

UNMANNED ROVER FOR INSPECTION OF CRITICAL ENVIRONMENTS

- The rover replaces humans in exploring sections of burrows or tunnels whose health hazards to workers are unknown.
- Collection of environmental parameters (temperature, humidity, gases) to identify areas where operators can safely intervene
- **AXEL** Rover is controlled and piloted through our modular **VR Rover** platform.

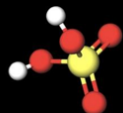


Gas da monitorare:



Monossido di carbonio

CO



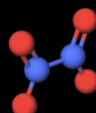
Acido solfidrico

H₂S



Anidride solforosa

SO₂



Biossido di azoto

NO₂



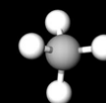
Ossigeno

O₂



Radon

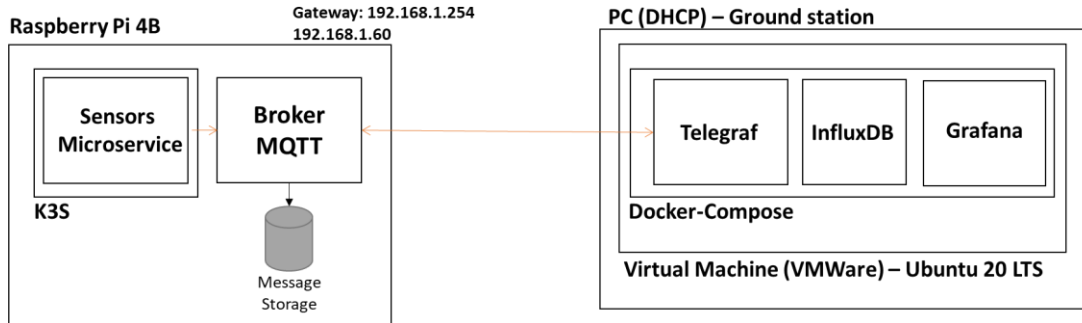
Rn



Gas infiammabili

CH₄

Ground station and sensor platform development



Data acquisition architecture



CHECKS ON CONTROL AND SENSORS

- Max steering angle, steering centering
- Message compliance on CAN network
- Data transfer to ground station
- Environmental data reading-tunnel and climate chamber calibration
- Remote control operation

FAULT TESTS.

- power interruption on control unit, loss of connection



Testing on proving ground

Overcoming obstacle on simulated bends with variable height and pitch

- Path length: 12m
- Height: 14-20 cm
- Pitch 80-100 cm
- Repetitions per session: >20 cycles Acceleration Zmax: <3g

Camera field of view, Max surmountable slope: ~60% Position retention:

- with electric motor
- with parking brake
- uphill boost start

Battery life tests: >6km on uneven ground



Tunnel exploration

