VREXPERT

Remote Expert Smart Glasses Industry Benchmark

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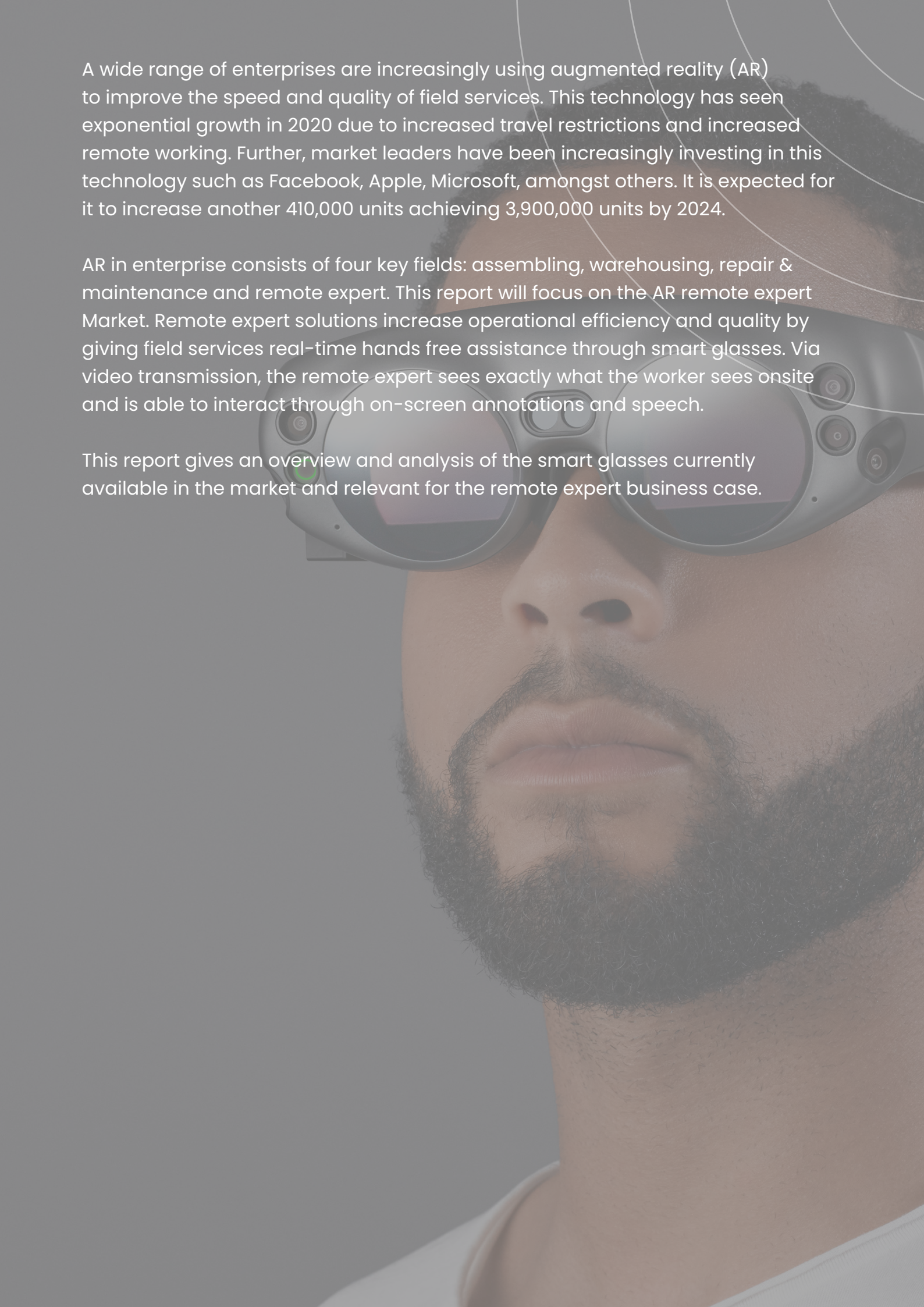
A wide range of enterprises are increasingly using augmented reality (AR) to improve the speed and quality of field services. This technology has seen exponential growth in 2020 due to increased travel restrictions and increased remote working. Further, market leaders have been increasingly investing in this technology such as Facebook, Apple, Microsoft, amongst others. It is expected for it to increase another 410,000 units achieving 3,900,000 units by 2024.

AR in enterprise consists of four key fields: assembling, warehousing, repair & maintenance and remote expert. This report will focus on the AR remote expert Market. Remote expert solutions increase operational efficiency and quality by giving field services real-time hands free assistance through smart glasses. Via video transmission, the remote expert sees exactly what the worker sees onsite and is able to interact through on-screen annotations and speech.

This report gives an overview and analysis of the smart glasses currently available in the market and relevant for the remote expert business case.



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Background

AR Smart Glass Introduction

AR Smart glasses are defined as wearable computer glasses that add information to what the wearer sees. In essence all AR smart glasses carry three components:

1. A camera to capture the environment.

2. A screen that can display digital information. This information can be projected in 2D and/or 3D (using markers).

3. A frame to keep it all together

The main benefit of AR smart glasses compared to other remote support solutions via tablet or smartphone, is that the wearer of the smart glass has his/her hands-free to perform tasks. Further, the expert has the exact same point of view as the wearer of the AR smart glass, as the camera is integrated into the AR smart glass.

This report makes an analysis of the most relevant commercially available smart glasses in the market. Smart glasses that are not launched into the market yet or taken off the market, are excluded from the list. This report does not claim to have a complete overview of all the smart glasses available, but has included some of the most relevant smart glasses for enterprise usage.

Background

Enterprise v.s Consumer Focus

The AR smart glass manufacturers can be divided into two core categories based on their target market: Enterprise and Consumer.

Consumer AR smart glass manufacturers focus on visual experience, available content and integration with the existing digital ecosystem. The smart glass market is still a very niche market and has been growing throughout the past few years. Market expectations differ widely, but strong growth is expected.

The enterprise smart glass market is a more developed market with an estimation of around 20 Mio headset shipped by the end of 2020. Enterprise smart glass manufacturers focus on specific enterprise use cases, durability and ease of use.

This report will focus on the Enterprise AR smart glass manufacturers .

Monocular v.s Binocular

Monocular AR smart glasses provide a single display for viewing the AR content. Usually through a small display element in front of one eye. Most enterprise AR headsets are monocular. Binocular smart glasses provides a display for each eye, creating a stereoscopic view. Example of a binocular AR headset is the Microsoft Hololens 2.

The main advantage of monocular headsets is that they are less obtrusive than binocular smart glasses. Furthermore, the cost of monocular headsets are in general lower.

Binocular headsets have a more natural feel for the user as they can use both eyes to see the augmented reality content. This allows for a natural depth perception. Further, most binocular smart glasses have integrated depth cameras, allowing 3D scanning and 3D object viewing.

Monocular AR smart glasses are mostly used for the remote expert business case, as they provide sufficient functionality and are more cost efficient compared to binocular smart glasses.

Background

History of AR Smart Glasses

The AR smart glass market is maturing fast. In this maturing process new companies have emerged and others have failed. One of the first AR smart glasses in the market was the Google Glass, who inspired a new generation of AR smart glass manufacturers.

