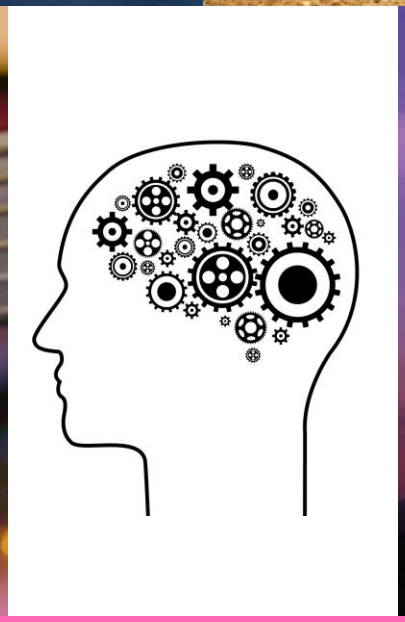
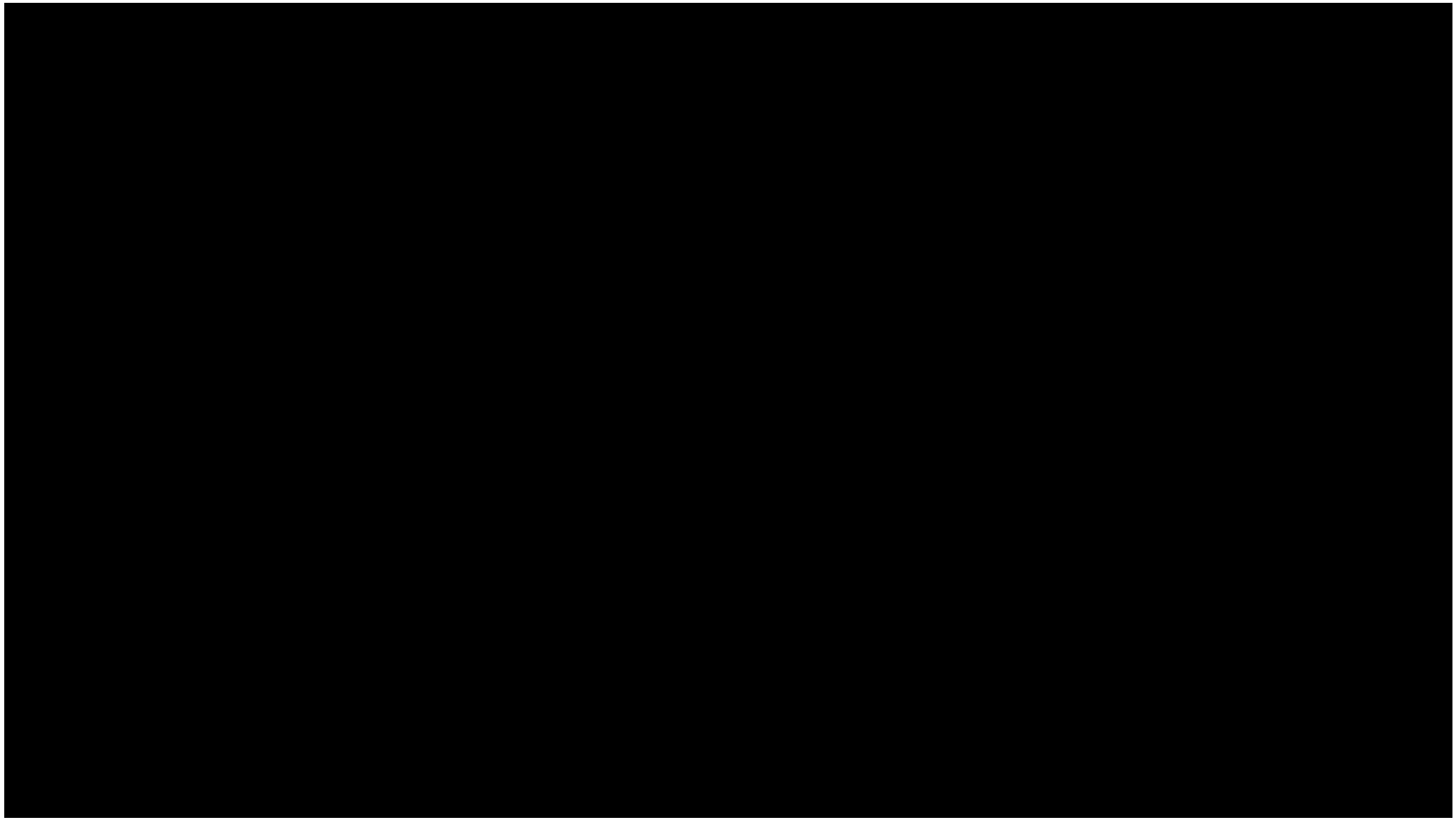
