VUZIX®

View the Future®

OPTIMIZING FIELD SERVICE OPERATIONS WITH VUZIX SMART GLASSES

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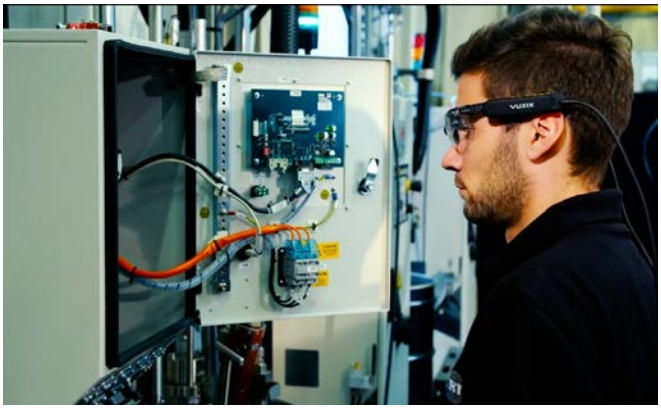
1 Introduction: Field Services Today

With 20+ million technicians around the world and a growing global market size, the field service industry is giant, indispensable, and currently experiencing major technological and workforce upheavals. There are three major areas of change that are causing such service organizations to evolve. One, the experienced baby boomer generation is retiring. Two, the machines needing servicing are becoming more complex. Three, Customer Satisfaction is now the main differentiator in service-based operations.

1940s mechanic servicing a coach line bus – Photo courtesy Wikimedia Commons

1950s electronic service technicians – Photo courtesy Wikimedia Commons



Current day technician using Vuzix Smart Glasses to receive maintenance guidance in real time.

A. Disrupting Factors in the Field Services Industry

TECHNOLOGICAL CHANGE

Technicians today can be responsible for servicing a large range of products of increasing complexity, and technology is advancing so quickly that it is difficult to stay current. It's nearly impossible for modern technicians to train for every scenario they might encounter in the field.

What is needed is many generalist technicians who can work on numerous different things. Moreover, the need for this new class of flexible tech-savvy worker has sharply risen. Skilled people are needed to service the ever-growing number of complex machines that support automation and digitization.

AN AGING WORKFORCE

It's estimated that 60% of the field service workforce will soon retire and need replacing. This impending loss of top-level tribal knowledge is a critical challenge for organizations that are already struggling to fill field service positions.

Millennials are now the largest talent hiring pool. They expect more, and the costs of recruiting and training new skilled workers are also increasing.

ARTIFICIAL INTELLIGENCE & IOT

Sensor-equipped machines capable of transmitting real-time status updates for remote monitoring are becoming the norm. These IoT technologies and AI are expected to take over initial diagnostic responsibilities and, although repairs require human technicians, IoT technology and Artificial Intelligence will increasingly take over the dispatch process.

This is where we know the future is going although, at present, most service workers do not have hands-free mobile access to their companies' knowledge banks. And a smart phone is not enough.

THE NEW CUSTOMER

Today's customers expect more, and through online review and social media, they can wield considerable power and influence.

With many veteran employees leaving the workforce in droves, service organizations now have to worry about losing their long-time employee-customer relationships, while simultaneously keeping their first-time fix rates high with new employees.

B. Mobility in the Field Today

DOCUMENTATION AND MANUAL COORDINATION

Despite the availability of many tools and technology, 52% of field service organizations still coordinate and perform their documentation tasks manually; still fewer use any form of mobile rugged handheld devices. Slow-use tools, a lack of information, and spotty access to data such as service records, equipment specifications, how-to content and other knowledge, is a constant source of complaint among technicians.

Many field technicians today still have to consult paper manuals, fill out service forms, tap bulky touch screens, go through dispatchers for assistance, and train in unrealistic environments. And, although every field service provider strives for a high first-time fix rate, 25% of service calls require follow-up visits; often the result of a lack of training, experience and information lead to incorrect diagnoses.

However there are signs of progress and improvement. More companies are starting to digitize their paper resources. Field Service Management software will soon be sector-wide, and AI systems will be able to help efficiently dispatch technicians according to their skill, availability and location.

The best interface between this growing digital content and the technician in the field is Augmented Reality (AR), ideally in the form of hands-free Smart Glasses that will utterly transform how technicians approach service.

2 Next-Generation Computing in Field Services: Vuzix M-Series Smart Glasses In the Field

Smart AR Glasses are disrupting enterprise mobile information access, allowing users to work heads-up and hands-free and remain contextually aware at all times. Smart glasses are simple to operate, and are the most efficient way to receive task-based information and record data. They provide optimum mobility and information access for the wearer and, as the user interface can include Augmented Reality with audio and visual overlays, they deliver better real-time capabilities and information than other types of mobile devices.