2009
- Google starts Google Glass Project

2010
- Military contracter Vuzix launches first AR headset: STAR 1200

2011
- Magic Leap is founded

2012

2013
- Google starts selling Google Glass

2014
- Daqri unveils Smart Helmet
- Magic Leap announced second funding round of $542 Mio

2015

2016
- Microsoft launches Microsoft Hololens development kit
- RealWear is founded and launches RealWear HMT-1

2017
- Google launches Google Glass Enterprises
- Vuzix launches Vuzix M300 & Vuzix Blade
- Epson launches Epson Moverio BT-300
- Nreal is founded

2018
- Magic Leap launches the Magic Leap One
- RealWear receives a series A funding of $19.3 Mio
- Epson launches Epson Moverio BT-35
- Vuzix launches Vuzix M300 XL
- Toshiba launches Toshiba dynaEdge

2019
- RealWear receives series B of $80 Mio
- Microsoft announces Hololens 2
- Google launches Google Glass Enterprise Edition 2

2020
- Microsoft Hololens 2 launched
- Vuzix launches Vuzix M400
- Vuzix launches Vuzix M4000
- Vuzix launches Vuzix Blade Upgraded
- Nreal launches Nreal Light Consumer Kit

2021
- Microsoft signs $22 Bio Military Hololens 2 contract
- Iristick launches Iristick.H1

Background

History of AR Smart Glasses

The AR smart glass market is maturing fast. In this maturing process new companies have emerged and others have failed. One of the first AR smart glasses in the market was the Google Glass, who inspired a new generation of AR smart glass manufacturers.

2021
- RealWear announces Navigator

2022
- RealWear discontinues HMT-1

  Magic Leap 2 focussed on Enterprise launches

  Vuzix M400C is launched

  Lynx R1 is launched first European manufacturer

  Vuzix Blade 2 replaces Blade Upgraded

2023
- RealWear Navigator 520 is launched

2. Remote Expert Smart Glasses (for enterprises)

Enterprise Focus

- Epson Moverio BT-35
- Google Glass 2
- IRISTICK.H1
- Lynx R1
- Magic Leap 2
- Microsoft Hololens 2
- NREAL
- RealWear HMT-1
- RealWear Navigator 500
- RealWear Navigator 520
- RealWear HMT-1Z1
- Toshiba DynaEdge
- Vuzix M300 XL
- Vuzix Blade 2
- Vuzix M400 C
- Vuzix M400
- Vuzix M4000

Epson Moverio BT-35

The Moverio BT-35E is the successor of the Epson Moverio BT-300. The Moverio BT-35E is connected to a controller which needs to be connected to any smartphone with a USB-C port where you can see what you can see on your phone. These binoculars AR Glasses use Si-OLED allowing the display to appear truly transparent and also allows the users to deliver 2D as well as 3D content. These glasses are comfortable to wear, and easy to use.

Product Specifications

AR view:	Binocular
FOV (Horizontal):	34 degrees
Weight:	119 grams
Built in audio:	Yes
Microphone:	Optional
Connectivity:	Wifi, Bluetooth, GPS
Charging:	Micro USB & USB-C
Camera:	8MP, 1080P video
Battery:	External battery
Battery life:	N/A
Controls:	Intelligent controller, smart device
Operating system:	Android 9 or later + supported by windows 10 or later

Commercial Details

Price:	€669
Warranty:	1 Year
Industry and safety:	N/A

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✗

Pros & Cons

- ✓ Low Pricing
- ✓ Light weight and easy to wear
- − Needs a controller
- − AR hard to see

Expert Opinion

- The Epson Moverio BT-35 for it's price provides a high quality camera similar to alot of Smartphones, 8MP worth of Photos while 1080P worth of Video. The highest quality content for remote expertise.
- The device is equiped with 34 degrees worth of FOV which is very large for the design of the headset. This creates a highly immersive experience & allows for more to be displayed in front of the user than other headsets.
- The Moverio BT-35 is a binocular headset, this compared to a monocular device allows for more to be displayed infront of the eyes of the user. It also achieves a more equal side to side weight balance allowing for a more comfortable fit.
- Unfortunatley the device has an external battery & while that provides more battery life it comes at the consequence of comfort.

Google Glass 2

Glass Enterprise Edition 2 is the follow up of the Google Glass 1.The Google Glass enterprise 2 works with a touch pad and with voice control. These smartglass use the Qualcomm Snapdragon XR1 platform. Additionally, Glass Enterprise Edition 2 features improved camera performance and quality, which builds on Glass's existing first person video streaming and collaboration features. Google has also added a USB-C port that supports faster charging, and increased overall battery life to enable customers to use Glass longer between charges.

Product Specifications

AR View:	Monocular
FOV (Horizontal):	83 degrees
Weight:	46 grams
Built in audio:	Yes
Microphone:	Yes
Connectivity:	Wifi, Bluetooth
Charging:	USB-C
Camera:	8MP, 1080P video
Memory:	3GB RAM / 32GB INTERNAL MEMORY
Battery:	800 mAh internal battery
Battery life:	8 hours
Controls:	Voice, Touch
Operating system:	Android Open Source Project 8.1 (Oreo)
Chip:	Qualcomm Snapdragon XR1

Commercial Details

Price:	€1,049
Warranty:	1 Year
Industry and safety:	IP53

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ Light weight
- ✓ Android operating system
- ✓ Snapdragon XR1 processor
- — Not suited for heavy industry

Expert Opinion

- Due to its exceptionally lightweight design, the Enterprise Edition 2 weighs only 51g. This includes the frame which is made of titanium, making it easy to wear all day long.
- The design of the Enterprise Edition 2 is such that the AR glasses are not very conspicuous and do not need to be removed during other activities. With Google Glass, workers no longer have to take their eyes off their current task and can still have other visual information displayed at the same time.
- Thanks to the powerful Qualcomm Snapdragon XR1 processor, the Google Glass Enterprise Edition 2 has solid processing power in comparison to its size and weight.
- The Enterprise Edition 2 can be easily controlled via Google speech recognition. In addition, a touch sensor is installed on the side of the AR glasses, which can also be used to operate the device.
- The Google Glass Enterprise Edition 2 has a built-in 8-megapixel camera. The camera has a 83° field of view that can capture high-resolution photos and videos up to 1080p and 30fps.

IRISTICK.H1

With the zoom lens on one side, the display on the other and the 16MP dual camera in the middle, the Iristick H1 is one of the most balanced smart glasses on the market. The display can be interchanged between the right and left eye providing comfort for all. Further, the Iristick H1 has been clearly made for the industry setting as it is PPE compatible, IP 67 certified and is drop proof. The Iristick can be used both with voiced commands and with a touch pad and voice controls; however, when working in a loud environment it is advisable to use the touchpad. The Irisstick H1 works with a pocket unit.

Product Specifications

FOV (Horizontal):	77 degrees
Weight:	168 grams
Microphone:	Yes (noise-cancelling)
Charging:	USB-C
Camera:	16MP Camera
Controls:	Voice, touch pad

Commercial Details

Price:	€2,459
Warranty:	1 Year
Industry and safety:	IP67, PPE

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✗

Pros & Cons

- ✓ IP67 certified
- ✓ High end camera
- ✓ Easy to wear with safety helmet
- — Need to be connected to a phone

Expert Opinion

- The Iristick.H1 provides a very comfortable experience weighing only 168 grams & being equipped with a headband to maximise comfort.
- The headset is a Monocular headset however the display can be switched between the left & right side. What this means is content can be more convenitently placed in accordance to the user & each scenario. Alongside this it helps users who may or may not have a left or right side eye dominance furthering the headsets comfort.
- The Iristick H1 is not a standalone device, the problem with this is it means the device always has to be carried & used with a pocket unit, this can make the device a bit bulky & inconvient to carry around.

