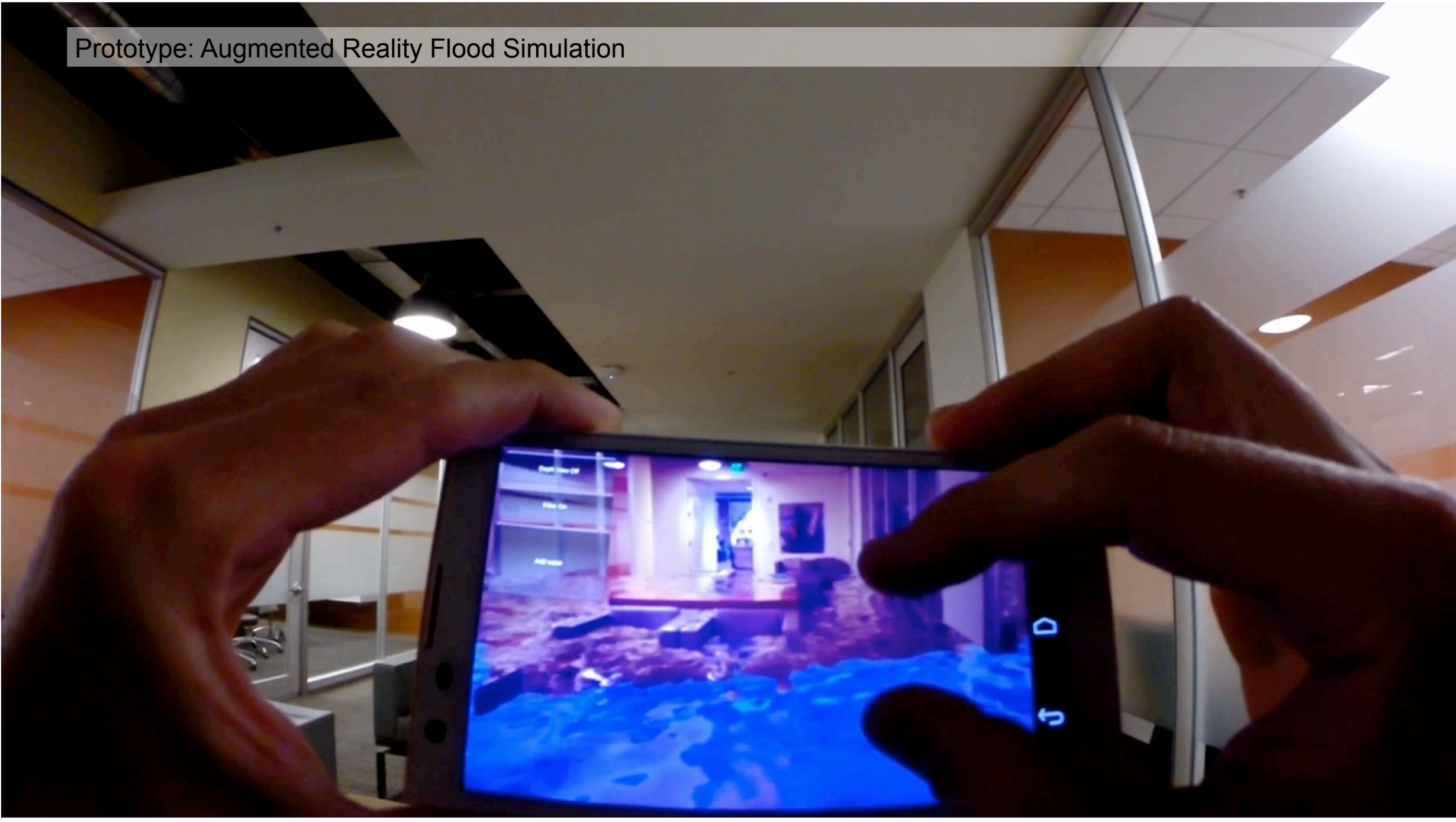
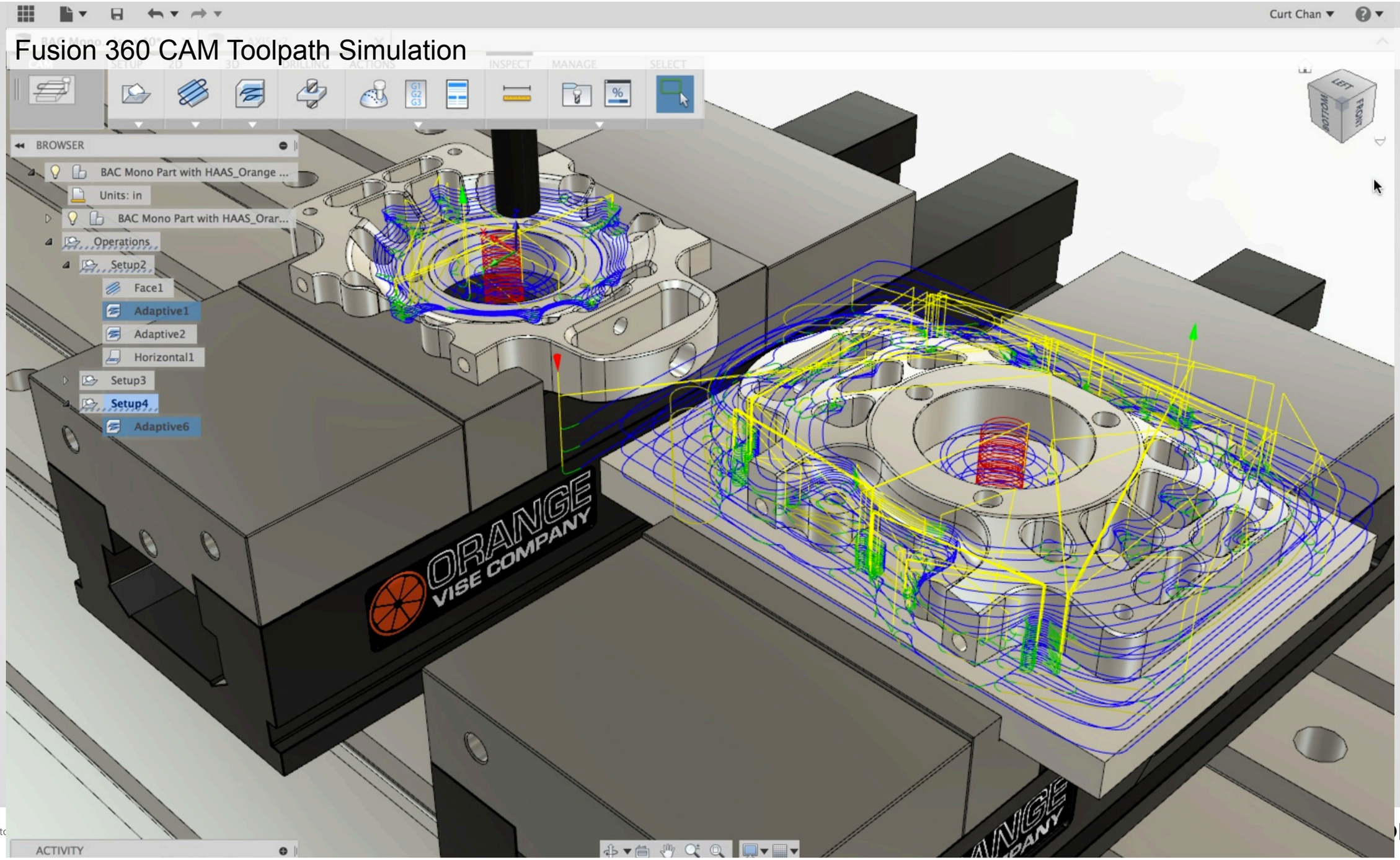
Prototype: Project Tango User location + Revit 2D floorplan


Prototype: BIM Model Walkthrough + Project Tango Tablet

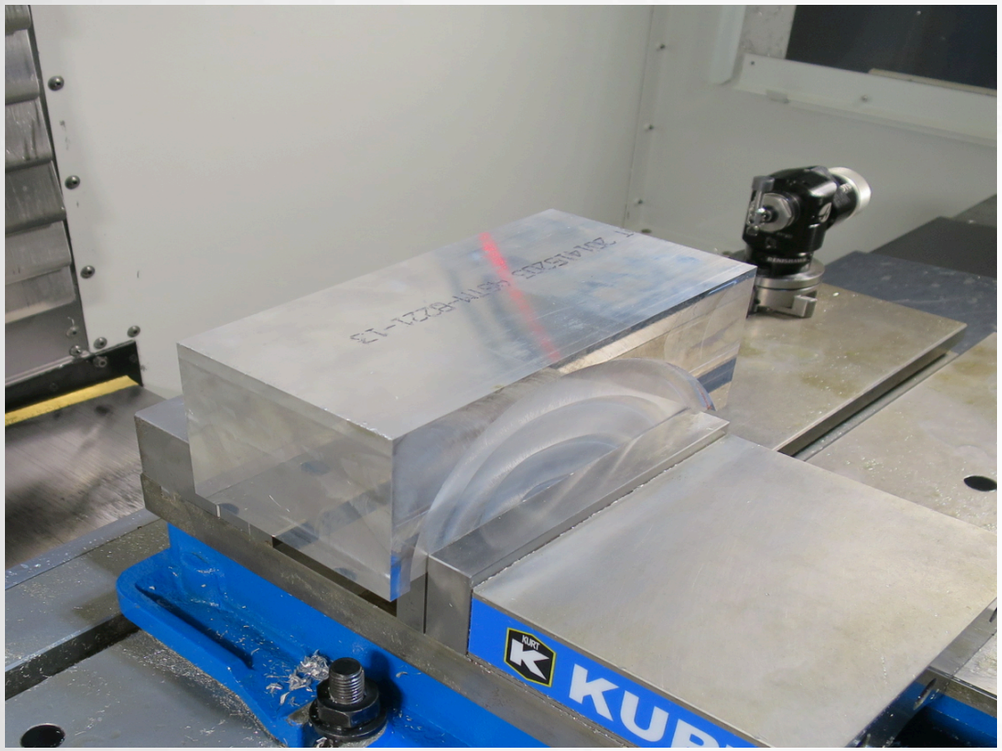
Prototype: Augmented Reality Flood Simulation