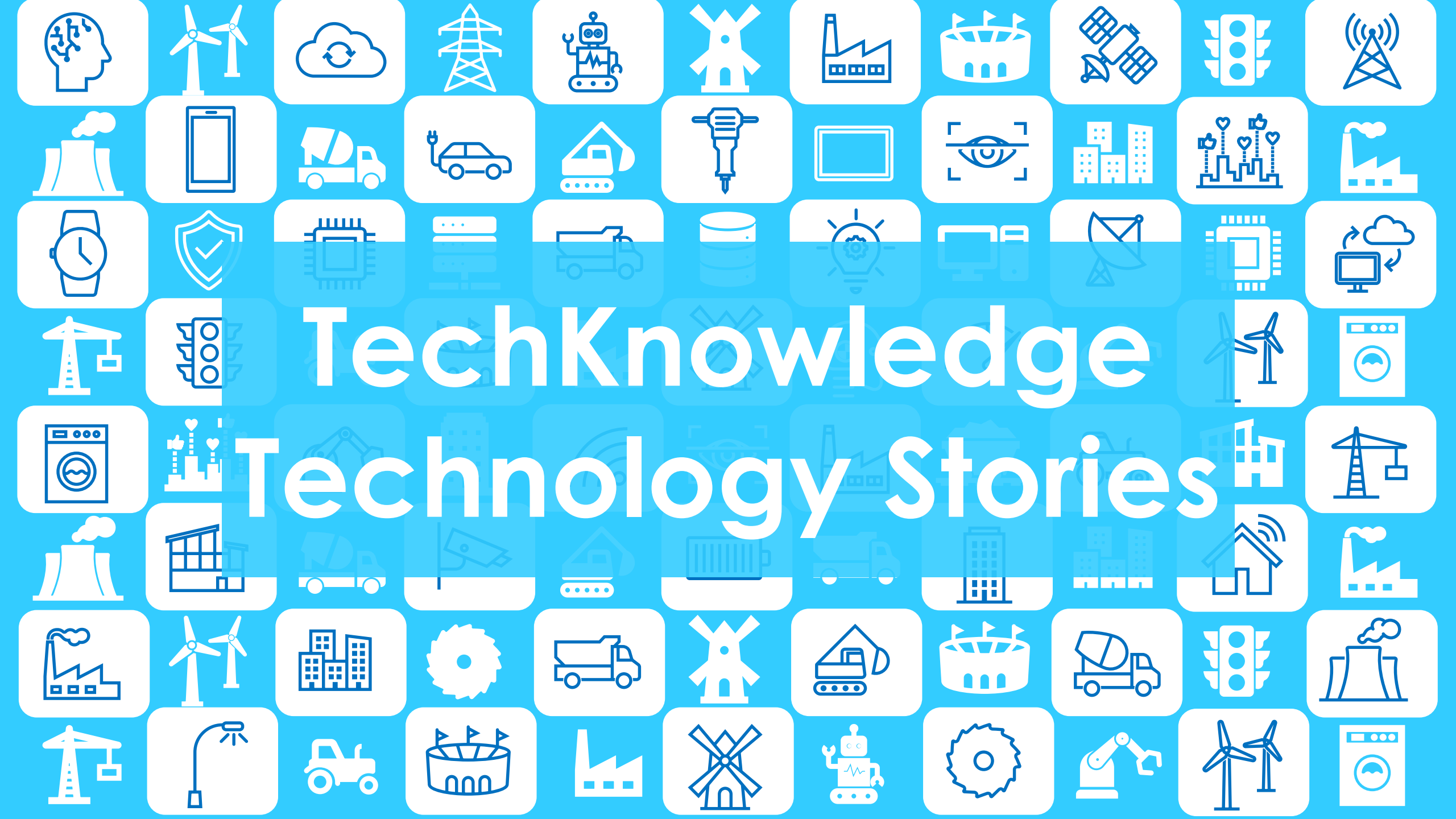