Lynx R1

The Lynx R1 is the first multipurpose standalone VR and AR headset in one device offering true mixed reality capabilities. The Lynx R1 is equipped with all that is needed to either be used as a standalone VR headset as well as a standalone AR headset or both at the same time. Due to this is it ideal for a variety of use cases like remote assistance, visual guided instructions or tele operations.

Product Specifications

AR View:	Binocular	Camera:	B&W, RGB & Infared
FOV (Horizontal):	90 degrees	Memory:	6GB RAM / 128GB internal memory
Weight:	500 grams	Battery life:	3 hours
Built-in Audio:	Yes (Stereo speaker)	Controls:	Hand tracking & controller
Microphone:	Yes	Operating system:	Android 10
Connectivity:	WiFi, Bluetooth	Chip:	Qualcomm Snapdragon XR2
Charging:	USB C		

Commercial Details

Price:	€1,299
Warranty:	1 Year
Industry and safety:	PPE

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ Native hand tracking
- ✓ Standalone Mixed Reality
- ✓ Privacy and data protection features
- ✓ Open operating system
- ✓ Lightweight design
- ✓ Usable as an AR & VR Headset

- — No native app store

Expert Opinion

- The Lynx R1 is a standalone Mixed Reality headset, what makes it unique is that it can also be used as a fully standalone VR headset or AR headset, easily switching between the different modes or both simultaneously in the same app.
- The Lynx R1 has been completely built with privacy and data protection in mind. Unlike some other VR and AR headsets, users can easily deactivate any sensor that may collect sensitive information.
- The catadioptric freeform prism optics of the Lynx R1 is a new design by Lynx. The prism shape is used to reflect light within the lens, enabling a shorter distance between your eyes and the display, creating a thinner form factor.
- A lightweight design with 4-fold catadioptric freeform prism optics enables a lightweight face, this is as the smaller prism optics take up less space than for example fresnel or pancake lenses.

Magic Leap 2

Magic Leap 2 is the replacement for Magic Leap 1. Magic Leap 2 is a powerful binocular AR headset that can project 3D objects onto the user's view of the physical world in real time. The Magic Leap 2 is purpose-built for a variety of use cases such as design projects, training and 3D visualisations.

Product Specifications

AR View:	Binocular
FOV (Horizontal):	70 degrees
Weight:	260 grams
Built-in Audio:	Yes (Stereo speaker)
Microphone:	Yes
Connectivity:	WiFi, Bluetooth
Charging:	USB C
Operating system:	Microsoft Holographic OS

Camera:	12.6 MP, 4k video
Memory:	16GB RAM / 256GB internal memory
Battery life:	3.5 hours
Controls:	Voice, eye tracking, hand tracking, controller
Operating system:	Android AOSP
Chip:	AMD Quad-core Zen2 x86 CPU

Commercial Details

Price:	€4,120
Warranty:	1 Year
Industry and safety:	PPE

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ Spatial mapping
- ✓ Can handle demanding applications
- ✓ 70° FOV creating a more immersive experience
- ✓ Lightweight and comfortable
- ✓ Easily customisable Android Open Source Project Operating System
- — Lightpack must always be carried
- — No memory card slots

Expert Opinion

- The Magic Leap 2 has much improved spatial mapping capabilities. Spatial mapping allows virtual objects or holograms to interact with the physical reality around us.
- Magic Leap 2 is one of the most powerful augmented reality headsets on the market. The Magic Leap 2 is equipped with 16GB of RAM, which means the device can run extremely demanding applications.
- The Magic Leap 2 has a 70-degree field of view, this is nearly double that of the Magic Leap 1. The larger field of view allows for more realistic interactions and visualisations to take place between the digital and physical worlds.
- The Magic Leap 2 has been built with multiple input options. The Magic Leap 2 can be controlled using a controller, hand tracking, eye tracking, voice command and optionally with other Bluetooth devices.

Microsoft Hololens 2

The HoloLens 2 offers an untethered immersive mixed reality experience and is ideal for Remote expertise and concepting in the business market.
The system is made to operate with hand gestures, you do not need separate controllers. For example, you can grab objects with simple squeezes and scroll through options with a wave. This makes it easier to perform other actions such as factory work or equipment repairs. You can also work with voice control that allows you to work with both hands in a production environment.

Product Specifications

AR View:	Binocular	Battery:	N/A
Field of View:	52 Degrees	Charging:	USB-C
Weight:	566 grams	Operating system:	Microsoft Holographic OS
Controls:	Voice recognition, Hand gestures, Eye tracking, Head motion	Chip:	Qualcomm Snapdragon 850
		Resolution:	2048 x 1080 (per eye)
Built-in Audio:	Yes	Camera:	8MP & 1080p 30fps
Microphone:	Yes	Memory:	64 GB
Connectivity:	WiFi, Bluetooth, GPS		

Commercial Details

Price:	€4,250
Warranty:	1 Year
Industry and safety:	EN66

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ Built for remote support
- ✓ Excellent eye tracking
- ✓ Spatial mapping
- — No IP rating

Expert Opinion

- The HoloLens 2 has an excellent spatial mapping technique due to the 4 depth cameras. This allows the HoloLens 2 to detect objects and surfaces in reality. This is ideal for developing lifelike training, simulations and visualizing 3D objects.
- The HoloLens 2 is able to remember 3d objects in the rooms. This allows training and simulations to be preset before which they are remembered.
- The HoloLens 2 is operated with hand gestures. In addition, the HoloLens 2 also has speech recognition, so you can operate it hands-free if necessary.
- Remote Assist 365 is available on the Hololens 2. This includes Microsoft Teams. In addition, a link with technical software, such as Revit, is in many cases possible. This can be used for spatial development and visualization.

Nreal Light

Due to their cool design and their mixed reality functions, Nreal is a new product attracting a lot of attention. Its AR functions allow you to see up to three different apps 'float' in the air which can be very functional when working with an expert and needing to see different things at the same time. The Nreal needs to be used with an Oppo X3 Pro phone for it to work on a strong 5G network. The Nreal lacks a bit or robustness as they are not IP certified or drop proof.

Product Specifications

AR View:	Binocular	Camera:	32MP, 1080P video
FOV (Horizontal):	52 degrees	Memory:	6GB RAM / 64GB INTERNAL MEMORY
Weight:	106 grams	Battery:	external battery
Built in audio:	Yes (dual speakers)	Battery life:	3 hours
Microphone:	Yes (dual microphones)	Controls:	touch/controller
Connectivity:	Wifi, Bluetooth	Operating system:	Android OS
Charging:	USB-C	Chip:	Qualcomm Snapdragon 845

Commercial Details

Price:	€600
Warranty:	1 Year
Industry and safety:	N/A

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✗

Pros & Cons

- ✓ 32MP camera
- ✓ Hand tracking
- ✓ 5G capabilities
- − Not robust

Expert Opinion

- Fashion first AR is the aim of Nreal Light providing a very lightweight & comfortable AR Experience. This is achieved through the device not being standalone wirelessly casting to a mobile device creating a high power experience for the size of the product. However this means that for the headsets to work you will always need to have your phone on you alongside draining both your phone & devices battery.
- The Nreal Light has a 32MP, 1080P Video Camera matching alot of smartphones, attached with Dual Speakers & Microphones this device will provide high quality feedback for it's price providing a very good experience.