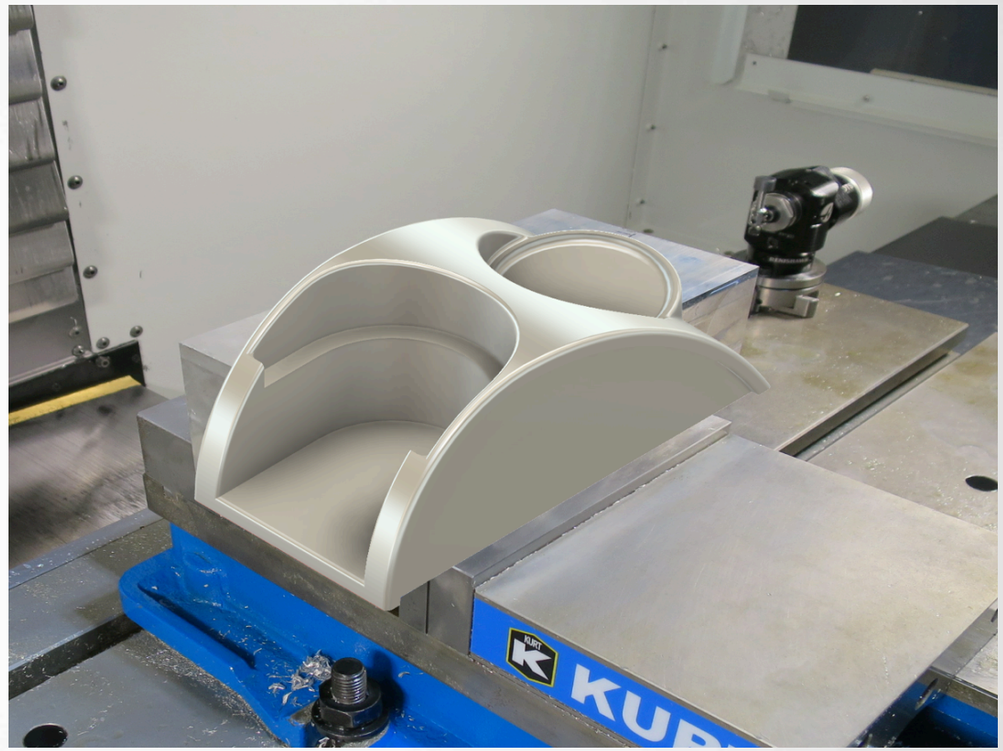


Fusion 360 CAM Toolpath Simulation



Prototype: Fusion 360 CAM toolpath data overlaid on CNC Machine





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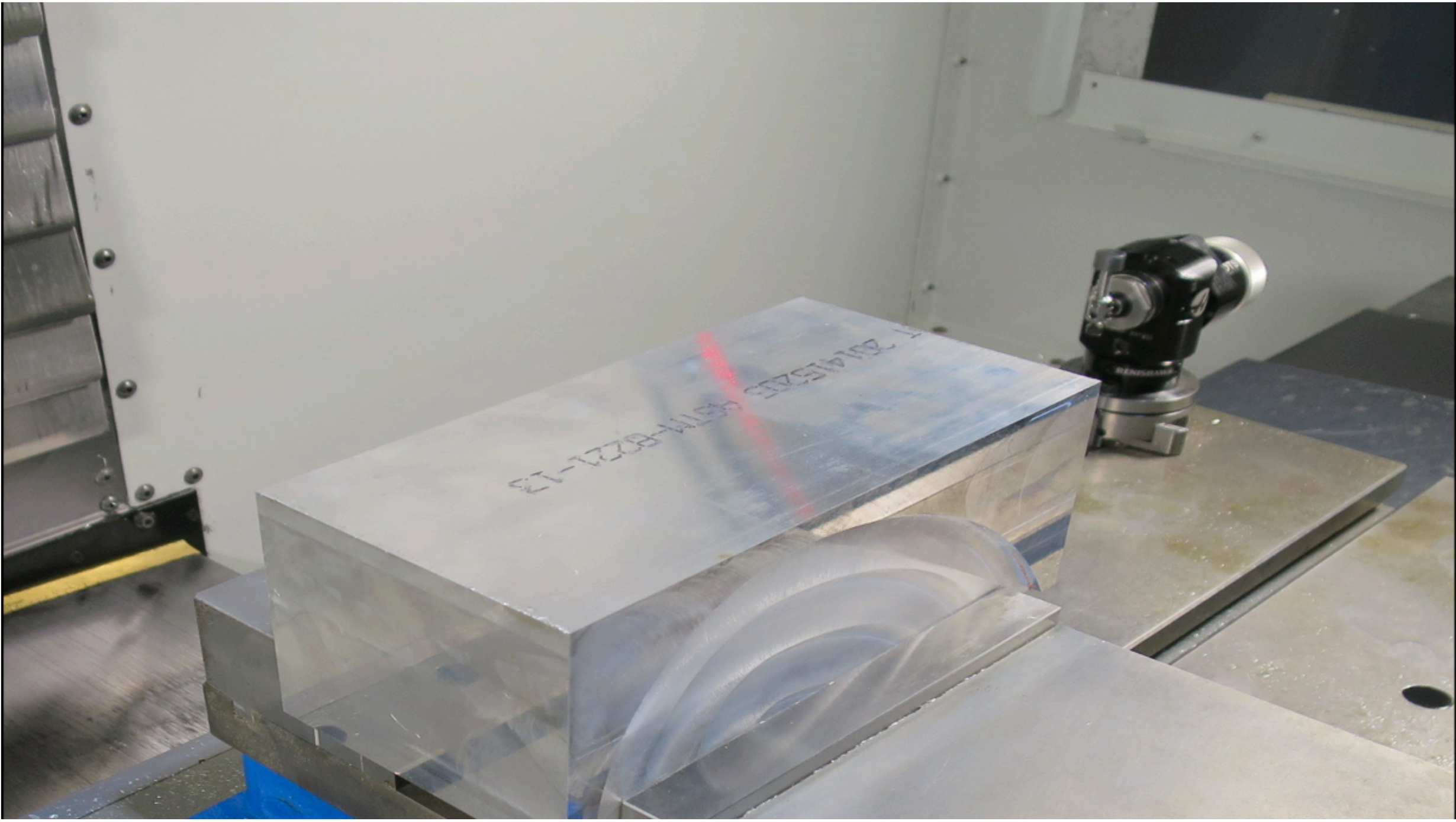
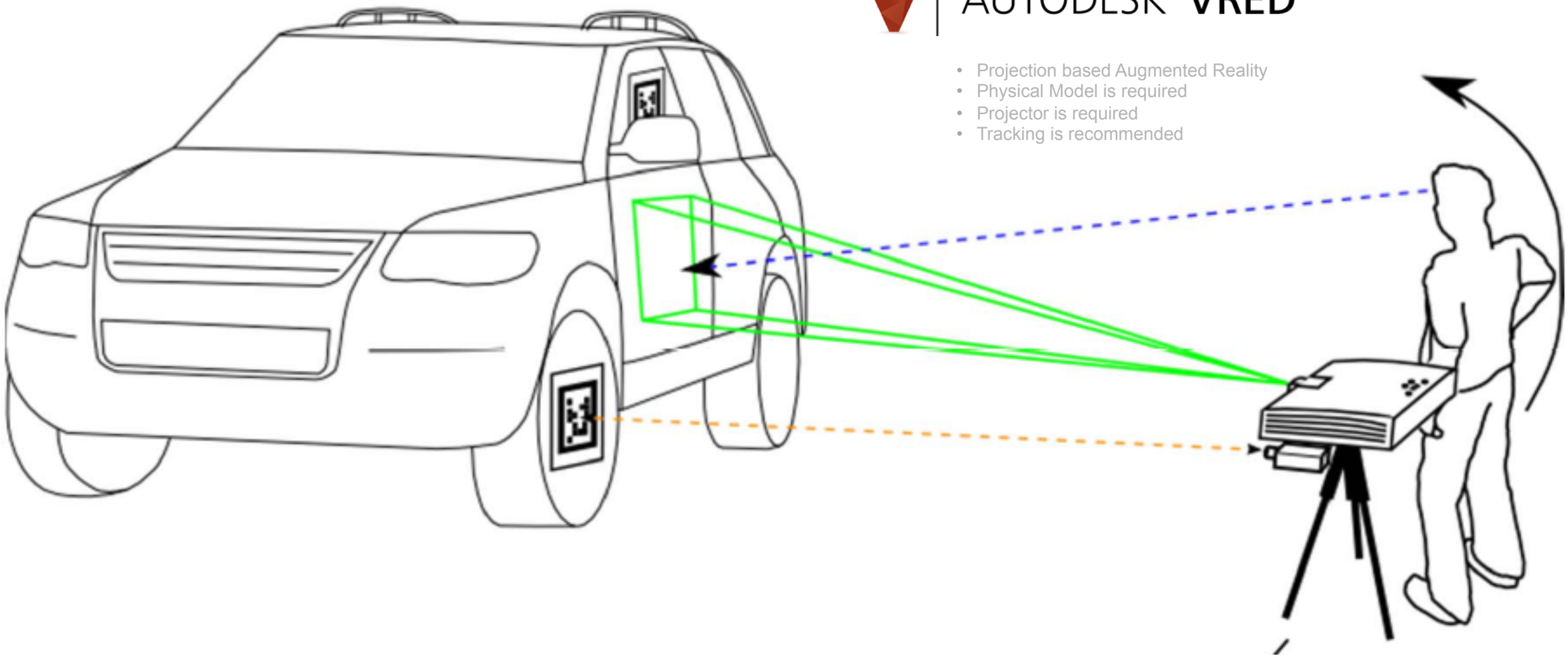


Augmented Realtiy Prototype: Fusion 360 CAM toolpath data overlaid on CNC

AUTODESK® VRED®

- Projection based Augmented Reality
- Physical Model is required
- Projector is required
- Tracking is recommended



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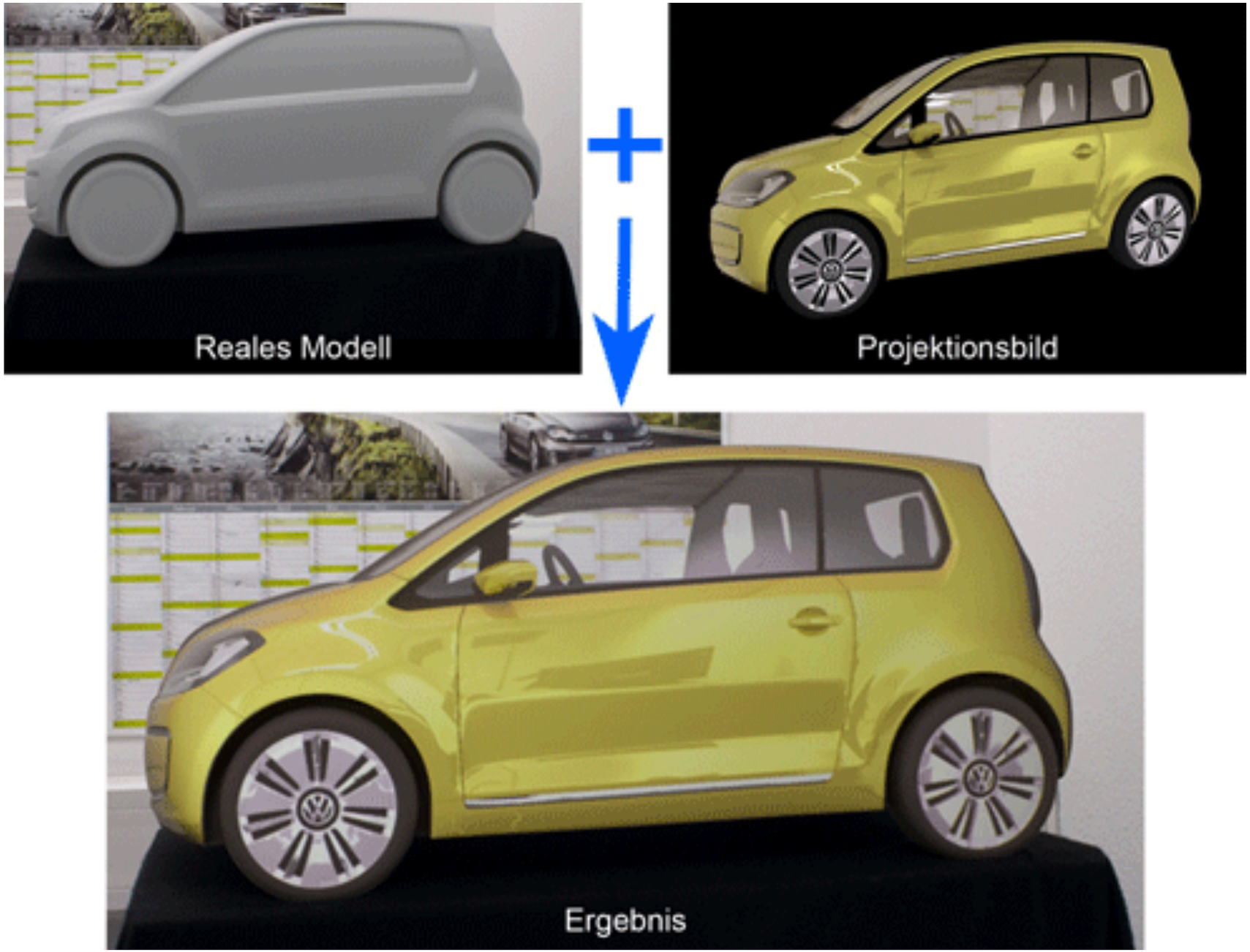

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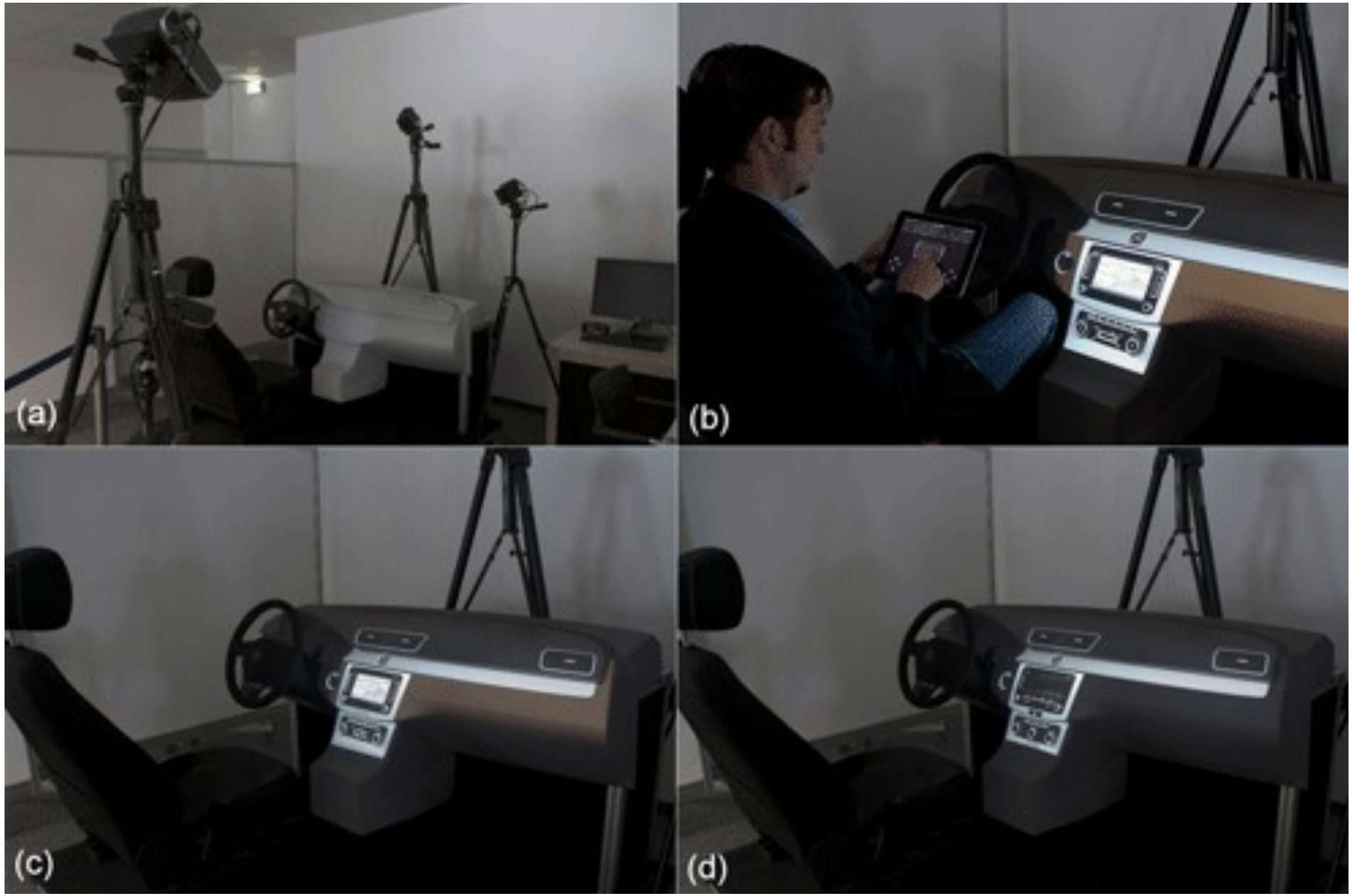

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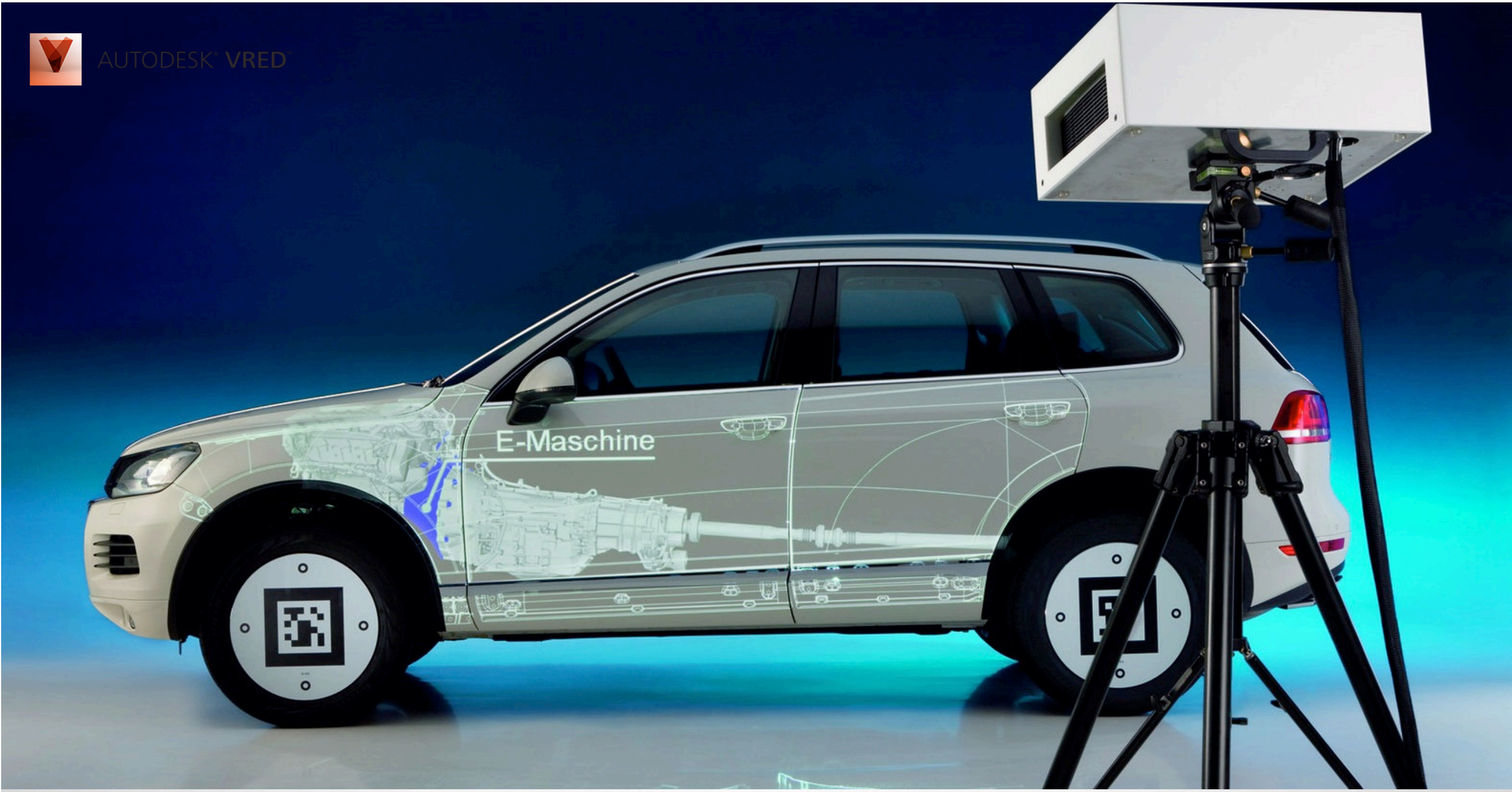