Evolution of the Desk


36
7





Source: Satellite Applications Catapult


TechKnowledge
Technology Stories

Series 1

Part 4: Devices and Gadgets - Our Companions and Life Savers...

By Zahid Ghadialy,
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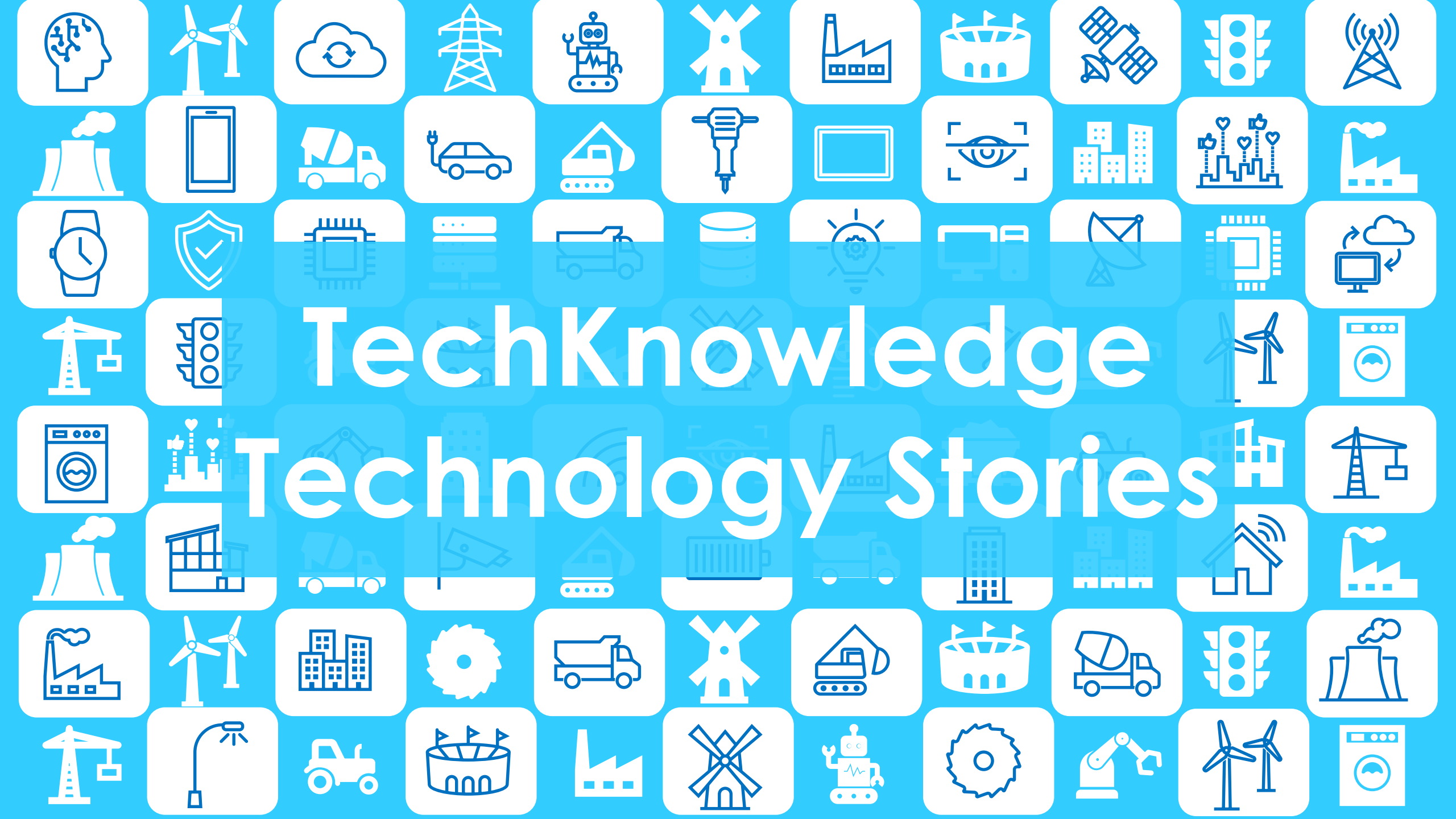
Research assistant: Zakariya (Zak) Ghadialy,
Student / Intern


TechKnowledge
Technology Stories

A **device** is a piece of mechanical or electronic equipment designed or adapted for a particular purpose.

Devices come in many different forms that we use in our daily lives in different ways, from smartphones and computers to thermostats and lights used in smart homes.

Gadgets are smaller devices, mechanical or electronic, designed with a specific purpose in mind.

Examples of **gadgets** include wireless earbuds, smartwatches, drones, e-book readers, etc.

From Phones to Smartphones and Smart Featurephones

1994

2024


6:29
85
Today Sun Mon Tue
14° 18° 18° 15°
Hourly Forecast
iPhone 15 Pro
Free ram 339 MB
Free rom 81.2 GB
Disk Space
Used 36.5%
Free 63.5%
Widgy
Safari
Settings
LED LAMP
Photos
Moment
Halide
Xero Me
Authenticator
Yoti ID
Yoti ID
Reddit
Quotev
MySky
YouTube Music
Music
Telegram
Nicegram
Search

The Evolution of iPhone

2007 - 2023

Samsung Foldable Concepts

Huawei Mate XT Tri-Fold Phone

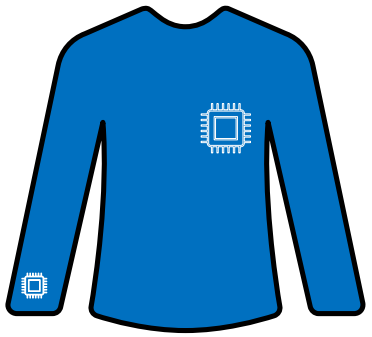
Rise of the Companion Devices

Companion Devices are designed to work with a ‘main’ or ‘parent’ device which generally needs to accompany them.

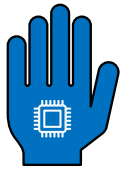
Smaller Companion Phones

Smart Watches and Fitness Trackers

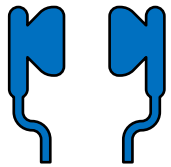
XR Headsets



Smart Clothing



Electronic Skin Patches



Hearables

Sensors in your Device

Light

Proximity

Microphones (inc. ultrasound receiver)

Camera (front & back)

Gyroscope

Accelerometer

Magnetometer

Barometer

Humidity

Positioning

- GPS / GLONASS / GALILIEO
- Wi-Fi
- Cellular (A-GPS)

NFC

Pressure

Temperature

Gesture

Fingerprint

Heartbeat monitor

Apple Watch Healthcare

Compare Apple Watch Models

	High Heart Rate Notification	Low Heart Rate Notification	Irregular Rhythm Notification	ECG App	Fall Detection
Sensors	Optical heart sensor / PPG	Optical heart sensor / PPG	Optical heart sensor / PPG	Electrical heart sensor / electrodes	Next-generation accelerometer and gyroscope
Apple Watch Series 1, 2, 3	✓	✓	✓	✗	✗
Apple Watch Series 4 or later	✓	✓	✓	✓	✓

Note: Original Apple Watch does not support these functions

Source: Apple

Wearable 360° Camera & Usage Example

NEXX360

FITT360

Source: KT

Augmented reality (AR)

In Augmented Reality (AR), virtual information and objects are overlaid on the real world. This experience enhances the real world with digital images, text, and animation.

