

# Drone-enabled H2S Gas Leak Detection With Geofencing for Enhanced Worker Safety

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Hydrogen sulfide (H<sub>2</sub>S) is a highly toxic gas that poses a significant health hazard in oil and gas industries. Traditional H<sub>2</sub>S gas leak detection methods are often time-consuming, labor-intensive, and dangerous. This research presents a novel approach integrating drone technology with geofencing algorithms for enhanced H<sub>2</sub>S gas leak detection and worker safety. Drones equipped with H<sub>2</sub>S sensors are dispatched to potential leak sites, providing live 4K footage to central control and marking leak locations via onboard GPS. The geofencing feature creates safety perimeters around detected H<sub>2</sub>S concentrations, and workers equipped with "toxic clips" that alert to dangerous gas levels are additionally forewarned by the geofencing mechanism upon nearing these hazardous zones.

**Awards Won:**