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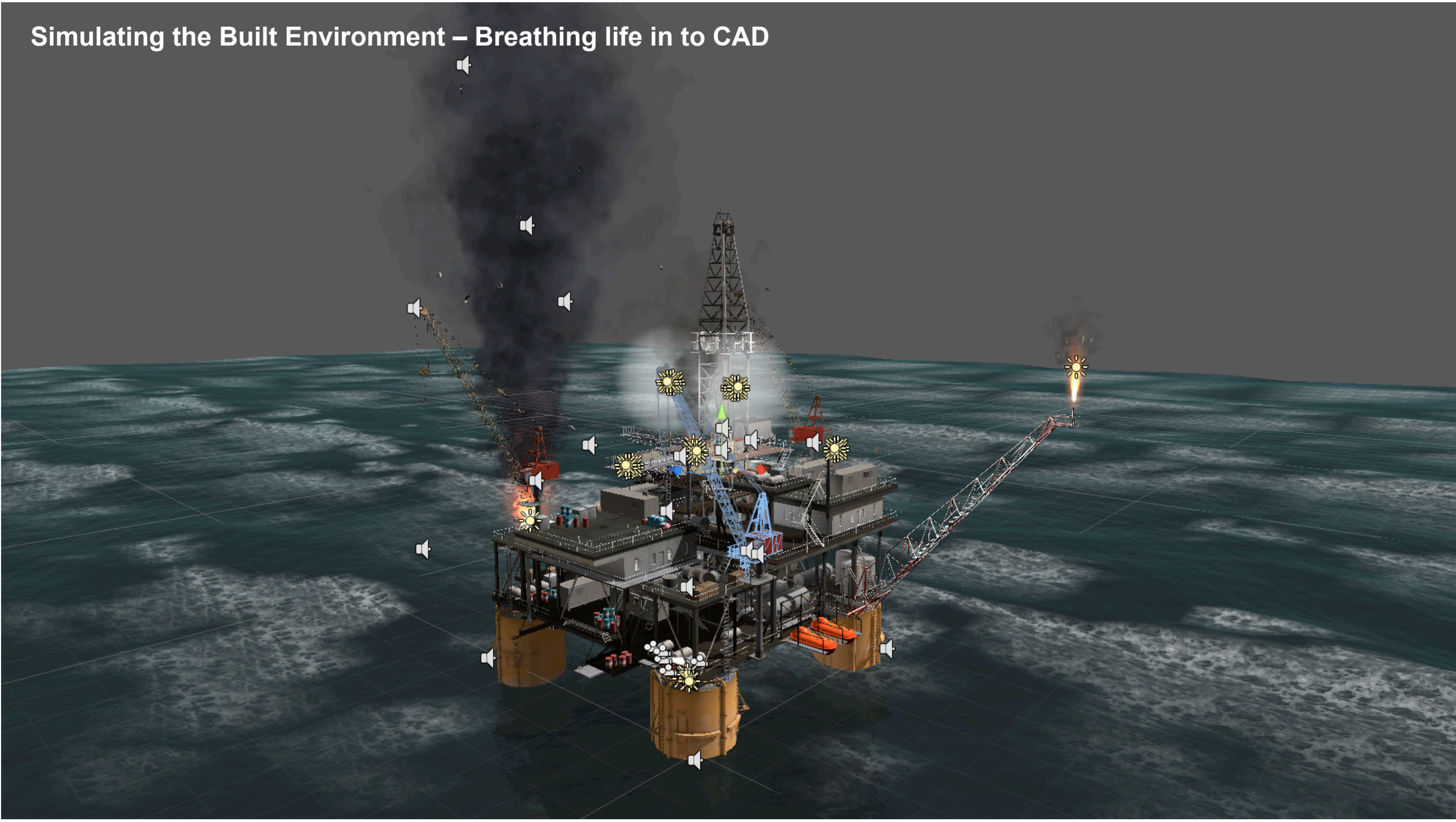
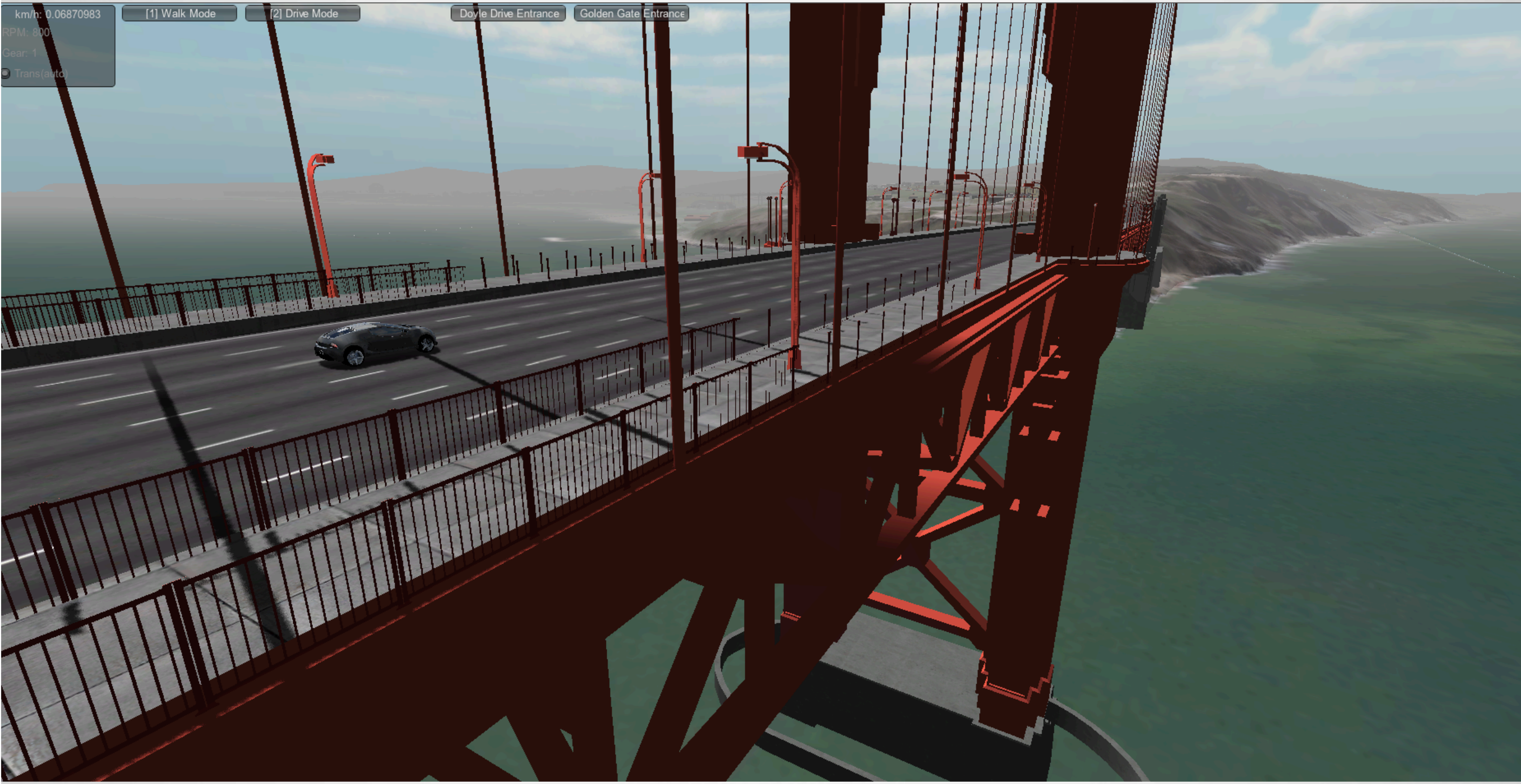
Autodesk VRED + Volvo XC90 Virtual Test Drive

Interactive
Real-time
3D Experiences

AUTODE

Simulating the Built Environment – Breathing life in to CAD





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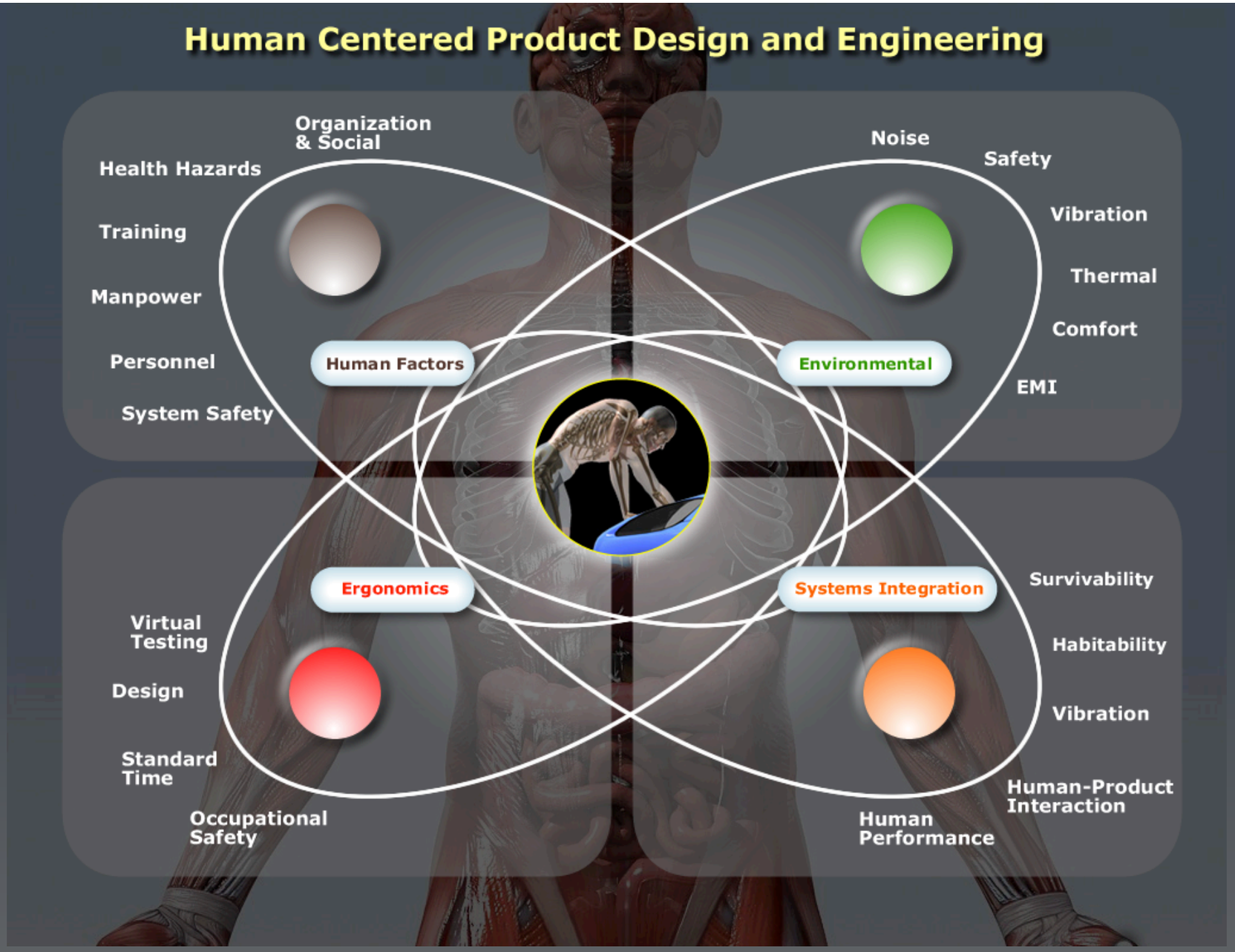
Human Centered Product Design and Engineering