LG U+ AR Dance-Off

Virtual Reality (VR)

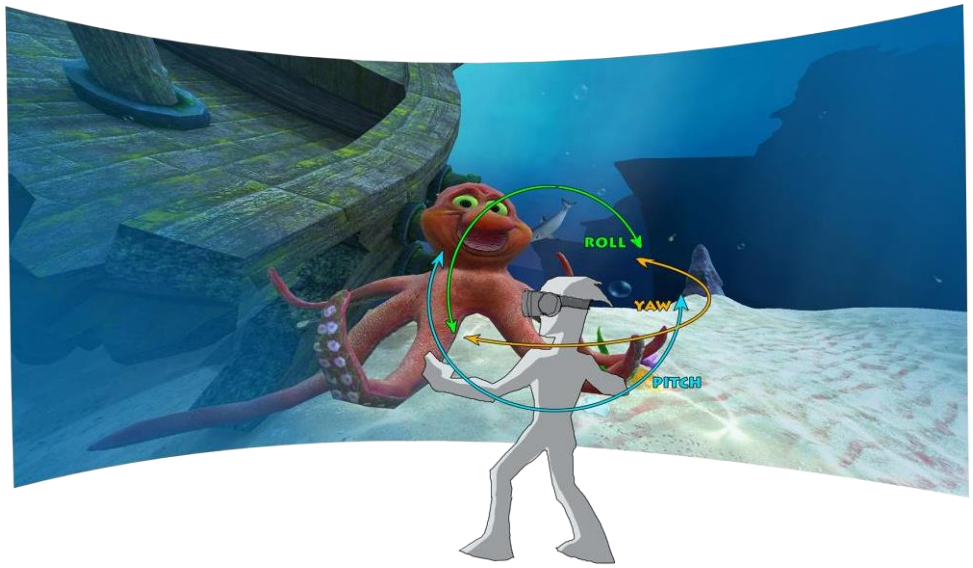
In a Virtual Reality (VR) experience, users are fully immersed in a simulated digital environment. Users must put on a VR headset or head-mounted display (HMD) to get a 360 -degree view of an artificial world

NTT Docomo VR Example

6-DoF allows developers to bring the user into their story

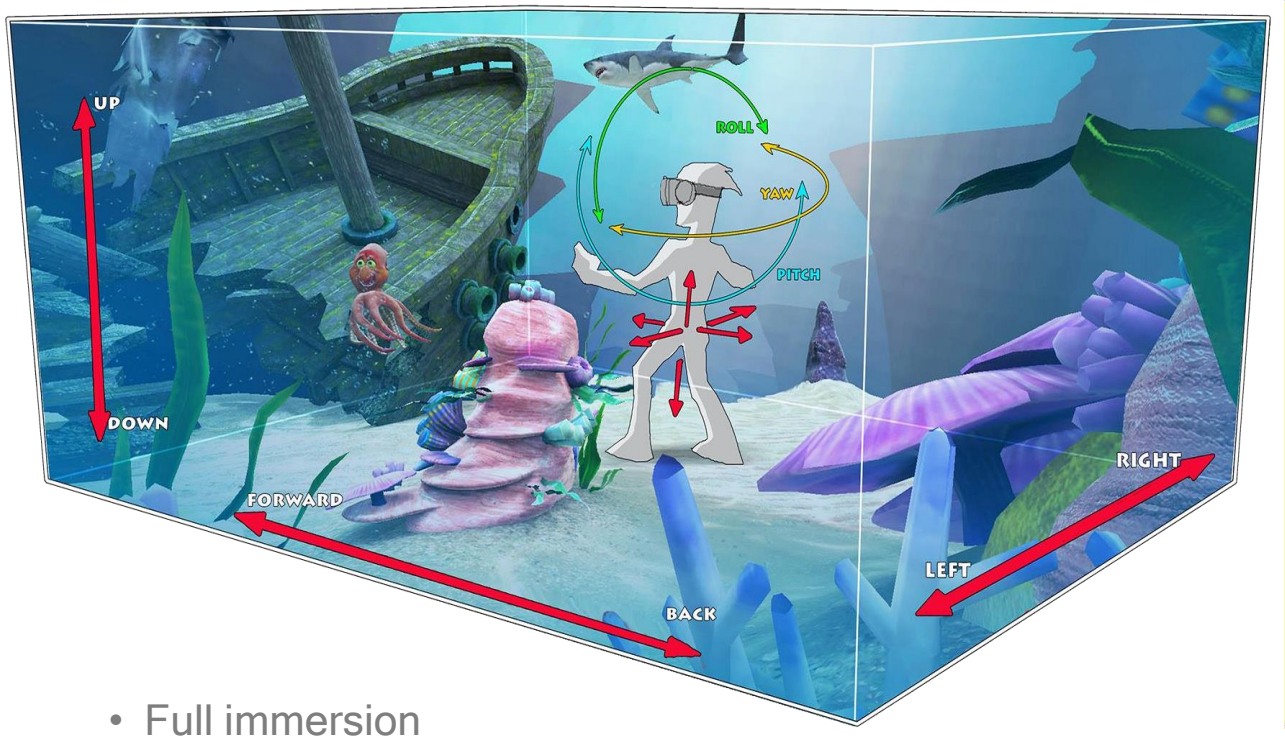
Source: Qualcomm

3 degrees of freedom (3-DoF)



- Can only watch

6 degrees of freedom (6-DoF)



- Full immersion
- Can become part of the story
- Can now interact and change the story

Mixed Reality (MR)

In Mixed Reality (MR), digital and real-world objects co-exist and can interact with one another in real-time. This is the latest immersive technology and is sometimes referred to as hybrid reality.