RealWear HMT-1

The RealWear HMT-1 can be controlled hands-free. Thanks to 4 digital microphones and advanced algorithms, the voice recognition software. The RealWear HMT-1 is mainly used for remote expert use cases, during inspections, repairs and maintenance works.
Furthermore, the RealWear HMT-1 is the only AR set on the market that holds an Atex zone 1 certification.
The RealWear HMT-1z1 (Atex version) makes it possible to take an AR set into highly volatile and flammable environments.

Product Specifications

AR View:	Monocular	Memory:	3GB RAM / 32GB internal memory
FOV(horizontal):	20 degree	Battery:	3250 mAh internal battery
Weight:	380 Gram	Battery life:	5-6 hours
Build-in Audio:	Yes (Ear speaker)	Controls:	Voice, Gaze
Microphone:	Yes (Noise canceling)	Operating system:	Android 10 + WearHF ™
Connectivity:	WiFi, Bluetooth	Chip:	2.0 GHz 8-core Qualcomm® Snapdragon™ 626
Charging:	USB C		
Camera:	16 MP, 1080P video		

Commercial Details

Price:	€1,870
Warranty:	1 Year
Industry and safety:	CSA C1-D1, ATEX & IECEx Zone1 (optional), PPE support, IP66 (water and dust proof)

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ Super robust
- ✓ High end camera
- ✓ Easy to wear with safety helmet
- — Voice commands can be forgotten

Expert Opinion

- The RealWear HMT-1 forms the basis for Connected Worker programs. Use it in wet, dusty, hot, hazardous and loud industrial environments. A completely robust head-mounted device. Snap it optionally to safety helmets or bumpers. The HMT-1 can be used with safety glasses or corrective glasses.
- RealWear's high-resolution microdisplay fits just below your field of view and looks like a 7-inch tablet. It is an industrial dashboard: there when you need it and not in your sight when you don't need it.
- The RealWear HMT-1 works with powerful software applications from our partners in four core categories, each optimized for completely hands-free voice control. That means you don't have to scroll, swipe or tap – just simple voice commands.

RealWear Navigator 500

The RealWear Navigator 500 is the next generation rugged monocular smart glass that empowers modern frontline workers with remote expertise. The AR headset can be operated hands-free thanks to its excellent voice control. The Navigator 500 is ideally suited for use in inspections, maintenance or repairs. Companies benefit from more effective and cost-efficient workflows by using the device.

Product Specifications

AR View:	Monocular	Camera:	48MP, 1080P 60FPS video
FOV(horizontal):	20 degree	Memory:	4GB RAM / 64GB internal memory
Weight:	272 Gram	Battery:	2600 mAh internal battery
Build-in Audio:	Yes (Ear speaker)	Battery life:	8 hours
Microphone:	Yes (Noise canceling upto 100db)	Controls:	Voice, Gaze
		Operating system:	Android 11 + WearHF ™
Connectivity:	WiFi, Bluetooth, GPS, IMU	Chip:	2.0 GHz 8-core Qualcomm® Snapdragon™ 626
Charging:	USB C		

Commercial Details

Price:	€2,290
Warranty:	1 Year
Industry and safety:	CSA C1-D1, PPE support, IP66 (water and dust proof)

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ Excellent voice control
- ✓ Rugged design
- ✓ Noise cancellation up to 100db
- ✓ 48 MP camera
- — No 4K video capture

Expert Opinion

- The RealWear Navigator 500 can be operated hands-free through the use of voice control. The device has the best voice control on the market and the noise-canceling microphones can filter out ambient noise up to 100db.
- The Navigator 500's camera can shoot pictures with a resolution of 48 MP. No other smart glass on the market has this high megapixel count, which matches that of professional cameras.
- The RealWear Navigator 500 is made for use in heavy industry due to its safety certificates. Thanks to IP66 certification, the device is protected from dust and water ingress.
- The RealWear Navigator comes standard with the RealWear workband, making it comfortable to wear for extended periods of time.

RealWear Navigator 520

The RealWear Navigator 520 is the latest device in the RealWear Navigator 500 series and is a highly rugged monocular smart glass with an upgraded display over the Navigator 500. The RealWear Navigator 520 is the first RealWear device to have a hyperdisplay, providing users with much better viewability.

Product Specifications

AR View:	Monocular	Camera:	48MP, 1080P 60FPS video
FOV(horizontal):	24 degrees	Memory:	4GB RAM / 64GB internal memory
Weight:	274 Gram	Battery:	2600 mAh internal battery
Build-in Audio:	Yes (Ear speaker)	Battery life:	8 hours
Microphone:	Yes (Noise canceling upto 100db)	Controls:	Voice, Gaze
		Operating system:	Android 11 (AOSP) + WearHF ™
Connectivity:	WiFi, Bluetooth, GPS, IMU	Chip:	2.0 GHz 8-core Qualcomm® Snapdragon™ 662
Charging:	USB C		

Commercial Details

Price:	€2,700
Warranty:	1 Year
Industry and safety:	CSA C1-D1, PPE support, IP66 (water and dust proof)

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ Full HD display
- ✓ 20% larger display than Navigator 500
- ✓ Excellent voice control
- ✓ Rugged design
- ✓ Noise cancellation up to 100db
- ✓ Easy adjustable display
- ✓ 48 MP camera
- — No 4K video capture
- — Voice control only

Expert Opinion

- The RealWear Navigator 520 is the first RealWear device to have a hyperdisplay, providing users with much better viewability. Compared to the standard Navigator 500 the Navigator 520 provides users with a 20% larger screen, without compromising on the user's view of the real world.
- The RealWear Navigator 520 is built to be used hands-free thanks to its industry-leading voice-control technology. The voice control is so good on the Navigator 520 it can filter out external noise to levels up to 100db.

RealWear HMT-1Z1

The HMT-1Z1 is an AR headset specifically designed for heavy industrial workers who need to be handsfree while contacting their coworkers. The headset works with a complete voice recognition system which can be used for remote support on any location. The headset has been created to withstand frigid zones as well as the hottest environments. It is ATEX Zone 1 & IECEx Zone 1 and CSA C1-D1 certified, so safe to use even in potentially explosive areas.

Product Specifications

AR View:	Monocular	Memory:	2GB RAM / 16GB internal memory
FOV(horizontal):	20 degrees	Battery:	3400 mAh internal battery
Weight:	430 Gram	Battery life:	5-6 hours
Built-in Audio:	Yes (Ear speaker)	Controls:	Voice, Gaze
Microphone:	Yes (Noise canceling)	Operating system:	Android 8.1.0 + WearHF TM
Connectivity:	WiFi, Bluetooth	Chip:	2.0 GHz 8-core Qualcomm® SnapdragonTM 625
Charging:	Micro-USB		
Camera:	16 MP, 1080P video		

Commercial Details

Price:	€5,250
Warranty:	1 Year
Industry and safety:	CSA C1-D1, ATEX & IECEx Zone 1, PPE support, IP66 (water and dust proof)

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ Atex zone 1 certification
- ✓ Robust design
- ✓ Excellent voice control
- ✓ IP66 water, dust and fall resistant
- — Small display
- — Only uses voice control

Expert Opinion

- The RealWear HMT-1Z1 Atex zone 1 certification means that the headsets can be used in spaces where the chances of an explosive gas mixture are relatively high (Between 0.1 – 10% chance under normal operations).
- Besides being Atex certified the HMT-1Z1 also has an IP66 rating, making it both water and dust resistant. It can also withstand falls of up to 2 meters, making it the most robust smart glass AR device on the market right now.
- The HMT-1Z1 has one of the most advanced voice recognition systems on the market. The voice recognition even works with noise levels up to and including 95 dB, ideal for use in loud industrial environments.
- The HMT-1Z1 runs on an android operating system meaning that it feels very similar to most Android tablets as well as the fact that it is possible to upload your own APK's.