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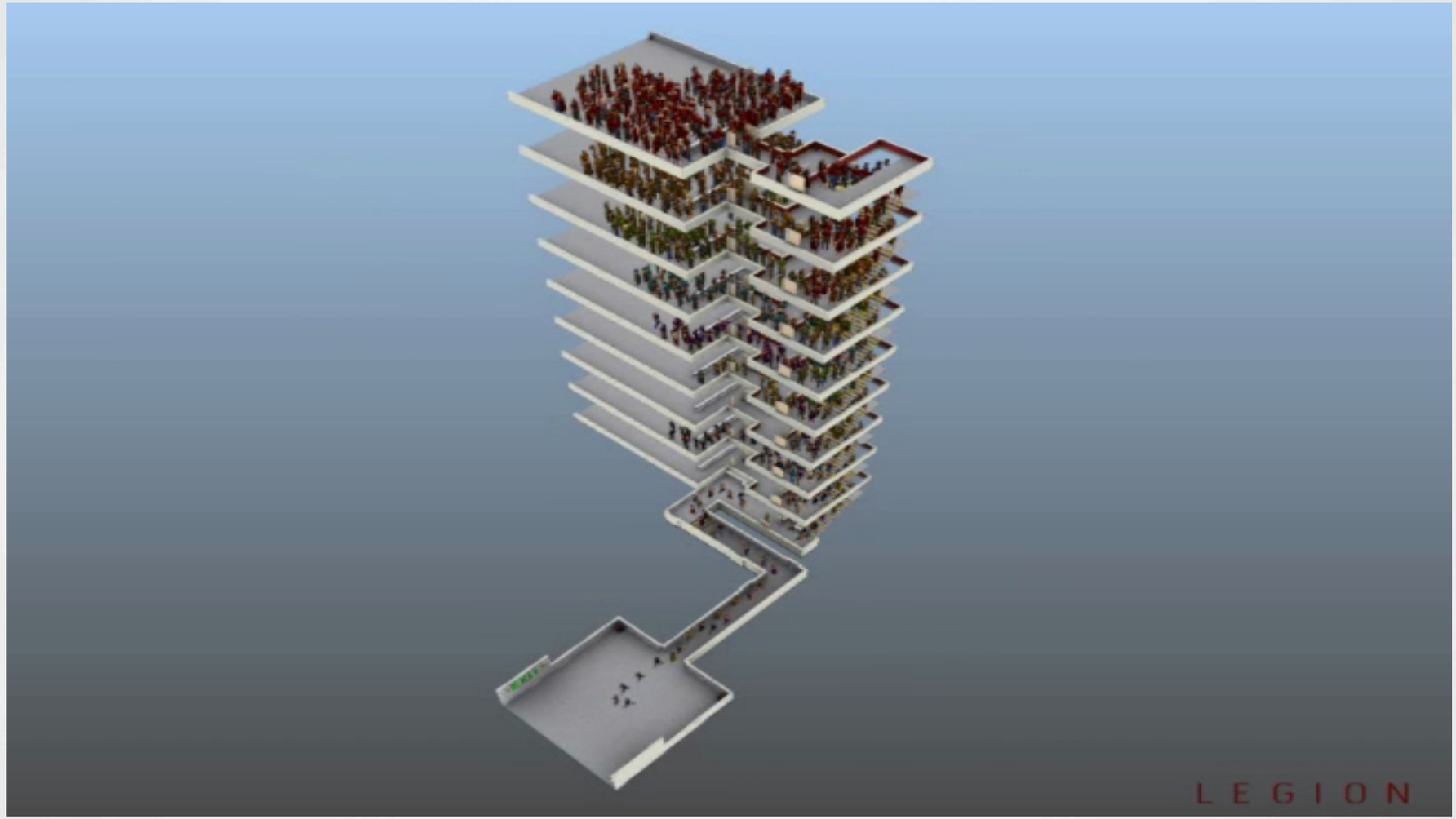
Autodesk Gameware Navigation | Stairway Evacuation Simulation



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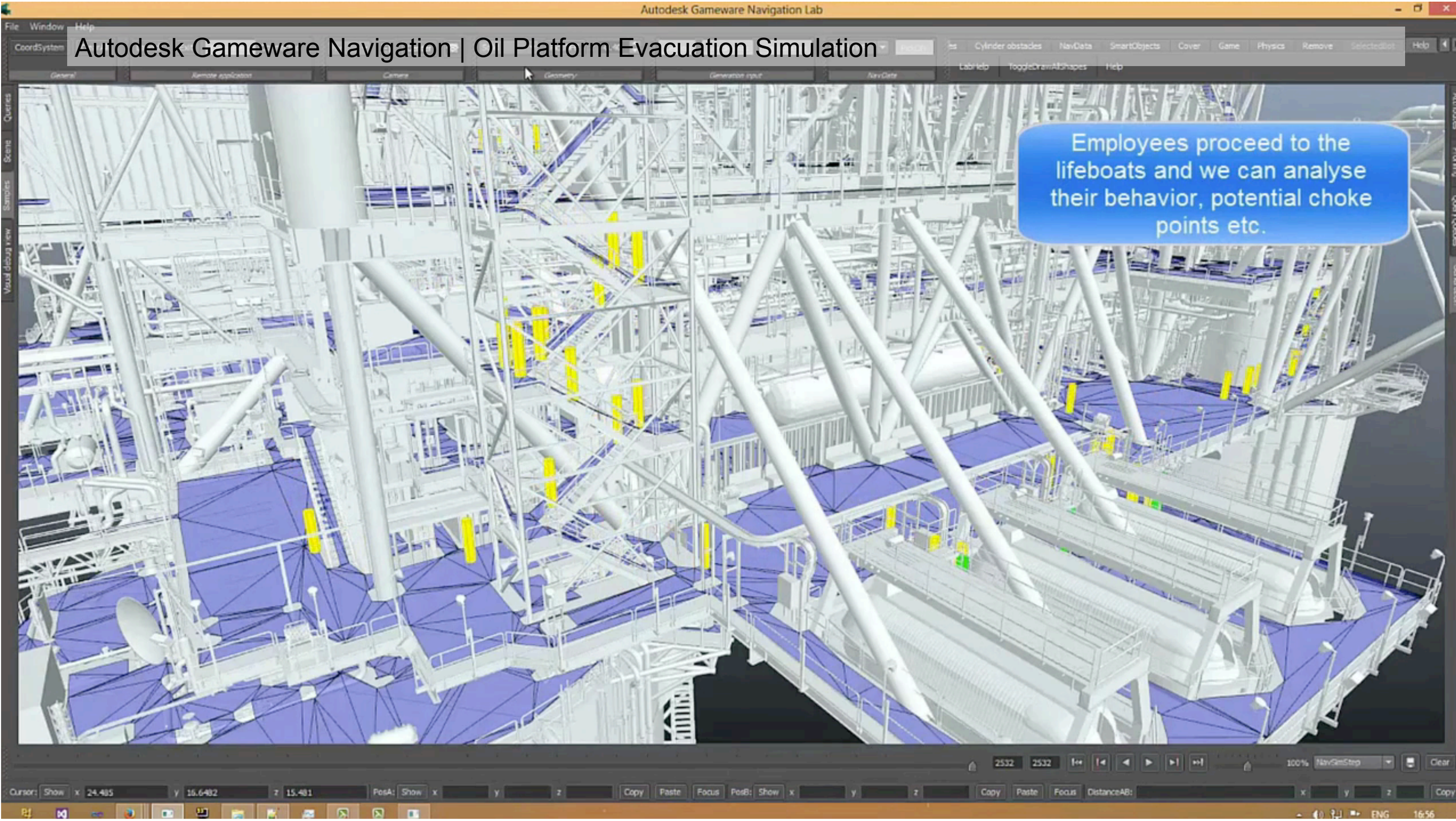

Autodesk Gameware Navigation Lab
Autodesk Gameware Navigation | Oil Platform Evacuation Simulation
Employees proceed to the lifeboats and we can analyse their behavior, potential choke points etc.

STINGRAY

Overview

3D game engine and real-time rendering software

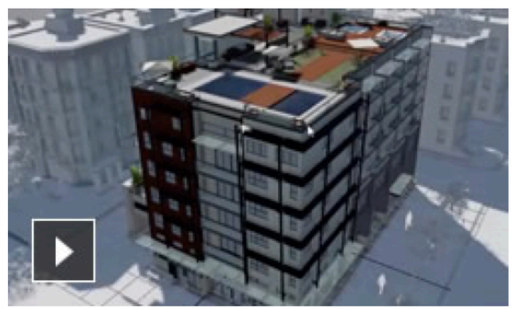
Whether you're a developer creating 3D games or a design professional creating real-time visualizations, the Stingray engine helps you produce visually stunning 3D experiences.

Desktop Subscription gives you access to the latest updates and releases, 1-on-1 web support, priority support in the forums, flexible licensing, and more.

Overview videos

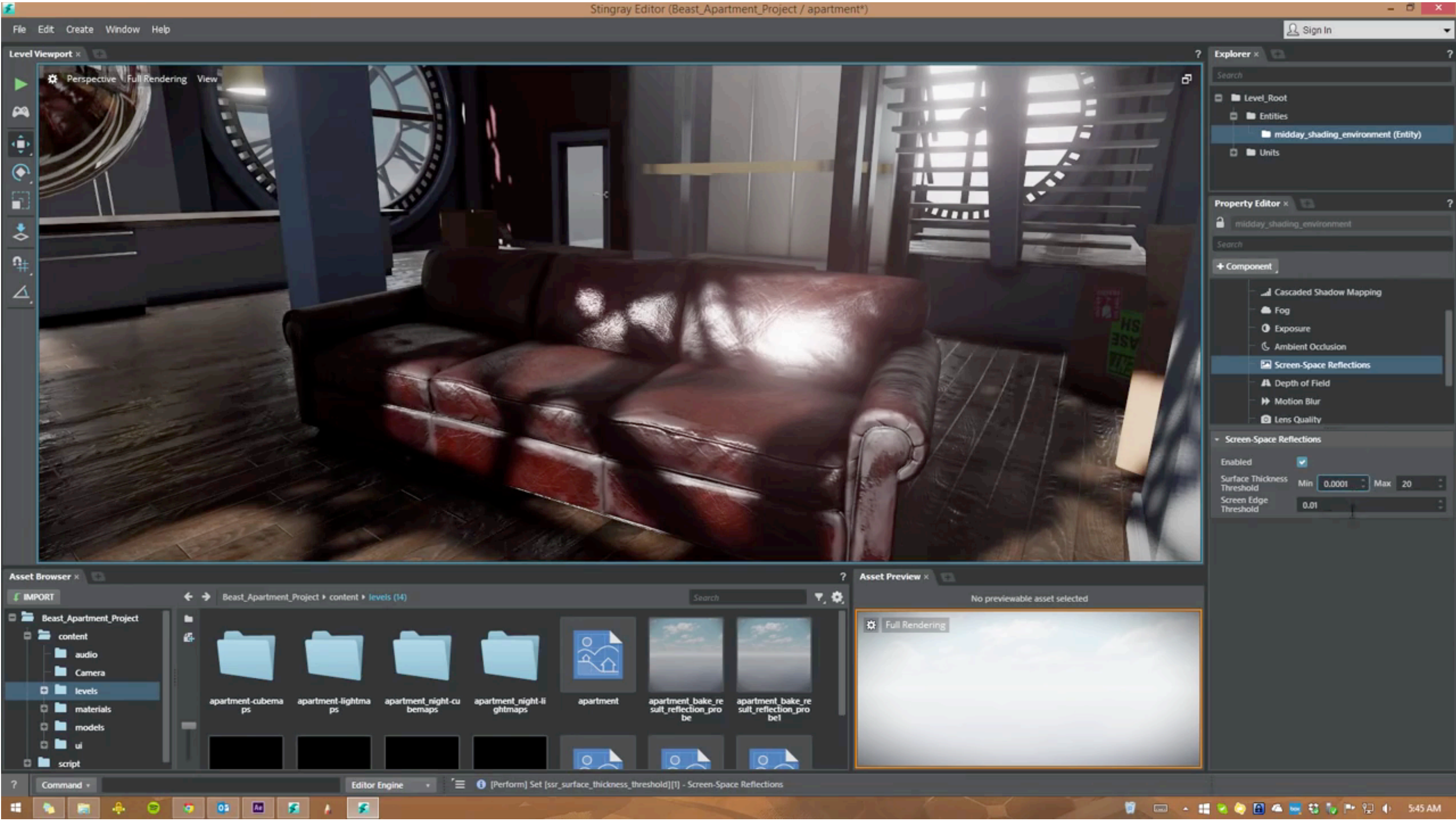
Stingray for game development

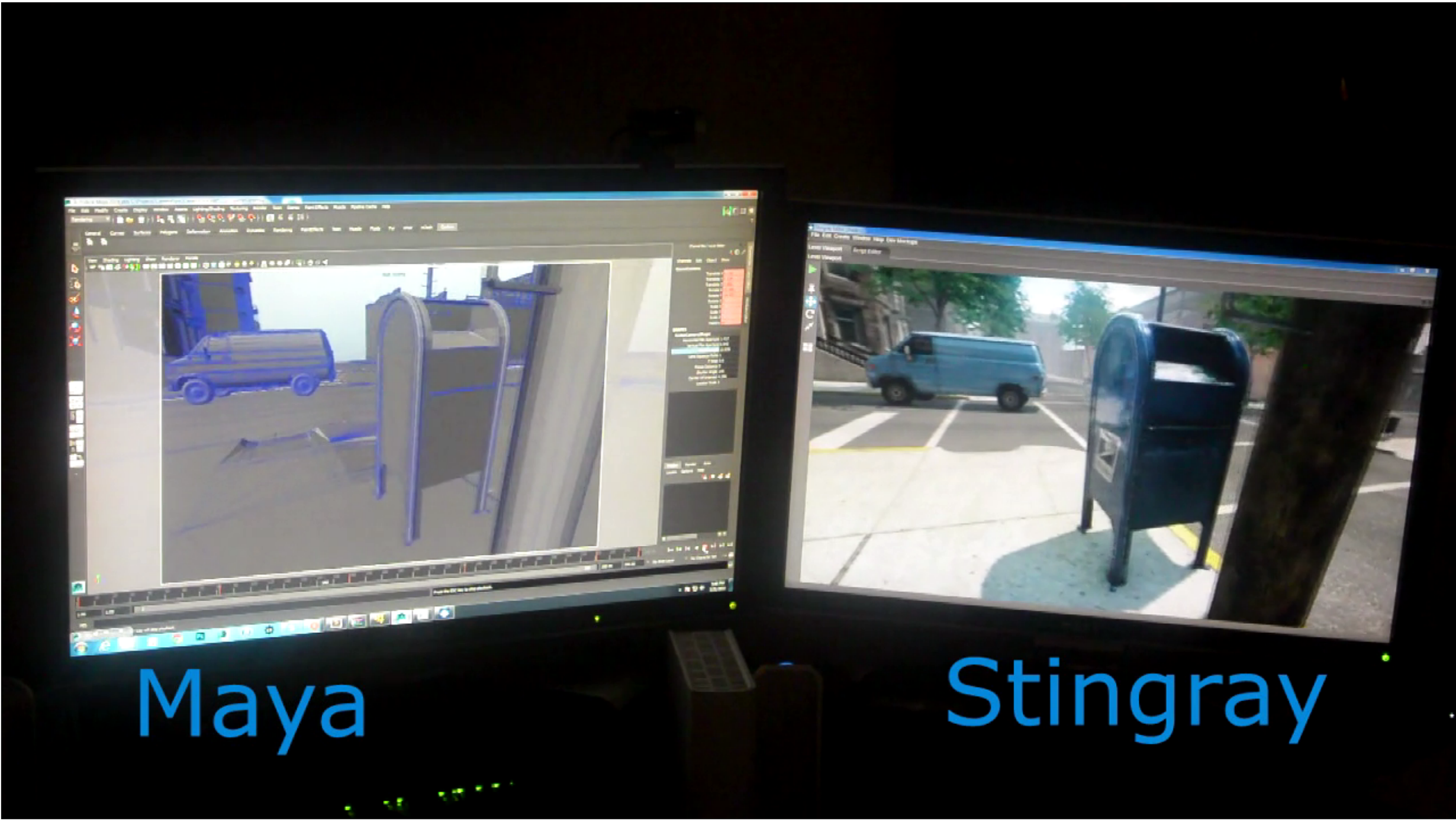
Integrated workflows with Autodesk 3D animation tools simplify the game-making



