

Advanced Audio Signal Processing System for High Noise Environments

ID: 2022-033

Executive Statement:

A cutting-edge system designed to enhance verbal communication in noisy worksite environments by filtering out background noise.

Technology Overview:

This technology introduces a novel approach to capturing and processing audio communications directly in environments with significant background noise, such as construction sites or mines. Utilizing multiple error microphones and reference sensors to capture both speech and noise, the system distinguishes and enhances verbal instructions without the need for traditional radio devices. Through advanced digital signal processing, including noise reduction and beamforming techniques, the system ensures clear communication between spotters and machine operators.

Key Advantages:

- Enhanced clarity of verbal instructions in noisy environments.
- Eliminates the need for radio communication devices.
- Employs sophisticated noise cancellation and beamforming techniques.
- Improves safety and efficiency on worksites.
- Adaptable to various industrial environments, including construction and mining.

Problems Solved:

- Difficulty in communicating verbally in high noise conditions.
- Reliance on potentially unreliable radio communication devices.
- Risk of miscommunication and accidents in critical operations.

Market Applications:

- Construction site operations.
- Mining and agricultural machinery communication systems.
- Heavy machinery manufacturing and safety solutions.
- Industrial noise cancellation products.