Microsoft HoloLens MR Example

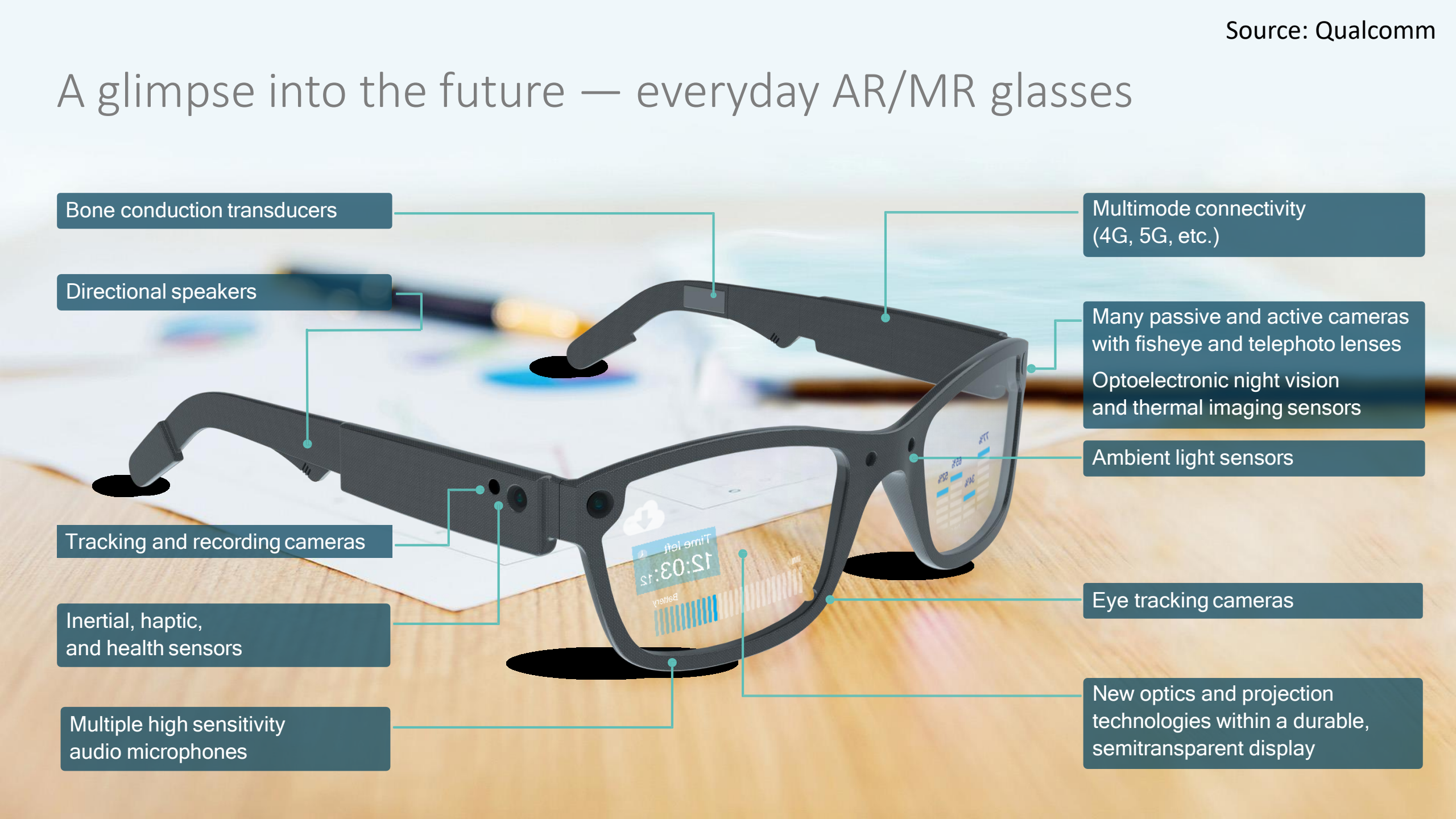

Apple Vision Pro, 2023

Extended Reality (XR)