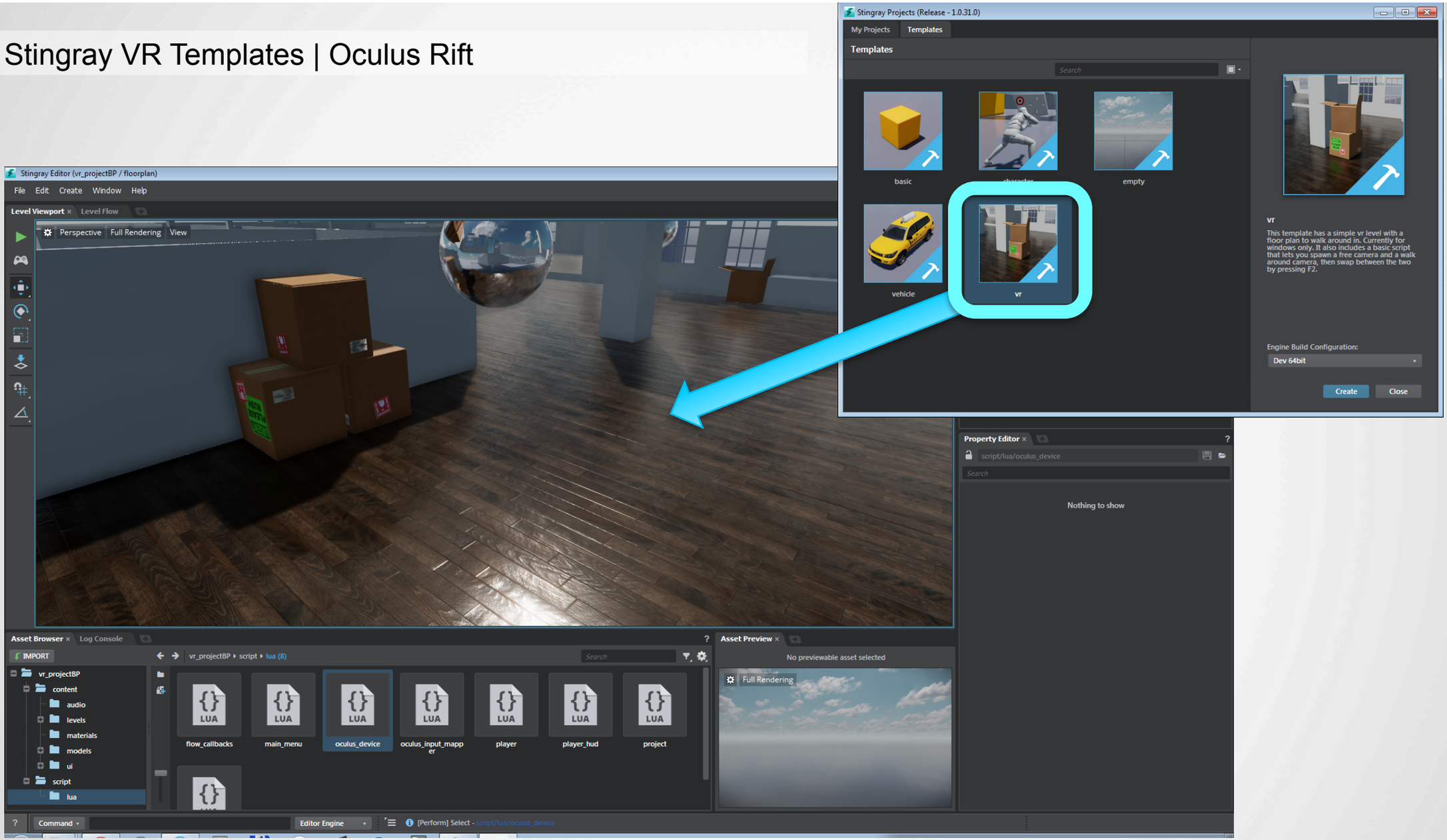
Stingray for design visualization

A direct link to 3ds Max and real-time rendering enables you to walk through


Stingray Editor (Beast_Apartment_Project / apartment*)
File Edit Create Window Help
Sign In
Level Viewport
Perspective Full Rendering View
Explorer
Search
Level_Root
Entities
midday_shading_environment (Entity)
Units
Property Editor
midday_shading_environment
Search
+ Component
Cascaded Shadow Mapping
Fog
Exposure
Ambient Occlusion
Screen-Space Reflections
Depth of Field
Motion Blur
Lens Quality
Screen-Space Reflections
Enabled
Surface Thickness Threshold
Min 0.0001
Max 20
Screen Edge Threshold
0.01
Asset Browser
IMPORT
Beast_Apartment_Project ▸ content ▸ levels (14)
Search
Beast_Apartment_Project
content
audio
Camera
levels
materials
models
ui
script
apartment-cubemaps
apartment-lightmaps
apartment_night-cubemaps
apartment_night-lightmaps
apartment
apartment_bake_result_reflection_probe
apartment_bake_result_reflection_probe1
Asset Preview
No previewable asset selected
Full Rendering
Command
Editor Engine
[Perform] Set [ssr_surface_thickness_threshold][1] - Screen-Space Reflections
5:45 AM


Maya
Stingray

Stingray VR Templates | Oculus Rift



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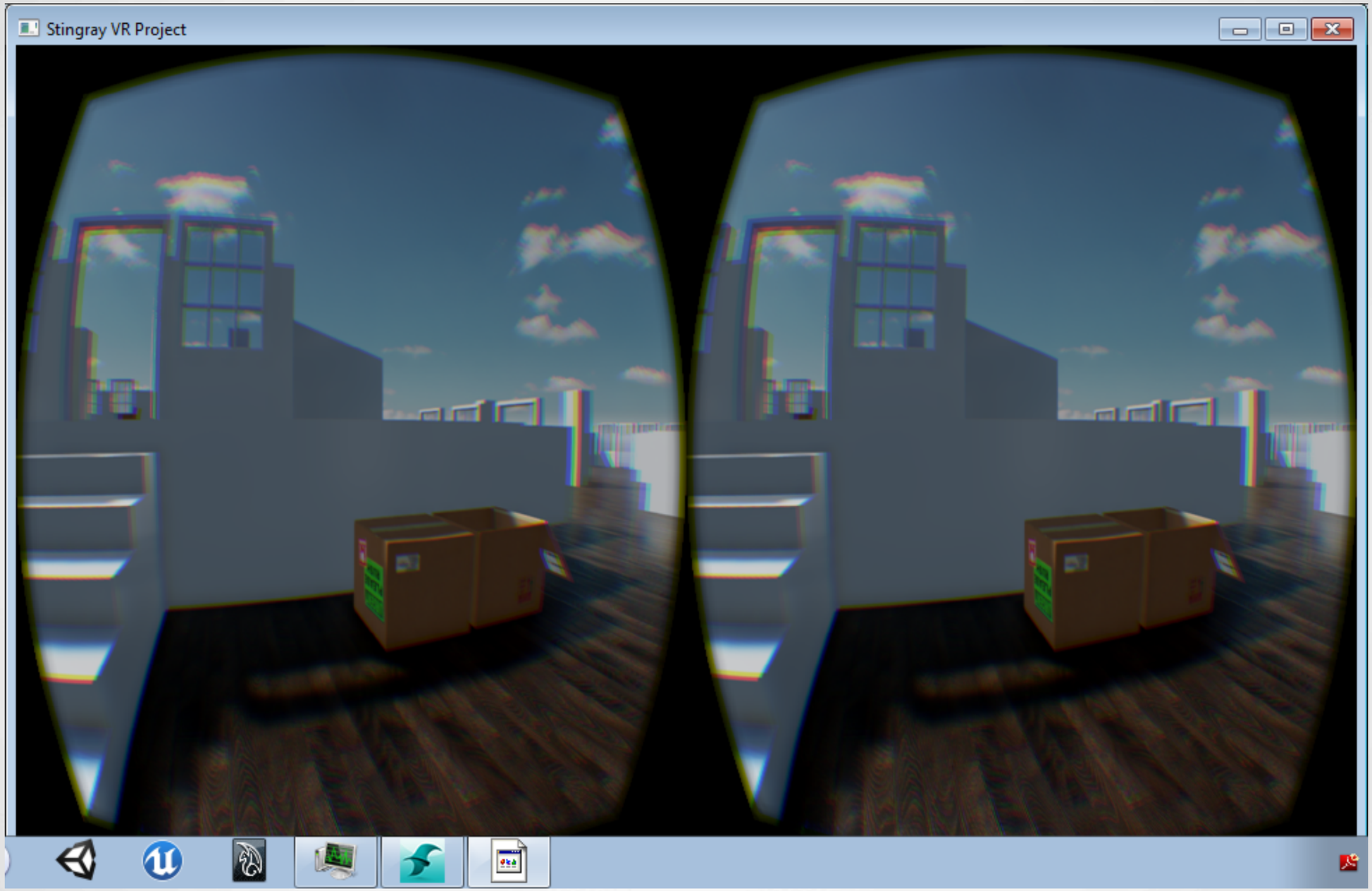

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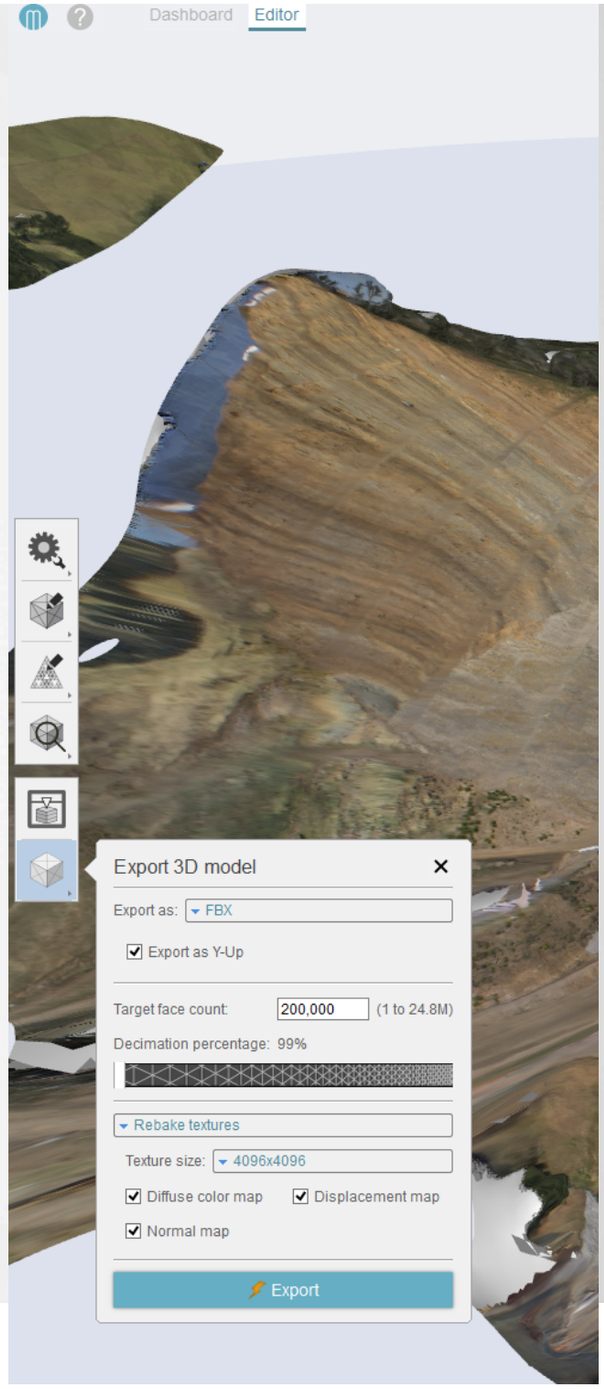
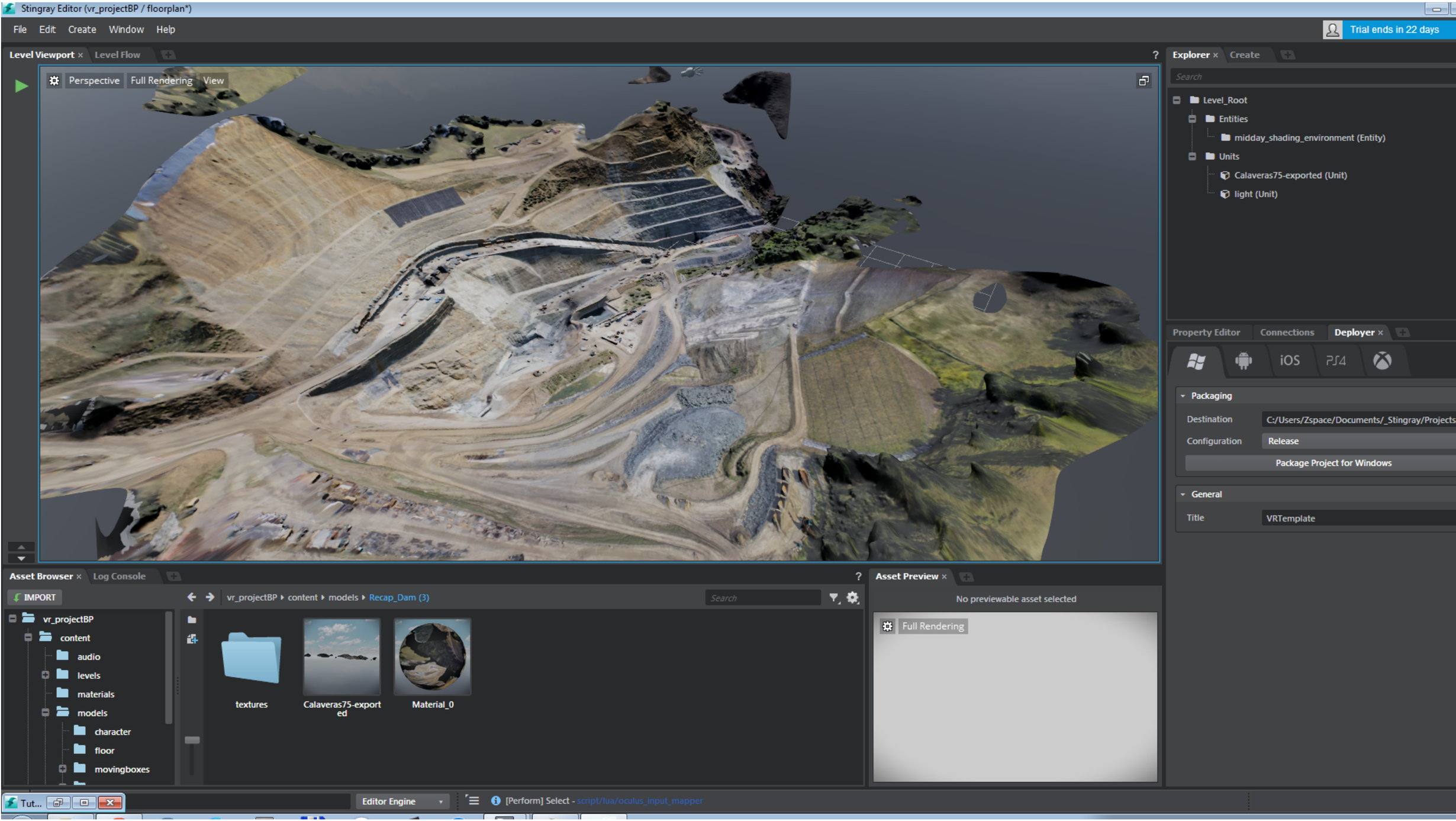
Preparing Photogrammetry Models for VR Environments