Toshiba DynaEdge

The Toshiba DynaEdge is a smart glass tethered to a PC pocket pack. Toshiba cooperated with Vuzix on the smart glass to ensure optical quality. The PC pocket pack makes it standout as it is the only smart glass running on Windows. Furthermore, its the lightest weight smart glass, making it very comfortable to wear.

Product Specifications

AR View:	Monocular	Camera:	5MP, 1080P video
FOV(horizontal):	17 degree	Memory:	4GB RAM / 512GB internal memory
Weight:	50 Gram	Battery:	5800 mAh internal battery
Build-in Audio:	No (earphone jack)	Battery life:	5-6 hours
Microphone:	Yes (Noise canceling)	Controls:	Touch pad, Voice
Connectivity:	WiFi, Bluetooth	Operating system:	Windows 10 Pro
Charging:	Micro USB	Chip:	Intel Pentium processor 4405U

Commercial Details

Price:	€1,200
Warranty:	1 Year
Industry and safety:	Directive 2014/53/EU.

Hardware

Build-in display	✓
Build-in audio	✗
Standalone	✗

Pros & Cons

- ✓ Windows based
- ✓ Can handle large amounts of data
- ✓ Light weight
- − External microcomputer
- − Fragile

Expert Opinion

- The Toshiba DynaEdge weighs just 50 Gramms, this provides a light & minimal experience. However the weight of the headset is very front orientated, this can mean the headset may fall slightly forward.
- A PC Pocket Pack allows for high power processing on an AR device while avoiding bulk on the headset which may provide an uncomfortable experience. This is seen by the devices high battery life & huge 512GB memory. However this does come at the effect of having wires in the headset making a slightly less immersive viewing experience.

Vuzix M300 XL

The Vuzix M300 XL is an AR headset with an onboard processor and a monocular display. The headset is mostly used for remote support and during inspections and reparations. With the camera on the headset you can easily share your surroundings with an expert and immediately receive feedback. This allows for a better work process and more effective and efficient practices.

Product Specifications

AR View:	Monocular
FOV(horizontal):	16.7 degree
Weight:	150 Gram
Build-in Audio:	Yes (Ear speaker)
Microphone:	Yes (Noise canceling)
Connectivity:	WiFi, Bluetooth, GPS
Charging:	Micro USB
Memory:	2GB System RAM / 64 GB internal storage
Camera:	10MP with 1080P video
Battery:	160 mAh internal battery, 860 mAh external battery
Battery life:	4-8 hours
Controls:	Touch pad, navigation button, voice recognition
Operating system:	Android
Chip:	Dual Core Intel Atom CPU

Commercial Details

Price:	€950
Warranty:	1 Year
Industry and safety:	PPE

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ 10 MP camera
- ✓ Android operating system
- ✓ Relatively cheap
- ✓ Swappable batteries
- — Small view
- — Fragile

Expert Opinion

- The camera allows the user to easily share his / her environment with the remote expert, and then receive immediate feedback. This allows work to be carried out more effectively and with more knowledge.
- The Vuzix M300 XL has a monocular display and an onboard processor, so no peripheral equipment is needed.
- You control the Vuzix M300 XL with voice control, touch pad or the 4 Android control buttons.

Vuzix Blade 2

The Vuzix Blade 2 is a pair of lightweight AR smart glasses that is suited for work instructions, remote guidance and training. The Vuzix Blade 2 is the best entry-level AR headset on the market. This is due to its lower price point and limited customization options. However, the lower price point does not mean it is equipped with inferior specifications and is able to perform some use cases just as effectively as its more expensive competitors. The low price point with the good specifications makes the Blade 2 the ideal choice for integrating smart glasses into your organization for the first time.

Product Specifications

AR View:	Monocular
FOV(horizontal):	16.8 degrees
Weight:	90 grams
Built-in Audio:	Stereo integrated speakers
Microphone:	Yes (Dual Noise canceling)
Connectivity:	WiFi, Bluetooth
Charging:	Micro USB
Camera:	8 MP Auto Focus, 1080P video
Memory:	1GB RAM / 40GB internal memory
Battery:	470 mAh internal battery
Battery life:	4-8 hours
Controls:	Touch pad, voice control
Operating system:	Android 11 OS
Chip:	Quad Core ARM CPU

Commercial Details

Price:	€1,380
Warranty:	1 Year
Industry and safety:	PPE, ANSI Z87.1

Hardware

Built-in display	✓
Built-in audio	✓
Stand alone	✓

Pros & Cons

- ✓ Best entry level smart glasses
- ✓ Android 11 OS
- ✓ 8-megapixel camera with auto focus
- ✓ Multiple control options
- — Not IP rated
- — Not suited to heavy industry

Expert Opinion

- The Vuzix Blade 2 is easy to wear, because of its lightweight sunglasses design. The Blade 2 features a built-in full-color waveguide display in the right lens.
- The Vuzix Blade 2 is the best entry-level AR headset on the market. This is due to its lower price point and limited customization options, compared to the RealWear Navigator 500 and Vuzix M400.
- The Blade 2 has an autofocus 8-megapixel camera and is able to capture footage in 720p at 60fps or 1080p at 30fps with reasonable stabilization.
- Like its predecessor the Blade Upgraded, the Blade 2 is also ANSI Z87.1 certified, meaning it is able to withstand direct impacts against the lenses now making it better suited for industrial applications.

Vuzix M400C

The Vuzix M400C is a variation of Vuzix's flagship AR headset the Vuzix M400. The key difference between the two headsets is that the Vuzix M400C is not standalone and requires a PC or Smartphone to work which the M400C can then display data from if wanted. The Vuzix M400C is ideally suited for use in manufacturing, field service and warehouse logistics.

Product Specifications

AR View:	Monocular
FOV(horizontal):	16.8 degrees
Weight:	180 grams
Built-in audio:	Yes (ear speakers)
Microphone:	Yes (noise cancelling)
Connectivity:	WiFi, Bluetooth
Charge:	USB C
Camera:	2 MP, 4K 30FPS Video
Controls:	Touchpad, head movement, voice

Commercial Details

Price:	€1,380
Warranty:	1 Year
Industry and safety:	PPE, IP67

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✗

Pros & Cons

- ✓ 4K Camera
- ✓ Fall, water and dust resistant
- ✓ Can interface with smartphone or PC
- ✓ Lightweight design
- ✓ Suited for remote assistance
- ✓ Good entry-level smart glass

- — Requires a smartphone or PC to work

Expert Opinion

- Like the Vuzix M400 and M4000, the M400C has one of the best cameras available. The camera can capture 12.8 MP images and record and stream videos in 1080P at 60FPS or 4K at 30FPS.
- The Vuzix M400C is one of the few devices that can interface the display of your smartphone or PC on its own screen. This is a major advantage as users can now display applications from their smartphone onto their M400C.
- The Vuzix M400C does not require an external 4G LTE Modem to be used in the field, rather it can automatically connect with the network of your smartphone or PC that is tethered to the M400C.
- The Vuzix M400C is highly suited for harsh environments, with an IP67 rating as well as being able to withstand drops from 2 meters.