HoloLens 1
HoloLens 2
Dual 4K
200°FOV

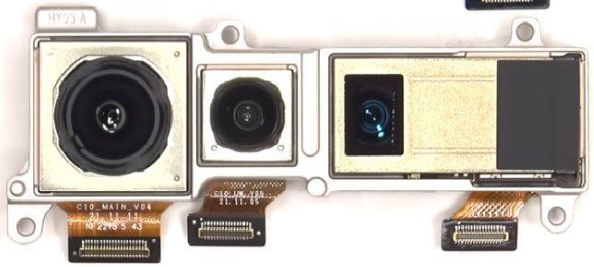
Source: Qualcomm

A glimpse into the future — everyday AR/MR glasses



Cameras

Google Pixel 8 Pro



Google Pixel 7 Pro

Google Pixel 6 Pro

Tweet/X Post

Wearables – TESLASUIT

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Haptic ponts

Haptic Animations

Real-time
Simulations

Weight Simulation

User calibration
profiles

Capillary system

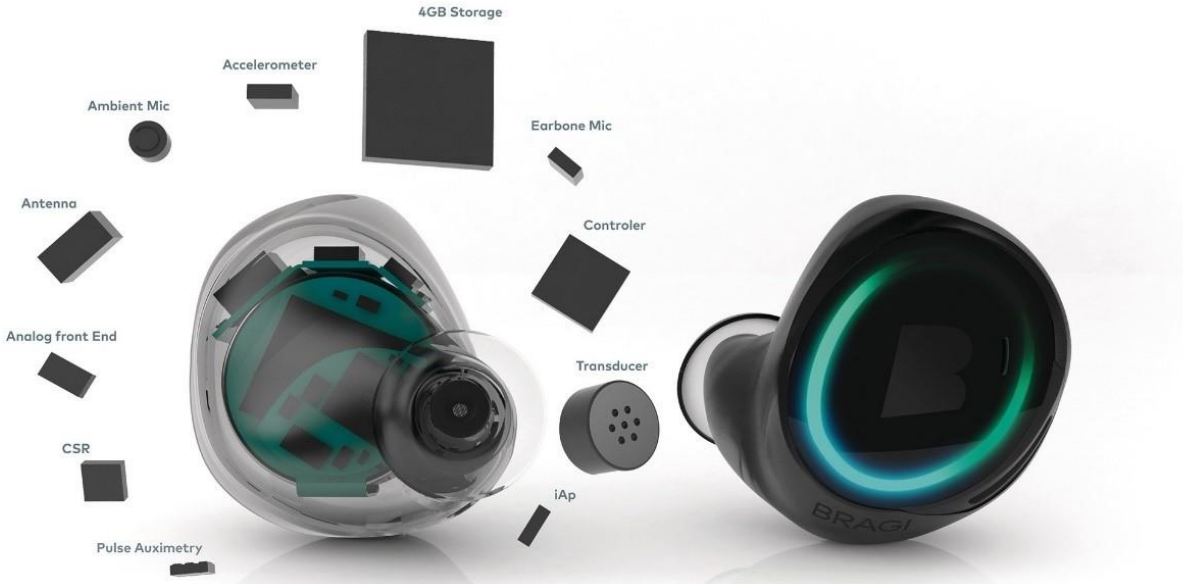
Haptic Library

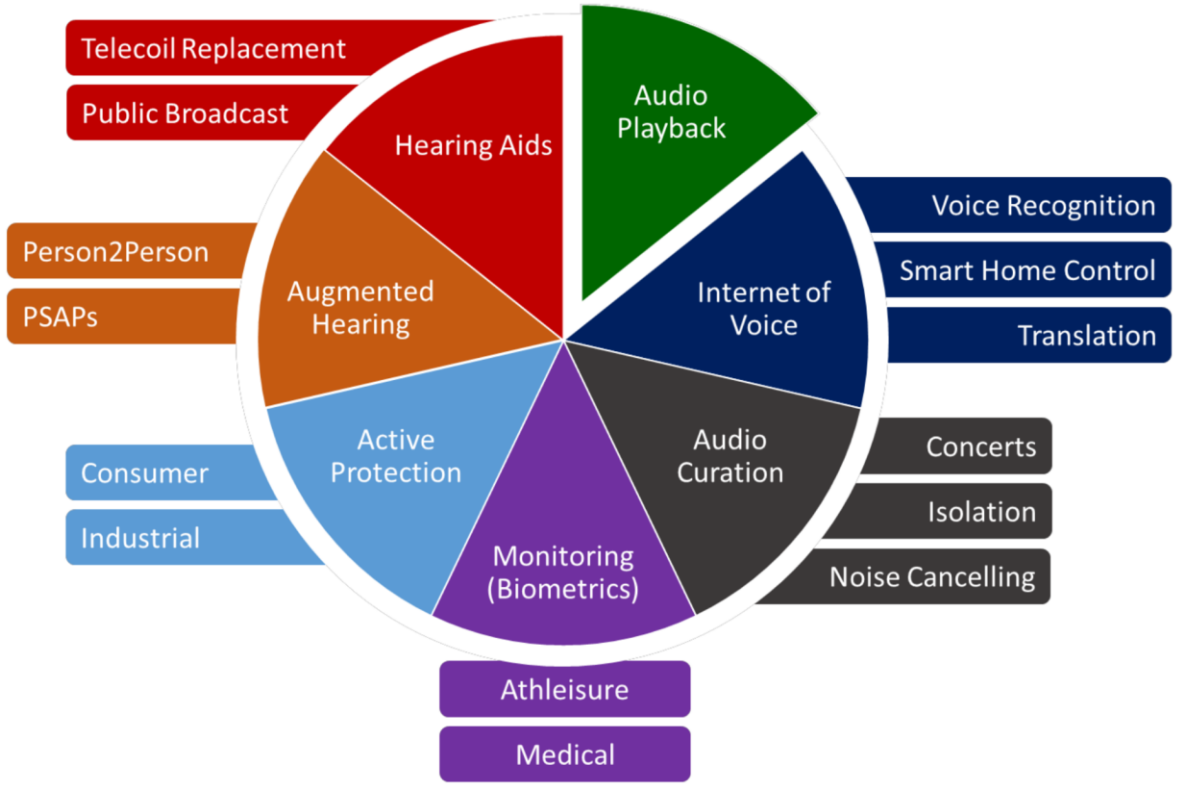
Users can create
custom animations
with Haptic Editor
application

Pic source

Teslasuit relies on 2.4GHz Wi-Fi for connectivity today. Could it be using 5G/6G in future?