Stingray Editor (vr_projectBP / floorplan*)
File
Edit
Create
Window
Help
Trial ends in 22 days
Level Viewport
Level Flow
Perspective
Full Rendering
View
Explorer
Create
Search
Level_Root
Entities
midday_shading_environment (Entity)
Units
Calaveras75-exported (Unit)
light (Unit)
Property Editor
Connections
Deployer
iOS
PS4
Packaging
Destination
C:/Users/Zspace/Documents/_Stingray/Projects
Configuration
Release
Package Project for Windows
General
Title
VRTemplate
Asset Browser
Log Console
IMPORT
vr_projectBP ▸ content ▸ models ▸ Recap_Dam (3)
Search
vr_projectBP
content
audio
levels
materials
models
character
floor
movingboxes
textures
Calaveras75-exported
Material_0
Asset Preview
No previewable asset selected
Full Rendering
Editor Engine
[Perform] Select - script/lua/oculus_input_mapper

Autodesk Stingray + Oculus Rift | Photogrammetry Model Walkthrough

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Product Examples

Project Expo

John Schrag – UX Lead
Media & Entertainment Division

Image courtesy of Safdie Architects

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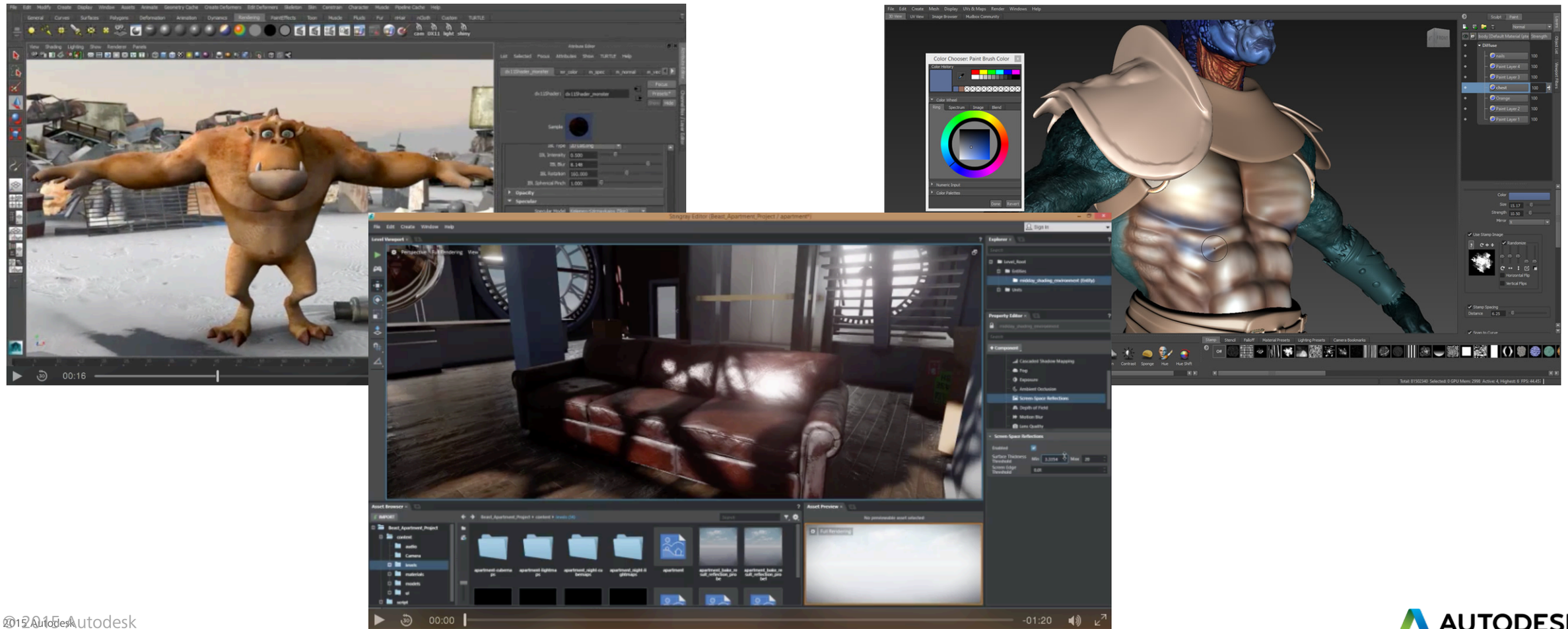
M&E DIVISION

MOVIES, SFX, GAMES



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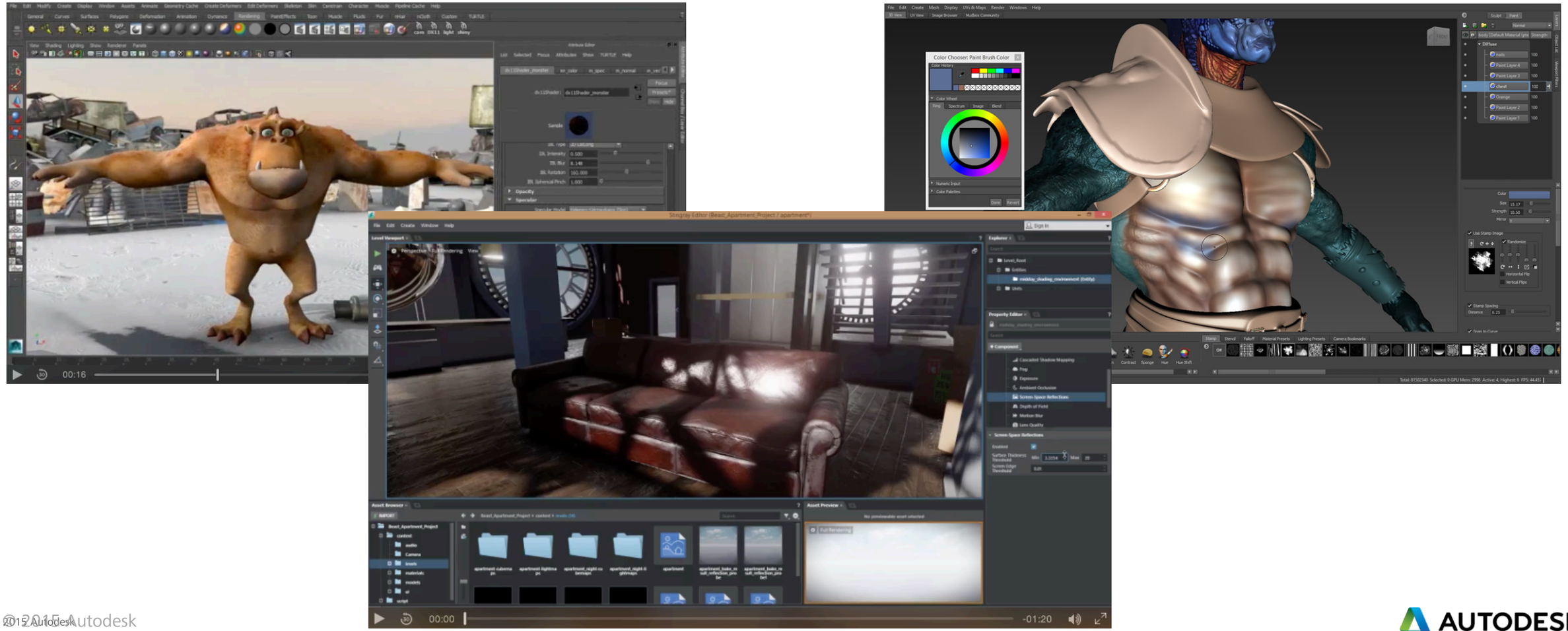
M&E DIVISION

VISUAL IMMERSIVE STORYTELLING



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CONVERGENCE

BIM | CLOUD | GAME ENGINE

AUTODESK®
STINGRAY

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THE CHALLENGE

IT'S HARD!

Image courtesy of XXXXXXXXX

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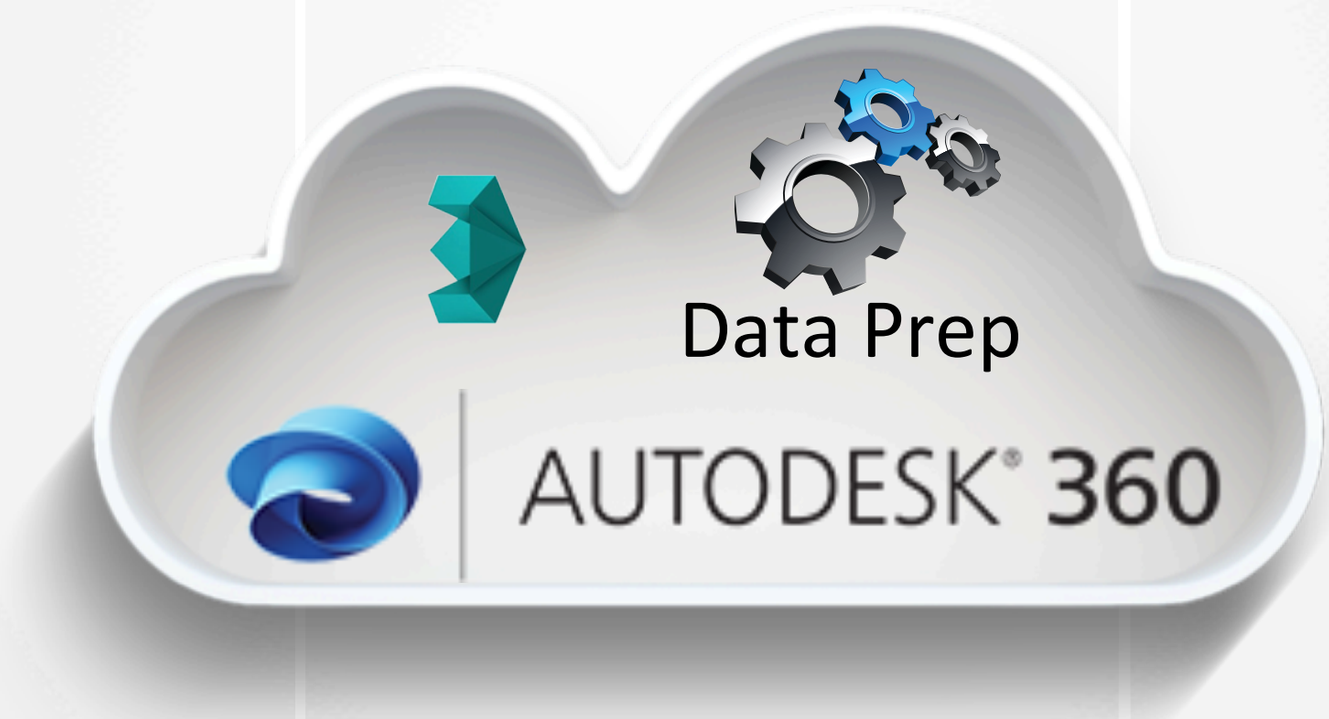
PROJECT EXPO

