Aptima, Inc.:
Confined Spaces Monitoring System

NCMS Technology Showcase
FRC East

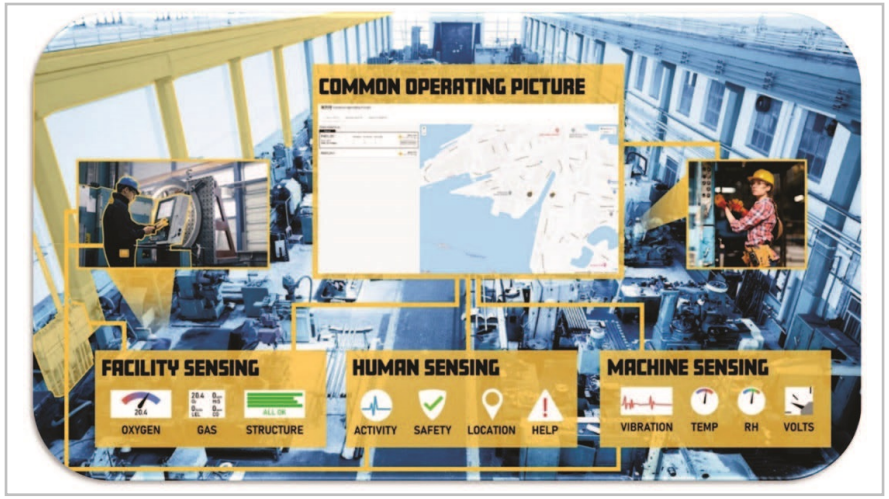
PROBLEM STATEMENT

Gas-free engineering and confined spaces safety management is very challenging. Existing policies, reflecting OSHA regulations, necessitate frequent gas-free verifications and a near 1:1 safety attendant to worker ratio in confined spaces, leading to high manpower costs and operational inefficiencies. Despite significant personnel deployment, manual procedures don't fully assure safety, and compliance documentation adds to the task burden, revealing a need for improved safety monitoring practices within DoD maintenance environments.

BENEFITS

CSMS bolsters depot efficiency by minimizing costs and manpower for confined space monitoring, aiding in accelerating production schedules and mitigating weapon system availability delays. The benefits are threefold: (1) Enhanced Safety: faster, automated problem detection; (2) Improved Organizational Efficiency: significant reduction in labor hours for monitoring confined spaces; (3) Augmented Compliance: better adherence to OSHA regulations via digital and semi-automated logging of confined space entries, making CSMS a scalable, data-secure solution for various DoD applications.

TECHNOLOGY SOLUTION

CSMS shifts confined space monitoring practices from manual to sensor-based procedures, enabling remote safety attendants to continuously monitor personnel. CSMS provides attendants with enhanced situational awareness, allowing a single individual to safely monitor multiple workers and promptly alert emergency personnel when needed. Through human-worn sensors, CSMS continuously monitors workers' physiological status and atmospheric conditions, offering automated alerts for concerning events, thereby improving safety, compliance, and operational efficiency in DoD maintenance environments.

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