Vuzix M400

The Vuzix M400 is the succesor of the Vuzix M300XL. Setting itself apart with a IP67 rating (water and dust proof) and a very robust frame. The Vuzix M400 has an outstanding camera. Providing 4K video and 12.8 MP camera shots. This allows for easier error spotting/ diagnostics, therefore, enabling a higher level of work efficiency.

Product Specifications

AR View:	Monocular	RAM:	6GB
Controls:	Touchpad, headmotion, Voice	Display Resolution:	640x360
Built-in Audio:	Yes (Ear speaker)	Operating system:	Android 9.0
Microphone:	Yes (Noise canceling)	Input:	USB-C
Connectivity:	Wifi, Bluetooth, USB, GPS	Field of view:	16.8 degrees
Battery:	1000 mAh internal battery	CPU:	8 Core 2.52Ghz Qualcomm XR1
Charging:	USB-C	Weight:	180 grams
Camera:	12MP and 4K 30FPS video		

Commercial Details

Price:	€1,846
Warranty:	1 Year
Industry and safety:	PPE, IP67

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ 4K Camera
- ✓ Fall, water and dust resistant
- ✓ Swappable battery
- — Small view

Expert Opinion

- The Vuzix M400 has an outstanding camera. Providing 4K video and 12.8 MP camera shots. This allows for easier error spotting/diagnostics, therefore, enabling a higher level of work efficiency.
- The Vuzix M400, compared to its predecessor the M300XL, is that it's designed for use in harsh environments, the M400 can withstand falls from 2 meters and has an IP67 rating for water and dust.
- Weighing only 190 grams including battery, glass frames, and USB cable it's one of the lightest smart glasses on the market right now.
- The Vuzix M400 has backward compatibility with most accessories of previous Vuzix Smart Glasses. This includes the Safety Glasses Frames and a Powerback of 2000 mAh.

Vuzix M4000

The Vuzix M4000 is built for the workplace and is ideally suited for use in manufacturing, field-service and warehouse logistics. The M4000 provides users with an unobstructed view of the real world compared to the Vuzix M400. The M4000 has a full colour transparent optical display. the Vuzix M4000 is able to capture and stream video in 4K as well as take 12.8 megapixel stills. The Vuzix M4000 headset is IP67 rated for water and dust. The M4000 can be controlled through the built in touchpad, buttons or via voice commands.

Product Specifications

AR View:	Monocular	RAM:	6GB
Controls:	Touchpad, headmotion, Voice	Display Resolution:	854×480
Built-in Audio:	Yes (Ear speaker)	Operating system:	Android 9.0
Microphone:	Yes (Noise canceling)	Input:	USB-C
Connectivity:	Wifi, Bluetooth, USB, GPS	Field of view:	28 degrees
Battery:	1000 mAh internal battery	CPU:	8 Core 2.52Ghz Qualcomm XR1
Charging:	USB-C	Weight:	222 grams
Camera:	12MP and 4K 30FPS video		

Commercial Details

Price:	€2,325
Warranty:	1 Year
Industry and safety:	PPE, IP67

Hardware

Build-in display	✓
Build-in audio	✓
Standalone	✓

Pros & Cons

- ✓ 4K Camera
- ✓ Fall, water and dust resistant
- ✓ Large field of view
- — Costs more than M400

Expert Opinion

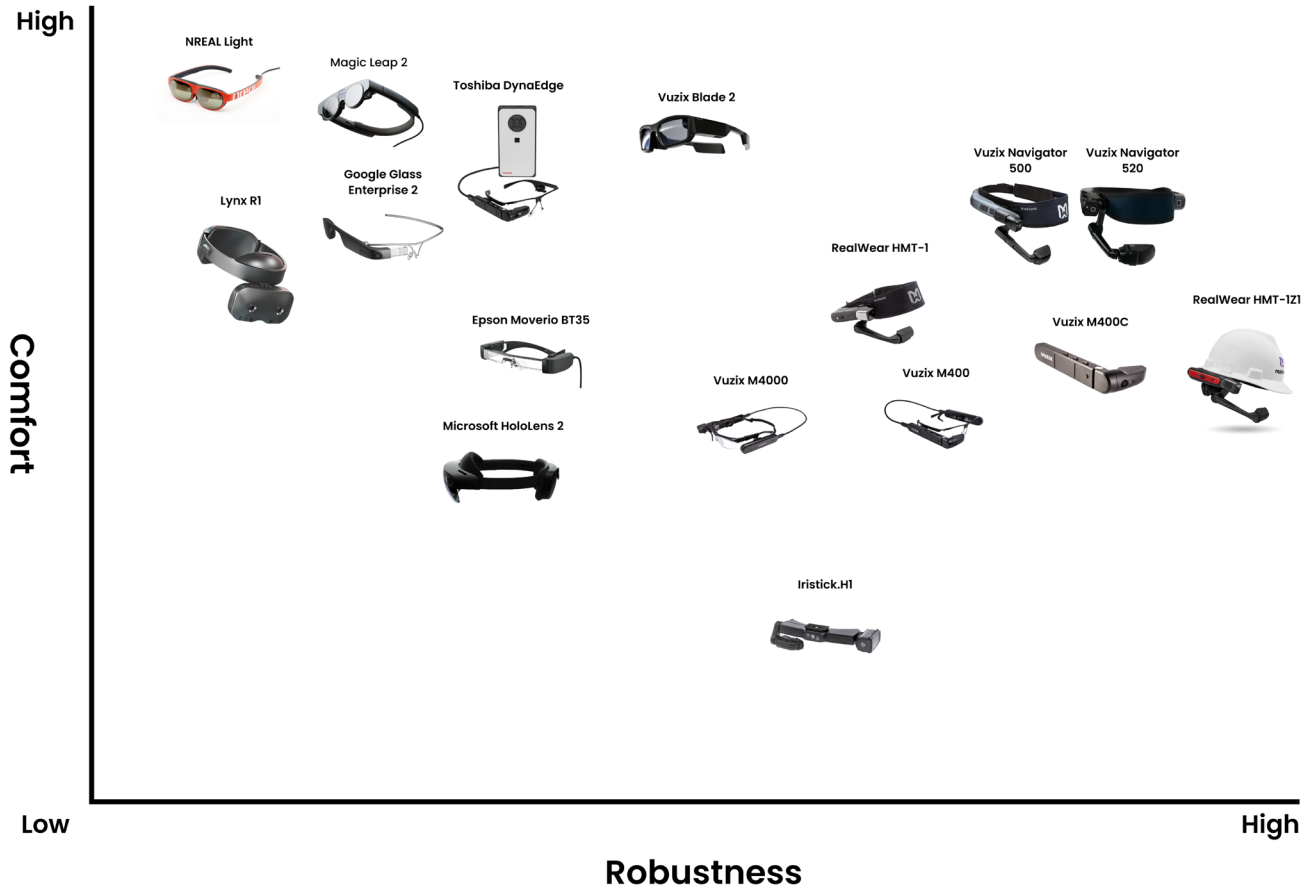
- The M4000 provides users with an unobstructed view of the real world compared to the Vuzix M400.
- The Vuzix M4000 is able to capture and stream video in 4K as well as take 12.8 megapixel stills.
- The M4000 is one of the best smart glasses on the market for use in heavy industry. The M4000 headset is IP67 rated for water and dust.
- The M4000 Smart Glasses can be controlled using 3 distinct methods. The M4000 can be controlled through the built in touchpad, buttons or via voice commands.
- The M4000 comes standard with a Vuzix Peli Case. The Peli case is ideal for storing and transporting the device in a compact and safe case.