Smart Glasses provide a much-improved user experience over manuals, binders and hand-held devices, all of which can slow or impede work. The innovation lies in putting information in the worker's line of vision—hands-free, when they need it.

VUZIX SMART GLASSES ENABLE:

- Hands-free access to information (step-by-step instructions, diagrams, videos);
- Real-time, see-what-I-see communication (for remote collaboration and support from a technician or supervisor);
- Hands-free, point-of-view corporate documentation (audio and visual);
- AR overlays in the HUD for remote support and communication (audio and visual);
- Computer vision for object and image recognition (for scanning codes, text, numbers, step verification, task completion).

These capabilities are essential for delivering the benefits of advanced sensor technology, AI and Field Service Management software to skilled service technicians out in the field.

Augmenting Field Workers with Vuzix M-Series Smart Glasses

Product variation, inadequate training methods, and incomplete work instructions that slow down employees are common issues negatively impacting field services operations today.

With a form factor that is designed to be worn by humans, complements on-the-job training, and user-experience functions that enhance quick knowledge capture, Vuzix Smart Glasses promise to help organizations improve first-time fix rates and customer satisfaction.

When navigating the increasingly complex and crowded enterprise smart hardware market, two things stand out in Smart Glasses: wearability and ruggedness. Workers cannot properly concentrate if the device is uncomfortable and/or ill-fitting, and the device has to be able to stand up to a wide variety of conditions and wearer behavior.

The Vuzix M-Series Smart Glasses are the most wearable and ergonomically versatile on the market. With multiple mounting options and an array of ingenious accessories, they can be worn by anyone, regardless of which eye is dominant, and whether or not the employee is wearing prescription glasses, a cap, or a hardhat.

Right Eye Mountable
Over Glasses

Safety Glasses
With Optional Prescriptions

Head Band
Left or Right Eye Capable

Hard Hat
Left or Right Eye Capable

Left Eye Mountable
Over Glasses

Remote Battery
All Day Operation

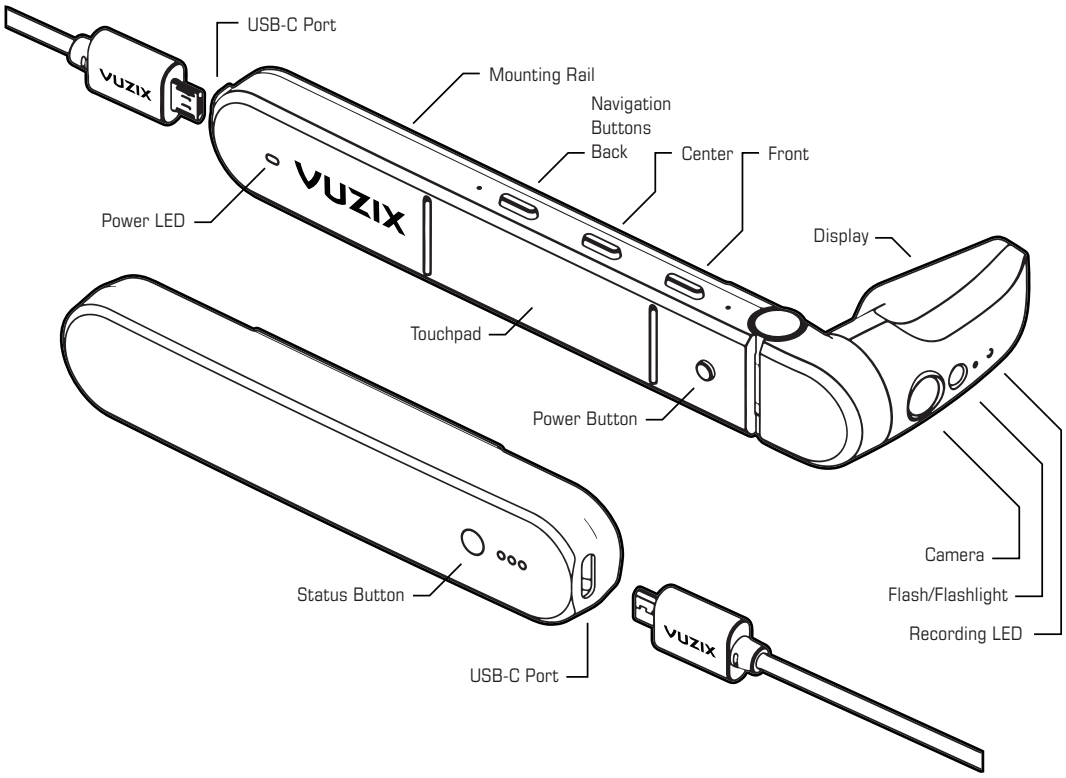
State-of-the-Art Field Services: Next-Generation – Vuzix M400 Smart Glasses

Vuzix M400 Smart Glasses provide most of the features and capabilities of a modern smartphone, in a hands-free wearable device. Bluetooth 4.0 connectivity allows them to pair with Android devices or connect wirelessly with Wi-Fi. Integrated head-tracking provides an angle of current view for unprecedented situational awareness.