TECHNOLOGY PREVIEW



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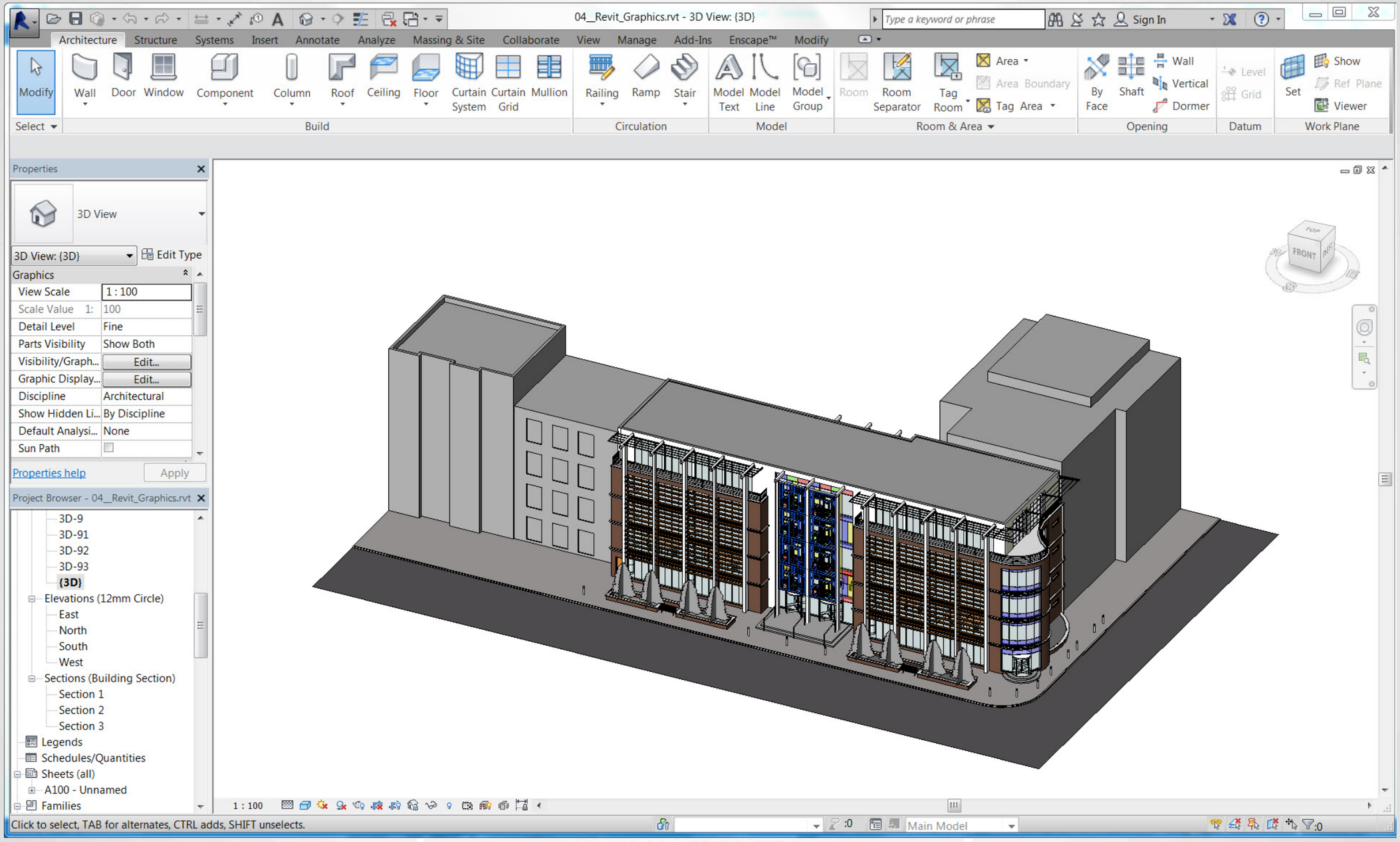
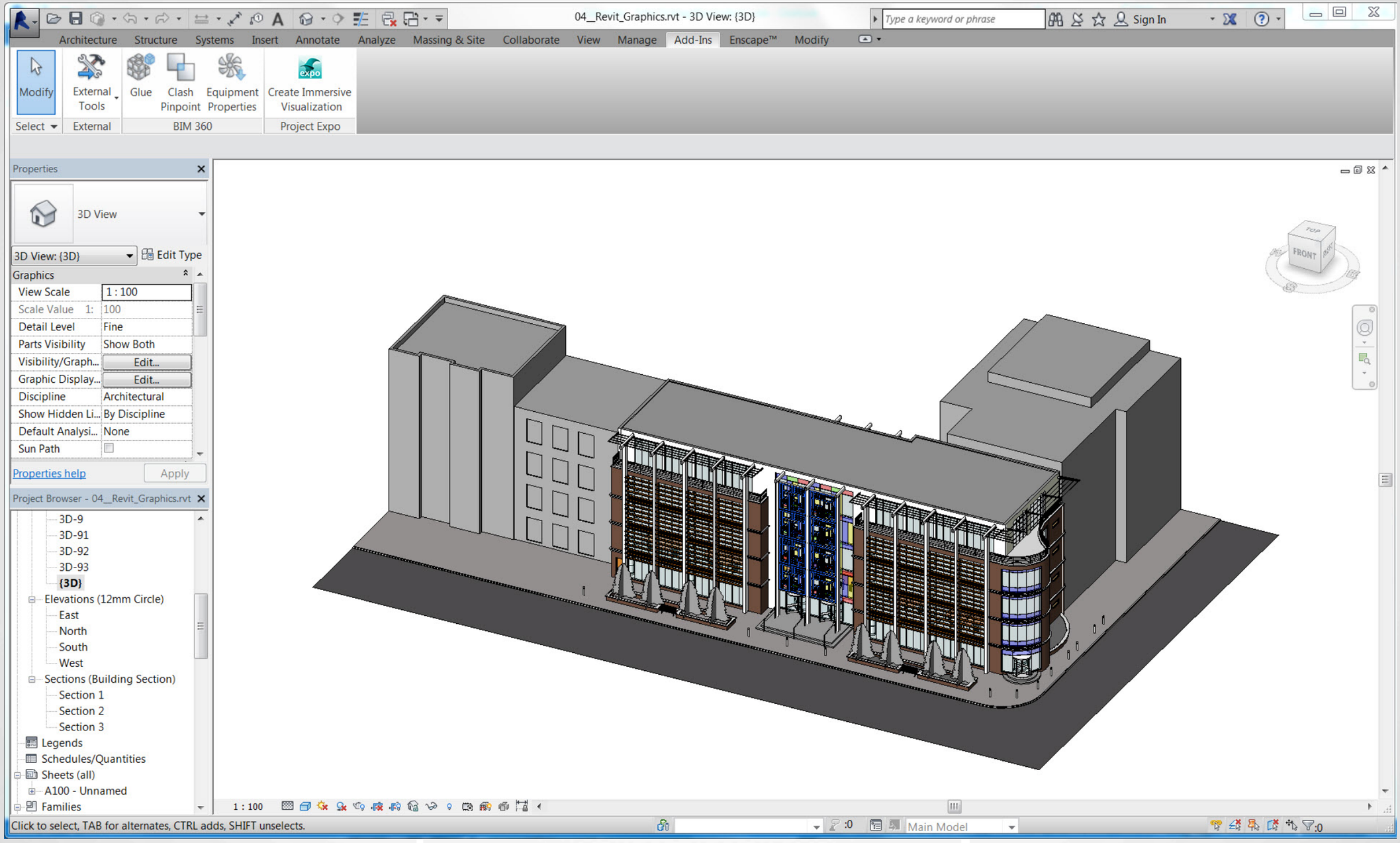
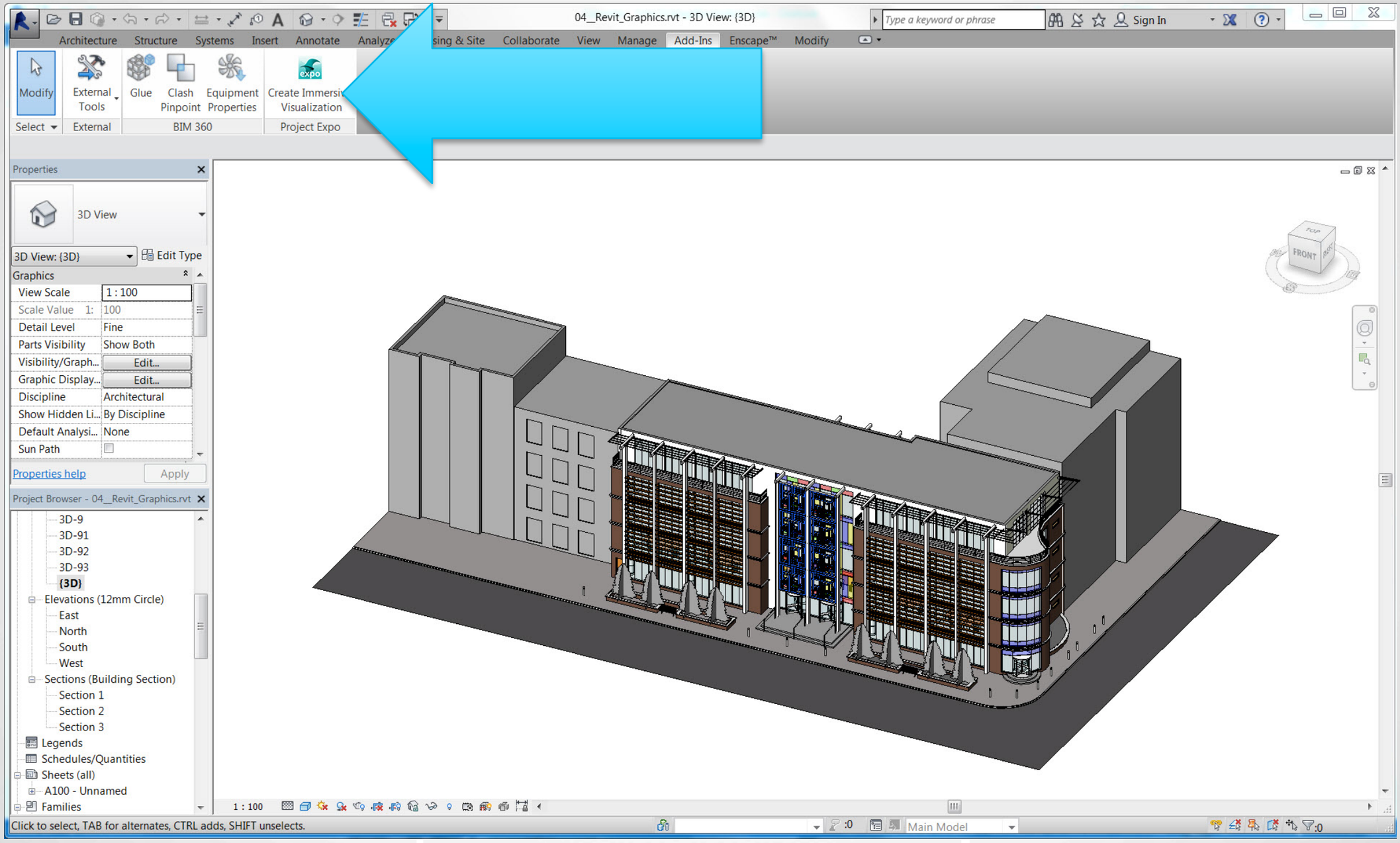
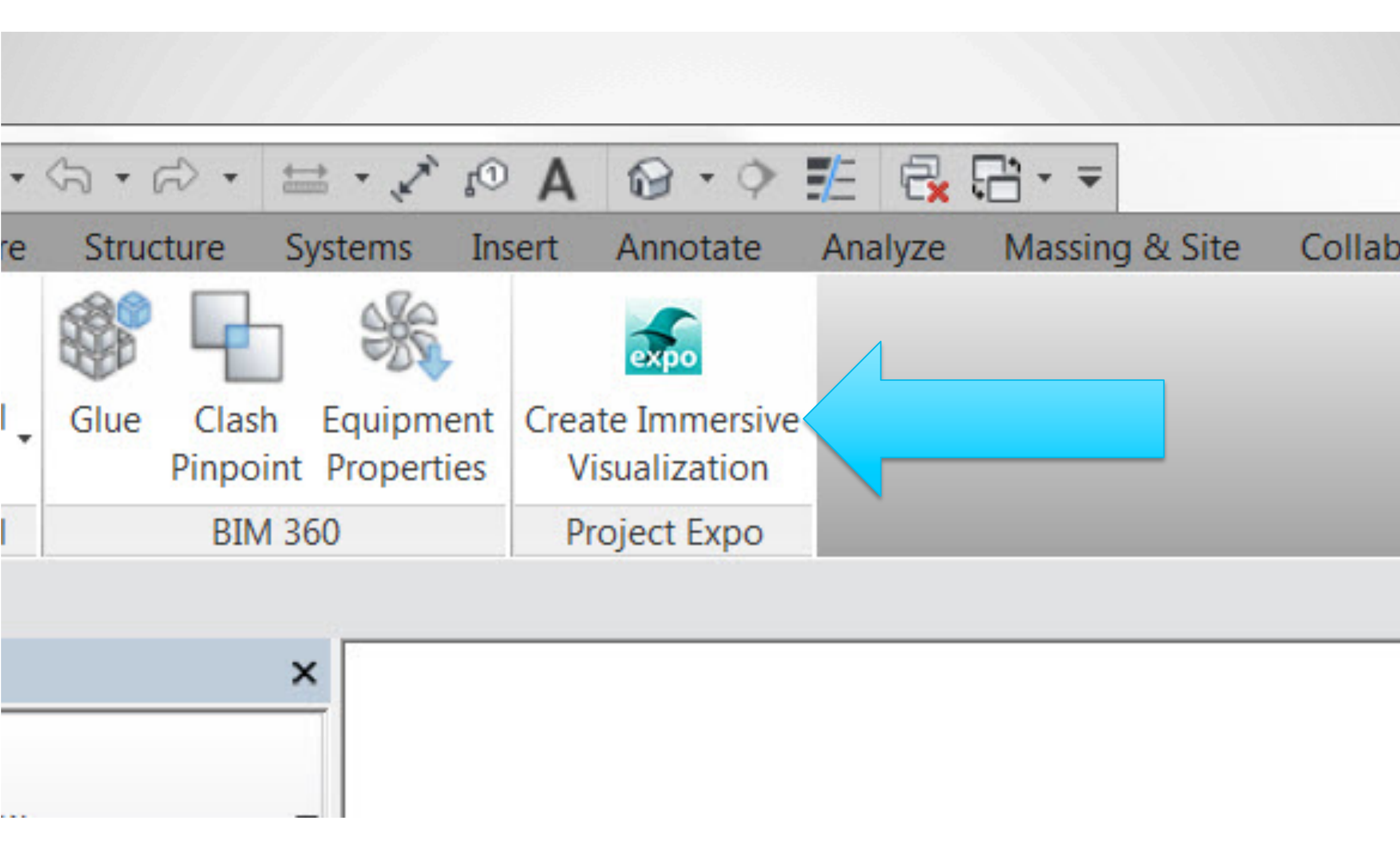
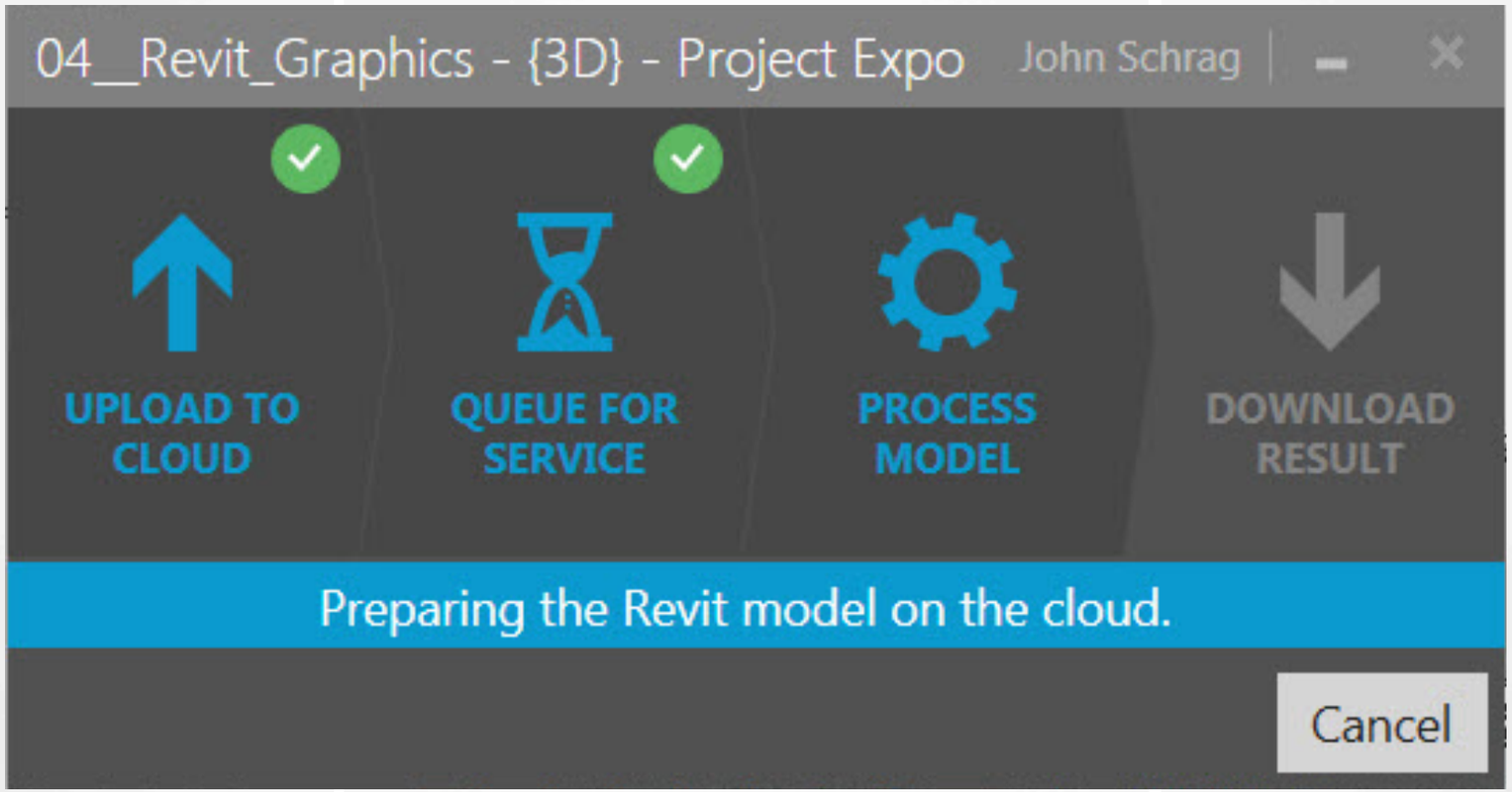