3. Remote Expert Smart Glass Comparison

Comparison

Robustness

Depending on the use case, the AR smart glass needs a certain robustness to withstand the environment. For example, industrial environments require a very high amount of firmness from the smart glass, while field service for consumers services require a much lower amount of robustness.



Comparison

Video Quality

For the remote expert business case, a important element is the possible video quality that can be streamed. The quality of video stream is influenced by the camera and chipset.
Thee indicators are important to watch:

- Video Resolution

Video resolution are written down in horizontal pixels. Currently all AR smart glasses stream 1080P video (1920px x 1080 px). Together with FPS this is the most important indicator.

- FPS (Frames Per Second)

Frames Per Second (FPS) gives a indication of how smooth the video stream will be. 30FPS indicates a smooth video stream.

- MP (Megapixels)

Megapixels shows how many data the camera can capture. This does not mean that the video stream directly

Video stream / Camera quality

	Camera FOV	Display Type	Display Resolution
RealWear HMT-1	20°	LCD	854 x 480
RealWear HMT-1Z1	20°	LCD	854 x 480
Vuzix M400	16.8°	OLED	640 x 360
Vuzix M4000	28°	DLP	854 x 480
Vuzix Blade 2	19°	Waveguide	480 x 853
Hololens 2	52°	Waveguide	2048 x 1080
Moverio BT35	34°	Si-OLED	1280 x 720
NREAL Light	52°	OLED	1920 X 1080

	Camera FOV	Display Type	Display Resolution
Google Glass 2	83°	LCoS	640 X 360
Iristick H1	77°	OLED	428 X 240
Vuzix M400C	16.8°	OLED	n/a
RealWear Navigator 500	20°	LCD	854 x 480
RealWear Navigator 520	24°	LCD	1280 x 720
Magic Leap 2	70°	LCoS	1536 x 1856
Toshiba DynaEdge	n/a	LED	640x360
Lynx R1	90°	Dual LCD	1600 x 1600

Comparison

Industrial Certificates

For AR Smart glasses there are multiple safety certificates that can be obtained.

The most import safety certificates are:

- PPE / EN Rating (https://bit.ly/2oPjFsq)

Can only be obtained for smart glasses who cover both eyes (for example, DAQRI & Vuzix Blade). smart glasses that only cover one eye will note their compatibility. In essence this means that you can use the smart glass in combination with a safety glass.

- IPX Rating (https://bit.ly/2Svob9Q)

The IPX rating indicates till what amount the smart glass is water/dust proof.

- Drop proof

Drop proof is not a official standard, but indicated by the manufacturer.

- ATEX (https://bit.ly/2oLO4YM)

ATEX is an abbreviation for "ATmosphere EXplosible". Atex concerns the placing on the market of explosion-proof electrical and mechanical equipment, components and protective systems. RealWear is currently the only supplier in the market that can deliver ATEX certified smart glass. The standard version of the RealWear HMT-1 is not Atex approved

	IP Rating	Water Resistant	Dust Resistant	Fall Resistant	Weight	ATEX certification
RealWear HMT-1	IP66	Yes	Yes	2m	380 grams	No
RealWear HMT-1Z1	IP66	Yes	Yes	2m	430 grams	Intrinsically safe
Vuzix M400	IP67	Yes	Yes	2m	90 grams	No
Vuzix M4000	IP67	Yes	Yes	1m	222 grams	No
Toshiba DynaEdge	No	n/a	n/a	n/a	47 grams	No
HoloLens 2	No	No	No	No	566 grams	No
Moverio BT35	No	n/a	n/a	n/a	119 grams	No
NREAL Light	No	No	No	No	106 grams	No

Comparison

	IP Rating	Water Resistant	Dust Resistant	Fall Resistant	Weight	ATEX certification
Google Glass 2	IP53	Yes	Yes	No	46 grams	No
Iristick H1	IP67	Yes	Yes	1m	168 grams	No
Vuzix M400C	IP67	Yes	Yes	2m	180 grams	No
RealWear Navigator 500	IP66	Yes	Yes	2m	272 grams	No
RealWear Navigator 520	IP66	Yes	Yes	2m	274 grams	No
Magic Leap 2	No	No	No	No	260 grams	No
Lynx R1	No	No	No	No	500 grams	No
Vuzix Blade 2	No	No	No	No	90 grams	No

Comparison

Pricing

Pricing

Low

Lynx R1
€600

Epson Moverio BT35
€669

Google Glass 2
€1,049

Toshiba DynaEdge
€1,200

Lynx R1
€1,299

Vuzix Blade 2
€1,380

Vuzix M400C
€1,380

Vuzix M400
€1,846

RealWear HMT-1
€1,870

Vuzix Navigator 500
€2,290

Vuzix M4000
€2,325

IRISTICK.H1
€2,459

RealWear Navigator 520
€2,700

Magic Leap 2
€4,120

Microsoft HoloLens 2
€4,250

RealWear HMT-1Z1
€5,250

High

Comparison

Hardware

	Built in speakers	Speaker volume	Built in microphone	Memory	Battery capacity	Swappable battery	Processor	Binocular	Monocular
RealWear HMT-1	Yes	91db	Yes	32GB	3250mAh	Yes	2.0 GHz 8-core Snapdragon 626	No	Yes
RealWear HMT-1Z1	Yes	91dB	Yes	16GB	3400mAh	No	2.0 GHz 8-core Snapdragon 625	No	Yes
Vuzix M400	Yes	97dB	Yes	6GB	1000mAh	Yes	8 Core 2.52Ghz Qualcomm XR1	No	Yes
Vuzix M4000	Yes	97dB	Yes	6GB	1000mAh	Yes	8 Core 2.52Ghz Qualcomm XR1	No	Yes
Toshiba DynaEdge	Yes	n/a	Yes	512GB	20Wh	Yes	Intel® Core™ m7-6Y75	No	Yes
Hololens 2	Yes	n/a	Yes	4GB	56000mAh	No	Snapdragon 850	Yes	No
Moverio BT35	Yes	n/a	Yes	n/a	n/a	No	Snapdragon XR1	Yes	No
NREAL Light	Yes	n/a	Yes	6GB	External battery 4500mAh	No	Snapdragon 845	Yes	No
Google Glass 2	Yes	n/a	Yes	6GB	800mAh	No	Snapdragon XR1	No	Yes
Irsitick H1	Yes	91dB	Yes	n/a	n/a	Yes	n/a	No	Yes
Vuzix Blade 2	Yes	n/a	Yes	40GB	470mAh	No	Quad Core ARM CPU	Yes	No
Vuzix M400C	Yes	97dB	Yes	n/a	n/a	n/a	n/a	No	Yes
RealWear Navigator 500	Yes	94dB	Yes	64GB	2600mAh	Yes	2.0 GHz 8-core Qualcomm Snapdragon 662	No	Yes
RealWear Navigator 520	Yes	n/a	Yes	64GB	2600mAh	Yes	2.0 GHz 8-core Qualcomm Snapdragon 662	No	Yes
Magic Leap 2	Yes	n/a	Yes	16GB	n/a	n/a	AMD Quad-core Zen2 x86 CPU	Yes	No
Lynx R1	Yes	n/a	Yes	128GB	n/a	n/a	Qualcomm Snapdragon XR2	Yes	No