‘Hearables’ and ‘Hearing Wearables’





Pictures source: [Fashnerd]


WE ARE ONE
2021


DPD DRONE
dpdgroup

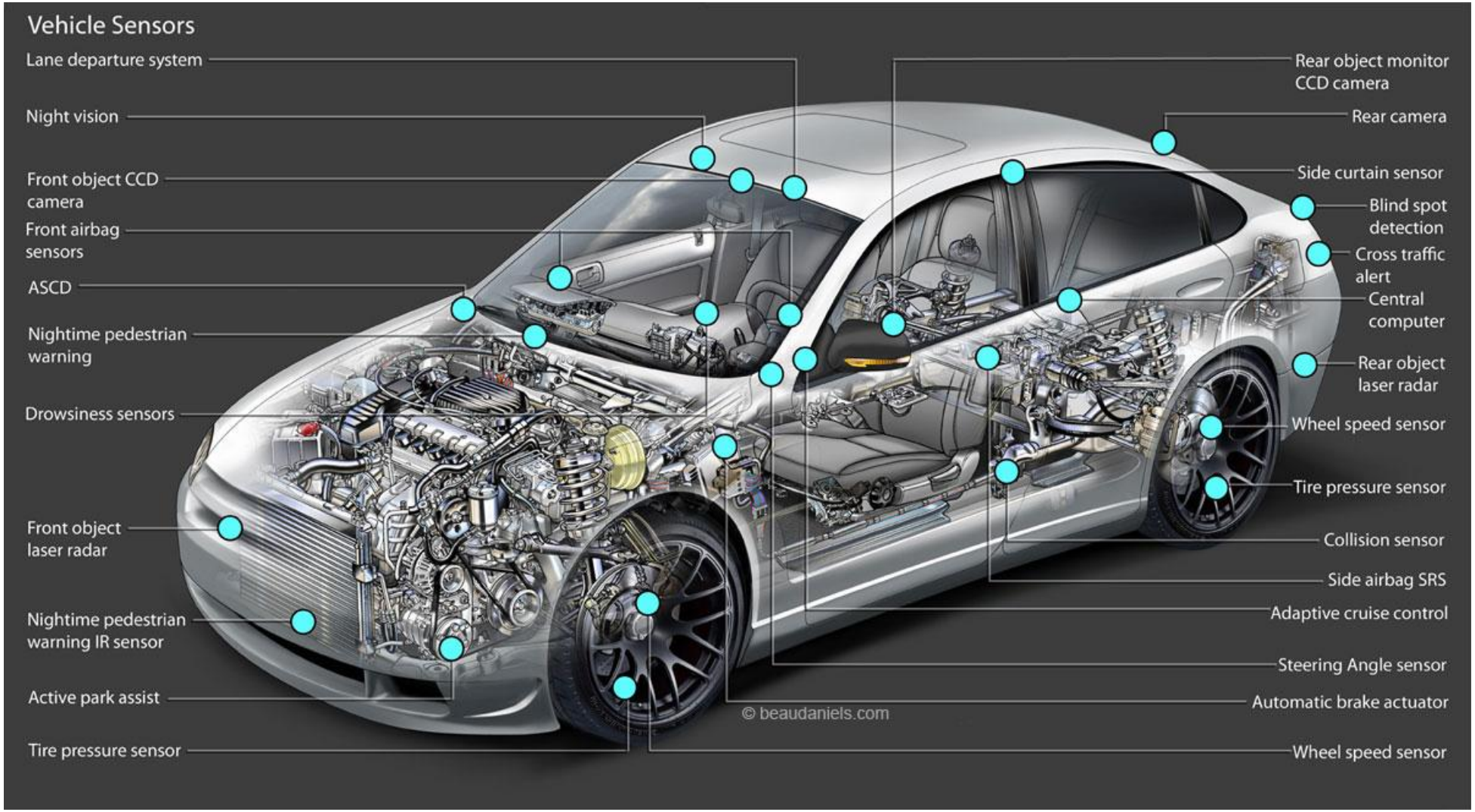

MARKETS
VED
LLOY
KAZ
MRW
XTA
TSCO
IMT
BSY
FTSE 100 GAINERS/FALLERS


TRAVEL
JOURNEY HOME
Bakerloo
Central
Circle
District
H'Smith & City
Jubilee
Metropolitan
Northern
Piccadilly
Victoria
Waterloo & City
Overground
DLR


BostonDynamics


FedEx
FedEx
prime

Autonomous & Connected Cars



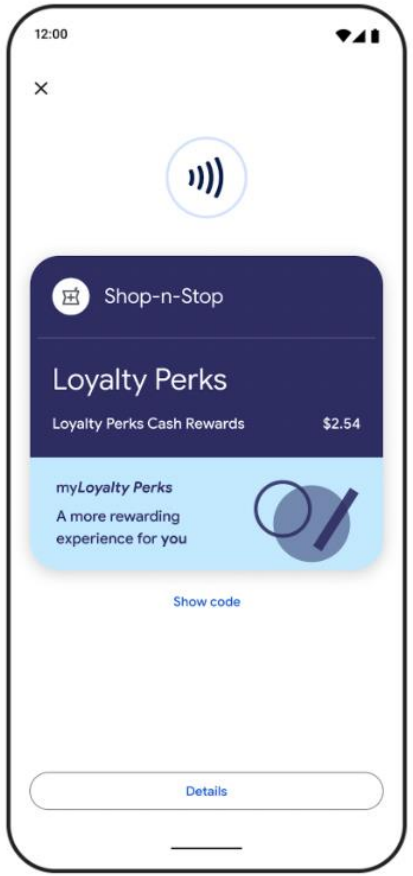
Payments Using NFC (Near Field Communication)