In addition, the M400s include the Qualcomm® Snapdragon™ XR1 platform, the first dedicated XR platform designed to accelerate high-quality video, audio and interaction on Smart Glasses.

The Vuzix focus on wearability and ergonomic form factor, combined with the power of the Snapdragon XR1, drives Smart Glasses performance and functionality to the next level.

The Vuzix M400 Smart Glasses are ruggedized against water, dust and dirt, and operate via voice, button-press, and gesture controls. All of this allows for comprehensive and precise field services work, anywhere.



Vuzix M400 Smart Glasses: Specifications & Features

TECHNICAL SPECIFICATIONS[1]

OPTICS

- Display resolution: nHD color display
- Display type: OLED
- Aspect ratio: 16:9
- Field of View (diagonal): 16.8 degrees, equivalent to a 5 in. mobile device screen seen at 17 inches
- Brightness: > 2000 nits
- Contrast: > 10,000:1
- 24-bit color with true black
- Supports left or right eye use

SYSTEM

- 8 Core 2.52Ghz Qualcomm XR1
- 6GB LPDDR4 RAM
- 64GB internal flash memory
- Android 8.1 OS
- OS and apps OTA upgradeable
- MDM available from multiple partners

CERTIFICATIONS

- IP67
- Drop safe to 2 meters

UNIVERSAL M-SERIES RAIL FOR VARIOUS MOUNTING OPTIONS

- Vuzix M-Series Rail Eyeglass frames without lens (standard)
- Weighs less than 3 oz.
- Eyeglass frames with lens
- Safety glasses
- Hard hat mount
- Headband mount
- Peltor headphone mount

BATTERY

- 135mAh internal battery supports hot swapping of external batteries
- 1000 mAh head-worn USB-C external battery with 3-level LED indicator
- Can be powered by 3rd-party USB battery packs in place of head-worn battery
- 2 – 12 hours of operation based on external battery choice

CONTROLS

- 3 control buttons
- Voice control – customizable and supports multiple languages
- 2 axis touchpad with multi-finger support

AUDIO

- Integrated speaker (up to 97db output)
- Triple noise-cancelling microphones
- BT audio: HSP / A2DP

CAMERA

- Up to 12.8-megapixel stills
- Up to 4k30 video
- Improved auto-focus (PDAF)
- Improved optical image stabilization
- LED flash/scene illumination
- Barcode scanning

CONNECTIVITY

- USB 3.1 Gen 2 on USB Type-C
- Wi-Fi 2.4/5Ghz 802.11 a/b/g/n/ac
- Bluetooth 5.0 BR/EDR/LE

INTEGRATED HEAD TRACKER

- 3-degree of freedom head tracking
- 3 axis gyro
- 3 axis accelerometer
- 3 axis mag/integrated compass

GPS

- GPS / GLONASS

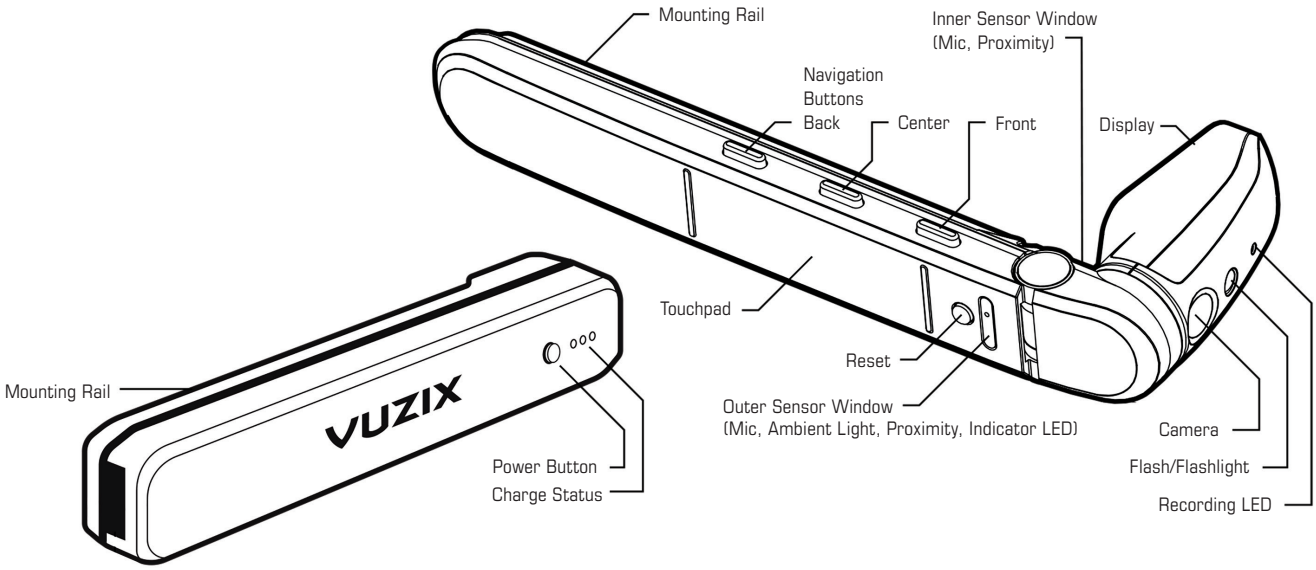
Compare all Vuzix products here:
www.vuzix.com/products/compare-vuzix-smart-glasses