Comparison

Connectivity

	Audio Jack	Charging port	Data port	SD Card slot	Wifi Card	Bluetooth
RealWear HMT-1	3.5mm jack	USB-C	USB-C	Yes	Yes	Yes
RealWear HMT-1Z1	No	Micro USB & USB-C	Micro USB & USB-C	Yes	Yes	Yes
Vuzix M400	Micro USB	USB-C	Micro USB	Yes	Yes	Yes
Vuzix M4000	Micro USB	USB-C	USB-C	Yes	Yes	Yes
Toshiba DynaEdge	3.5mm jack	USB-C	USB 3.0	Yes	Yes	Yes
Hololens 2	None	USB-C	USB-C	No	Yes	Yes
Moverio BT35	4 pins mini-jack	Micro USB & USB-C	USB-C	n/a	Yes	Yes
NREAL	None	USB-C	USB-C & Micro USB	No	Yes	Yes
Google Glass 2	Yes	USB-C	USB-C	No	Yes	Yes
Iristick H1	Yes	USB-C	USB-C	n/a	Yes	Yes
Vuzix Blade 2	No	USB 2.0 Micro-B	USB 2.0 Micro-B	No	Yes	Yes
Vuzix M400C	No	USB-C	USB-C	No	Yes	Yes
RealWear Navigator 500	3.5mm jack	USB-C	USB-C	Yes	Yes	Yes
RealWear Navigator 520	3.5mm jack	USB-C	USB-C	Yes	Yes	Yes
Magic Leap 2	n/a	USB-C	USB-C	n/a	Yes	Yes
Lynx R1	3.5mm jack	USB-C	USB-C	Yes	Yes	Yes

Comparison

Software

	Operating system	App stores	MDM	Teams	Skype	Zoom	Cisco Webex	Remote Eye	Google Meet
RealWear HMT-1	Android 8.1	Foresight	Yes	Yes	Yes	Yes	Yes	Yes	No
RealWear HMT-1Z1	Android 8.1	Foresight	Yes	Yes	Yes	Yes	Yes	Yes	No
Vuzix M400	Android 8.1	Vuzix app store	Yes	Yes	Yes	Yes	Yes	Yes	No
Vuzix M4000	Android 9.0	Vuzix app store	Yes	Yes	Yes	Yes	Yes	Yes	No
Toshiba DynaEdge	Windows 10	Microsoft store	Yes	Yes	No	No	Yes	No	No
Hololens 2	Microsoft OS	Microsoft store	Yes	Yes	No	No	Yes	No	No
Moverio BT35	Android 8.0	Moverio apps market	No	No	No	No	No	No	No
NREAL	Android OS	Nebula	No	No	No	No	No	No	No
Google Glass 2	Android 8.1	Play store	Yes	No	No	No	No	No	Yes
Irsitick H1	Android 10	Play store	Yes	Yes	No	Yes	No	No	No
Vuzix Blade 2	Android 11	Vuzix app store	Yes	Yes	Yes	Yes	Yes	Yes	No
Vuzix M400C	n/a	Vuzix app store	Yes	Yes	Yes	Yes	Yes	Yes	No
RealWear Navigator 500	Android 11	Foresight	Yes	Yes	Yes	Yes	Yes	Yes	No
RealWear Navigator 520	Android 11	Foresight	Yes	Yes	Yes	Yes	Yes	Yes	No
Magic Leap 2	Android 10	World	Yes	No	No	No	Yes	No	No
Lynx R1	Android 10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Comparison

History

EPSON

1942
Company founded

1997:
Epson launches Moverio smart glasses

2014:
Moverio BT-200 launched

2017:
Moverio BT-300 launched

2018:
Moverio BT-35 launched

Google

1998
Company founded

2014:
Google starts selling the Prototype of the Google Glass 1

2019:
The Google Glass 2 Enterprise Edition is launched

iristick

2015:
Company founded

2018:
Iristick launches C1

2019:
Iristick launches Z1

2021:
Iristick launches H1

2021:
Iristick launches Visor-Ex 01

LYNX

2019
Company founded

2021
Lynx anounces the R1 headset

2021:
Lynx launches R1 headset Kickstarter

2023:
Lynx sends first shipments of the R1 headset

Microsoft

1975
Company founded

2015:
Micrsoft sends out Hololens development edition

2017:
Hololens 1 Commercial edition launched

2019:
Hololens 2 announced

2020:
Hololens 2 launched

nreal

2017:
Company founded

2018:
Nreal receives 12 Mio Series A

2019:
Nreal Light debuts at CES 2019

2019:
Nreal Light developer kit pre-orders begin

2020:
Nreal Light consumer kit launches

Comparison

History

realwear

2016:
Company founded

2017:
RealWear HMT-1 launched

2018:
20 Million Series A
Honeywell starts distribution

2019:
80 Million Series B
Shell & Kazakhstan purchase large amounts

TOSHIBA

1875:
Company founded

2018:
Toshiba DynaEdge

2018:
Toshiba integrates dynaEdge with Atheer AiR Enterprise

VUZIX

1997:
Company founded

2010:
Vuzix launches Star 1200 AR glass

2018:
M300 XL & Blade launched

2020:
Vuzix M400 launched

2020:
Blade Upgraded launched

2020:
Vuzix M4000 launched

Comparison

Company Background

EPSON®

Foundation:	1942
HQ Location:	Suwa, Nagano, Japan
Number of employees:	67.605
Website:	https://epson.com/

Google

Foundation:	1998
HQ Location:	Menlo Park, Claifornia, US
Number of employees:	156.500
Website:	https://arvr.google.com

iristick

Foundation:	2015
HQ Location:	Antwerp, Antwerpen, Belgium
Number of employees:	11-50
Website:	https://iristick.com/

LYNX

Foundation:	2019
HQ Location:	Paris, France
Number of employees:	11-50
Website:	https://www.lynx-r.com/

Microsoft

Foundation:	1975
HQ Location:	Redmond, Washington, U.S
Number of employees:	151.163
Website:	https://www.microsoft.com/

nreal

Foundation:	2017
HQ Location:	Beijing, China.
Number of employees:	50
Website:	https://www.nreal.ai/

realwear

Foundation:	2016
HQ Location:	Vancouver, Canada
Number of employees:	101-250
Website:	https://www.RealWear.com/

TOSHIBA

Foundation:	1875
HQ Location:	Tokyo, Japan
Number of employees:	116,224
Website:	https://www.toshiba.com/tai/

VUZIX

Foundation:	1997
HQ Location:	Rochester, New York, US.
Number of employees:	45
Website:	https://www.vuzix.com/

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