Structure
Systems
Insert
Annotate
Analyze
Massing & Site
Glue
Clash Pinpoint
Equipment Properties
BIM 360
expo
Create Immersive Visualization
Project Expo

Data Flow



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Microsoft HoloLens

AUTODESK FUSION 360

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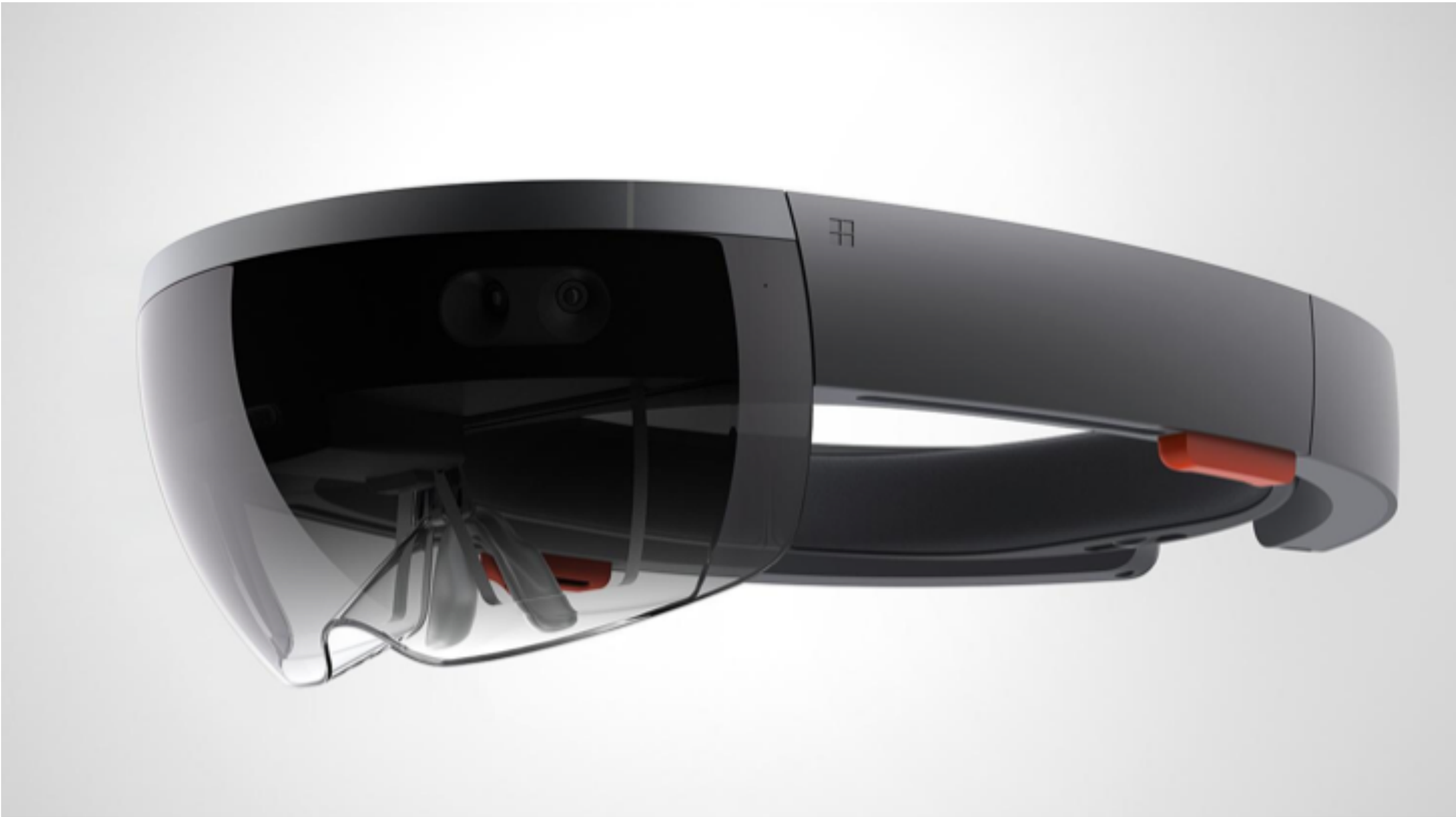

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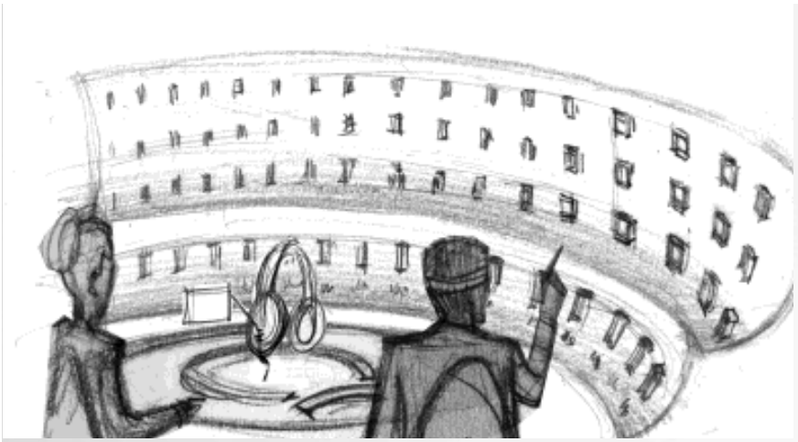

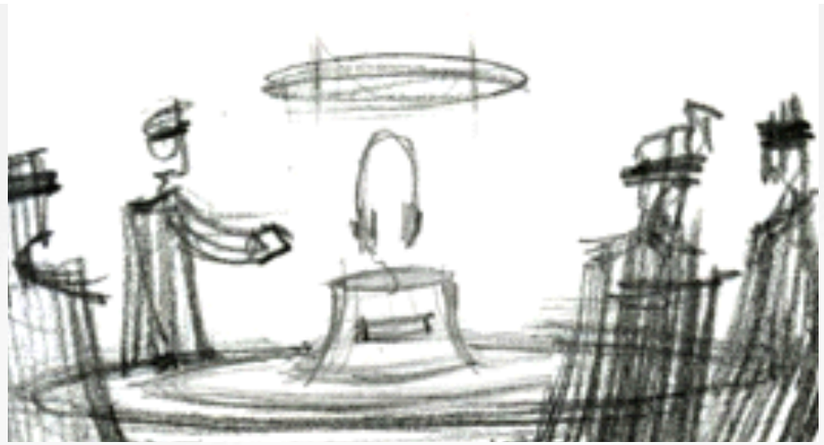

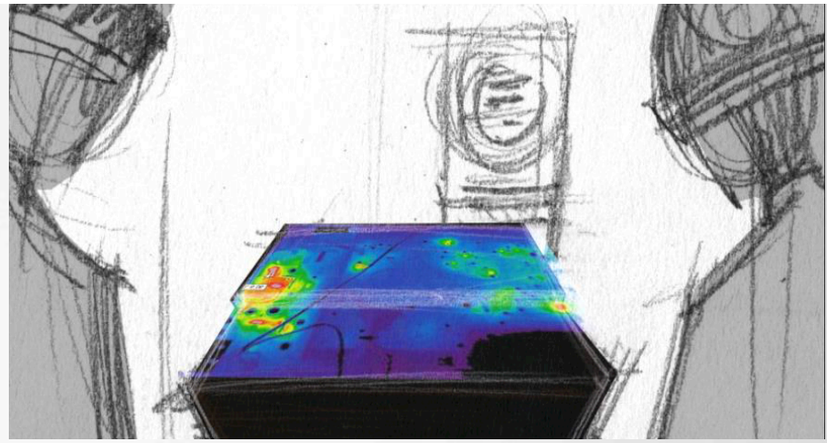

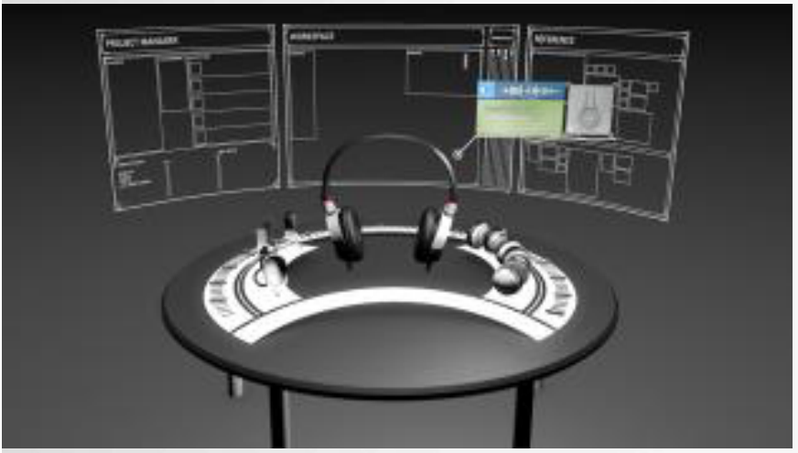

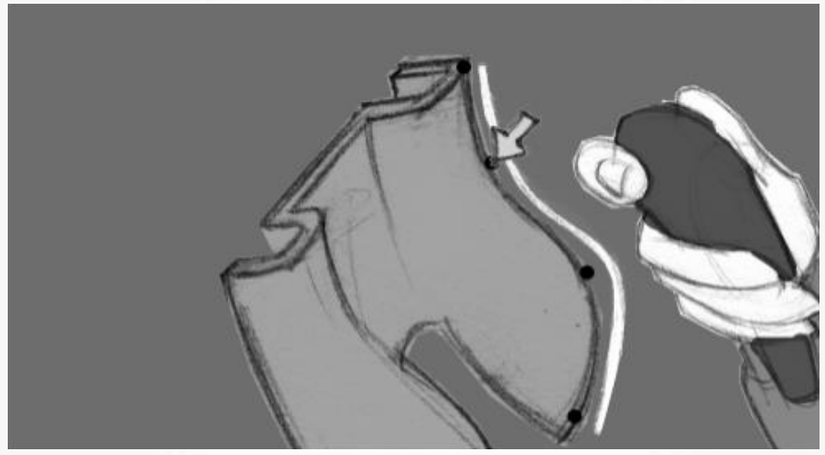

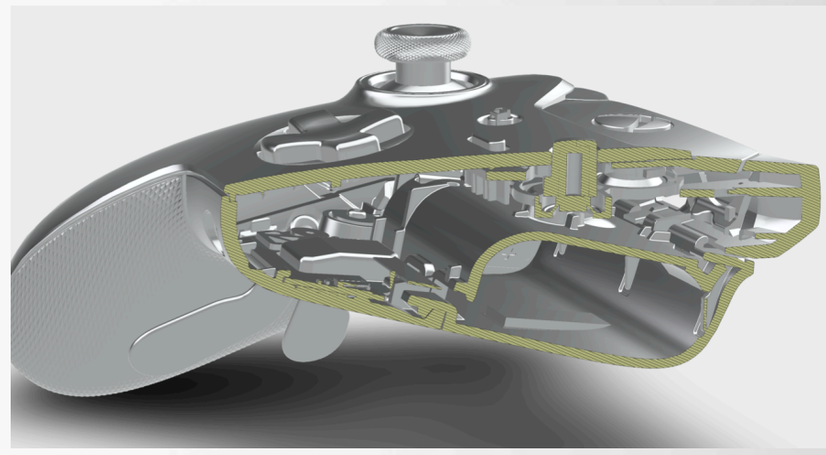

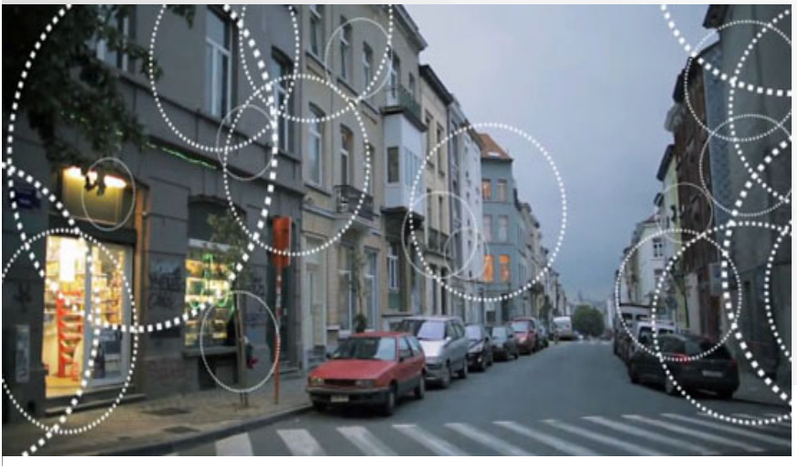

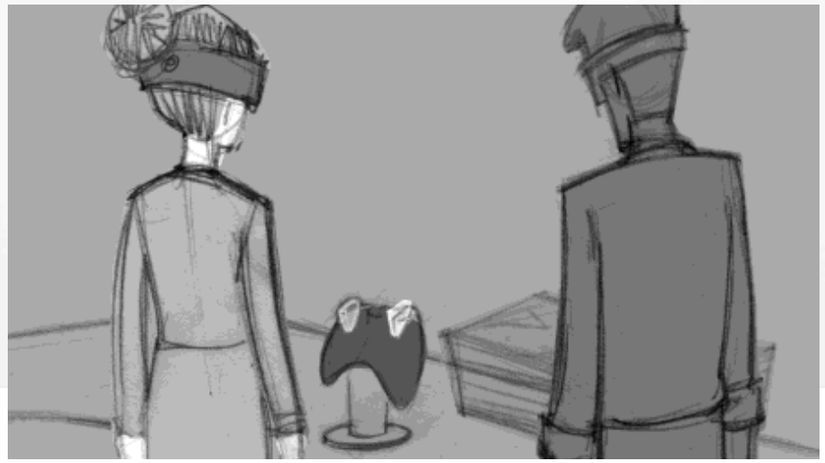


Curvature
Activity
Materials


Michael Sagan

New Input Interfaces

New Display Interfaces

Interactive 3D Experiences

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Enabling Technologies for
Design & Storytelling

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