

CASE STUDY

Streamlining Field Support Operations with RealWear Smart Glasses and Object Tracking



A leading Unified Communication as a Service (UCaaS) provider faced challenges in optimizing their field support operations. Field engineers often required real-time expert assistance to troubleshoot complex issues. However, traditional communication methods were inefficient, leading to delays in issue resolution. To address this, the UCaaS provider partnered with SpringCT to develop a RealWear-based augmented reality (AR) solution that enabled real-time collaboration between field engineers and remote experts. This solution incorporated object tracking technology to enhance the accuracy and efficiency of field support operations.

Product Features

- **Audio-Visual Collaboration**
Enabled real-time WebRTC based audio and video communication between the field engineer wearing RealWear Smart Glasses and the remote expert. Seamless integration with the UCaaS provider's video conferencing platform.
- **Object Tracking and Marking**
The remote expert could mark objects in the video feed, which were then highlighted and tracked in the RealWear display. Dynamic tracking ensured that the object stayed marked even if it moved or the device perspective was adjusted, as long as it remained in view.
- **Augmented Instructions**
Visual overlays with step-by-step guidance were displayed to the engineer, reducing reliance on verbal instructions.
- **Hands-Free Operation**
RealWear Smart Glasses allowed the engineer to work freely while receiving visual guidance, improving safety and efficiency.

Key Technical Enhancements

- **Accurate Object Tracking**
Ensuring precise tracking of marked objects in a live, dynamic environment required advanced computer vision algorithms.
- **Real-Time Synchronization**
Maintaining low-latency communication and synchronization between the video feed and the RealWear display was critical.
- **Integration with UCaaS Platform**
Tailoring the UCaaS provider's video conferencing platform for RealWear devices which only support voice input, and seamlessly embedding the RealWear video feed and communication features into the UCaaS provider's existing ecosystem.

Technologies Used

- **RealWear Smart Glasses:** For AR capabilities and hands-free operation using the JourneyApps Development Platform.
- **Object Detection and Tracking:** Custom algorithms using OpenCV for real-time object tracking.
- **WebRTC:** For low-latency audio and video communication using Kurento Media Server.
- **AWS Cloud:** For scalable processing and data synchronization.
- **Node.js, React and Fabric.js:** For backend integration and user interface.

Results

- **Improved Efficiency:** Field engineers could resolve issues faster with real-time expert guidance and object tracking.
- **Enhanced Accuracy:** Object marking and tracking reduced errors, improving the precision of field operations.
- **Cost Savings:** Reduced the need for experts to travel to field locations, saving time and operational costs.

Conclusion

- SpringCT's innovative solution transformed field support operations for the UCaaS provider by leveraging augmented reality and advanced object tracking.
- This project highlights SpringCT's expertise in integrating cutting-edge technologies like RealWear and WebRTC into real-world applications.
- The solution demonstrates how AR can revolutionize communication and collaboration in field support, offering significant value to businesses aiming to enhance their operational efficiency.