NFC: Key to everything

Event ticket

Boarding pass

Loyalty card



Vaccine record

References and Further Reading

- 3G4G: TechKnowledge Technology Stories (link)
- 6G Mobile Wireless Communications - Vision, Roadmap, Technologies & Use Cases: 6G Devices (link)
- Revolution in the Driver's Seat: The Road to Autonomous Vehicles (link)
- 3G4G: Connected and Autonomous Vehicles (CAVs) (link)
- Teslasuit (link)
- Kuldeep Singh on Medium: The Growing List of XR Devices (link)
- 3G4G: 5G and Extended Reality (XR) (link)
- Hearing Tracker: Hearables and Hearing Wearables Technology Guide (link)
- Spiceworks: What Is NFC (Near Field Communication)? Definition, Working, and Examples (link)
- Orange: What is the difference between NFC and RFID? (link)
- Google for Developers: Introducing the Google Wallet API (link)

Thank You

To learn more, visit:

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Operator Watch Blog – https://www.operatorwatch.com/

Connectivity Technology Blog – https://www.connectivity.technology/

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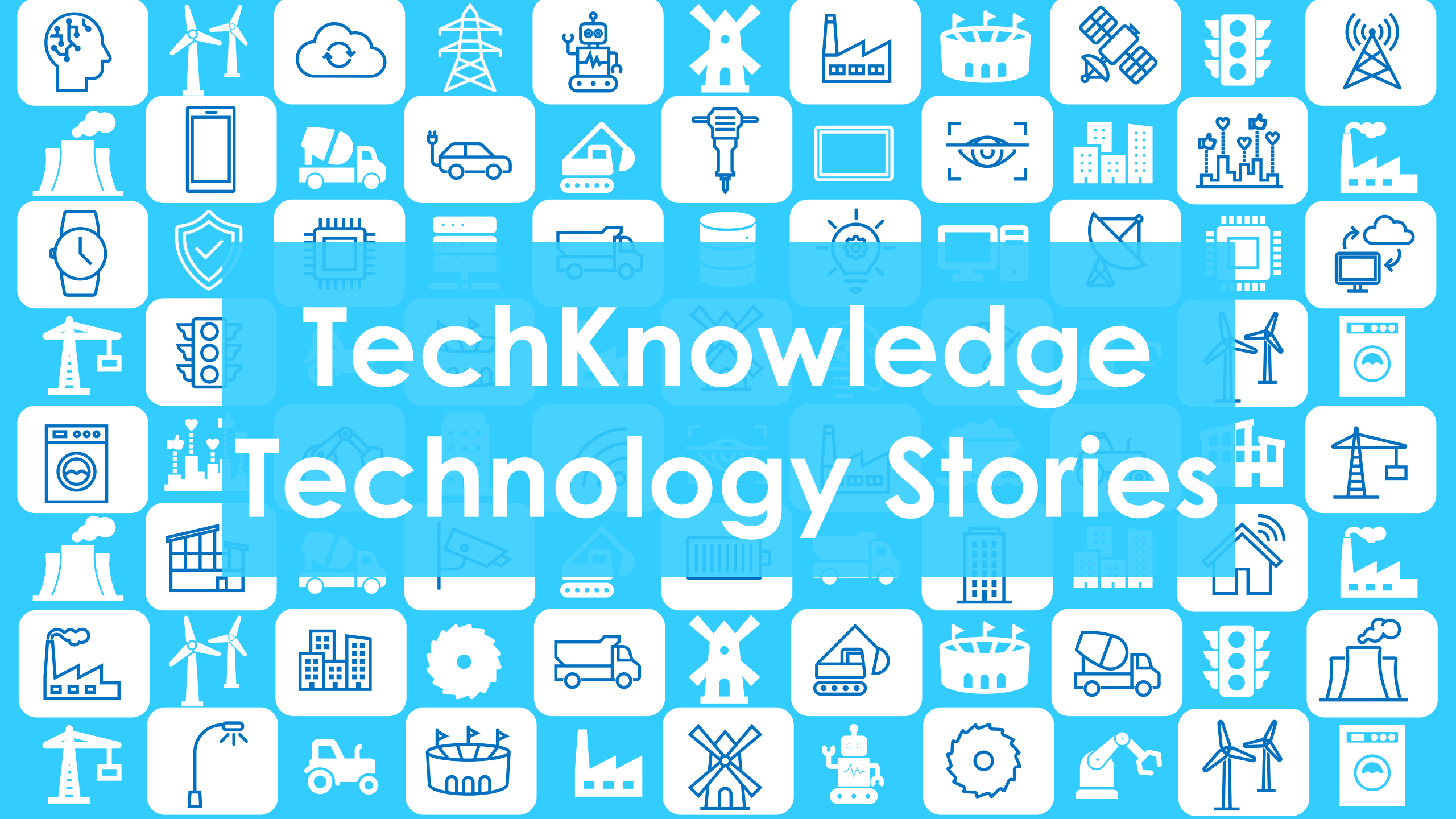
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