[1]*Specifications are subject to change*

State-of-the-Art Field Services: Vuzix M300XL Smart Glasses

Vuzix M300XL Smart Glasses provide most of the features and capabilities of a modern smartphone, in a hands-free wearable device. Bluetooth 4.0 connectivity allows them to pair with Android devices or connect wirelessly with Wi-Fi. Integrated head tracking provides an angle of current view for unprecedented situational awareness.

They are ruggedized against water, dust and dirt, and operate via voice, button-press, and gesture controls. This enables workers to perform comprehensive and precise field services work, anywhere.



Vuzix M300XL Smart Glasses: Specifications & Features

TECHNICAL SPECIFICATIONS[1]

OPTICS

- Display resolution: nHD color display
- Aspect ratio: 16:9
- Field of View (diagonal): 16.7 degrees, equivalent to a 5 in. mobile device screen seen at 17 inches
- Brightness: >2000 nits
- 24 bit color
- Supports left or right eye use
- Dual Core Intel Atom CPU
- 2GB system RAM
- Android 6 OS
- 64GB internal flash memory

CONTROLS

- 4 standard Android control buttons
- Voice control – customizable and supports multiple languages
- 2 Axis touch pad with gesture

UNIVERSAL MOUNTING OPTIONS AVAILABLE

- Eyeglass frames with or without lens
- Safety glasses
- Hard hat mount
- Headband mount

BATTERY

- 160mAh internal battery supports hot swapping of external batteries
- 860mAh external battery
- Can be powered by a USB battery pack for extended run time
- 2 – 12 hours of operation based on external battery choice

INTEGRATED HEAD TRACKER

- 3-degree of freedom head tracking
- 3 axis gyro
- 3 axis accelerometer
- 3 axis mag/integrated compass

CONNECTIVITY

- USB Micro-B 2.0
- Wi-Fi b/g/n/ac – Dual-B 2.4/5 GHz
- BT 4.1/2.1+EDR

AUDIO

- Ear speaker
- Dual noise canceling microphones

CAMERA

- Up to 10 megapixel stills
- Up to 1080p video
- Auto-Focus
- Optical Image Stabilization
- Flash/scene illumination

SENSOR SYSTEMS

- Proximity inward facing
- Proximity/ALS outward facing

Compare all Vuzix products here:
www.vuzix.com/products/compare-vuzix-smart-glasses

[1]*Specifications are subject to change*

3 The Future of Vuzix M-Series Smart Glasses in the Field

The majority of field service organizations are expected to implement AR smart glasses in the next three years. One reason for this is the need to develop a 'liquid workforce', as hard skills vanish from the service sector. Another is the arrival of IoT which, with increased connectivity and advancements in machine learning, will deliver insights to human change agents in the field via smart glasses.

Eighty per cent of the global workforce doesn't sit at a desk. That's 2.7 billion deskless workers who need their hands free to do their jobs better, faster and safer. Field service technicians are classic examples of deskless workers but so are warehouse workers, construction workers, home nurses. Beyond the field, Vuzix M-Series Smart Glasses are connecting human workers with smart machines, critical information sources, and one another, replacing paper documents and hand-held devices on the assembly line, in the factory, and in hospitals.

It cannot be overstated just how revolutionary a heads-up, hands-free form factor is for modern workers. Within the evolving enterprise smart hardware sector, Vuzix M-Series Smart Glasses stand out thanks to their ergonomic design, long track record of success and dependability, and range of capabilities made possible by key software partnerships and device accessories.

Today, the Vuzix M-Series is one of the most widely deployed devices of its kind across the globe, digitally transforming businesses in the widest variety of use cases for any single wearable device.

To learn more about improving existing workflows and opening new opportunities for your business with Vuzix M-Series Smart Glasses, visit: www.vuzix.com

A new dawn arrives at the headquarters and production facility of the world renown Vuzix smart glasses and augmented reality manufacturer in Rochester NY, USA.

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