MRTECH

Ready For Tomorrow

Use Case: Transforming Field Pest Monitoring with MRTECH's 5G True AR Glasses

Industry Challenge

Field inspections for pest and disease monitoring in agriculture have traditionally relied on manual observation. This method is time-consuming, labor-intensive, and prone to human error, particularly in large-scale farms. Additionally, the lack of advanced tools results in low levels of automation and efficiency, making it difficult to respond quickly to pest outbreaks or optimize preventive measures.

Solution Overview

MRTECH's 5G True AR Glasses and integrated agricultural monitoring solution revolutionize the way field inspections are conducted. By combining advanced AR technology, AI-powered pest recognition, and real-time IoT data transmission, MRTECH empowers farmers and agricultural workers to perform smarter, faster, and more accurate inspections.

How It Works

1. **Field Deployment**
Workers equipped with **MRTECH's 5G True AR Glasses** move through the fields carrying simple sampling tools like an enamel tray.

2. **Real-Time Pest Recognition**

• Workers use the AR glasses to take photos of samples in the tray or directly in the field.

• The glasses instantly identify pests or diseases using onboard AI models, such as detecting rice leafrollers, wilt disease, or wheat smut.

3. **Immediate Data Sharing**

• Through 5G connectivity, inspection data is uploaded to an IoT platform in real-time.

• Office-based agronomists and managers can monitor live feeds and receive immediate updates on pest and disease conditions.

4. **Hands-Free Operation**

• Workers benefit from full voice control, enabling seamless operation without interrupting field activities.

• The glasses display real-time results directly in the user's line of sight, allowing them to make quick decisions while keeping both hands free.

5. **Centralized Monitoring and Analysis**

• Managers can access the IoT dashboard from their desktops or mobile devices, which aggregates data from multiple AR glasses in the field.

• The system generates actionable insights, such as heatmaps of pest prevalence and predictive analytics for proactive intervention.

Results and Benefits

• **Efficiency Boost**: A task that previously required seven to eight workers can now be completed by one person using MRTECH's AR solution, saving time and labor costs.

• **Enhanced Accuracy**: AI-driven pest recognition eliminates human error and ensures precise identification of diseases and pests.

• **Real-Time Action**: 5G-enabled data transmission allows immediate decision-making and collaborative responses.

• **Scalability**: The solution is designed to support large-scale field operations across vast agricultural areas.

• **Worker Safety**: Hands-free operation ensures safety during field navigation and reduces physical strain.

Future Potential

MRTECH's 5G True AR Glasses offer immense scalability and adaptability for other agricultural applications, including:

• Monitoring crop growth stages.

• Precision fertilization and irrigation management.

• Early detection of invasive species or environmental anomalies.

By integrating advanced AR and IoT capabilities, MRTECH is setting a new standard for intelligent agriculture, empowering farmers to achieve greater yields, reduce waste, and respond to challenges with unmatched agility.

This use case highlights how MRTECH's innovative solution addresses the core challenges in agricultural pest monitoring while paving the way for smarter, more sustainable farming practices.

Watch the video here