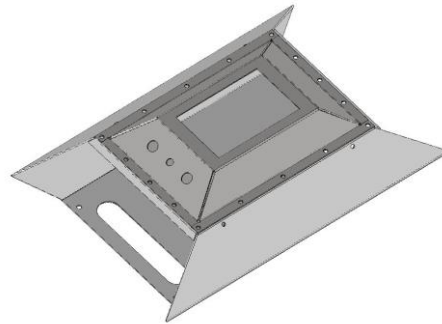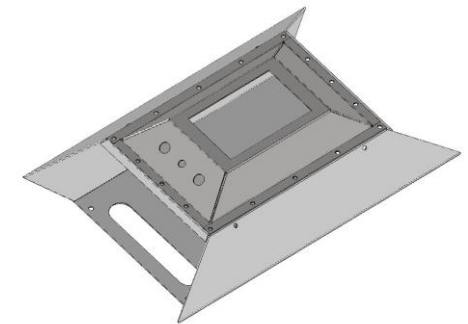**SIMBIO IOT**

DIGITAL TERRAIN

RDI-EMS 12
Advanced Environmental Monitoring System

April 2022

Who we are

- We are a spin-up not a start-up

- Mining industry practical expertise with software development skills

- Long term team (internal and external) together for over six years

- Network Infrastructure for Underground mining operations to allow monitoring, control and connectivity

- Environmental Monitoring Solution for underground mining environments

- Product development can now be ramped up as other customers come on board

RDI-EMS 12 Features

- Live Vent readings underground; temp (wet and dry), Toxic Gases, Dust Particulate, Wind Velocity, etc

- Real-time view of your underground environment conditions

- Transportable and easy to install – connect to a POE port, calibrate on the surface, then underground with an anemometer

- Calibrated with simple step by step instructions via web interface or on-board touch interface.

- Email alerts and interactive dashboard interface with optional SMS alerts to reduce re-entry times

- Direct integration to Modbus TCP/IP

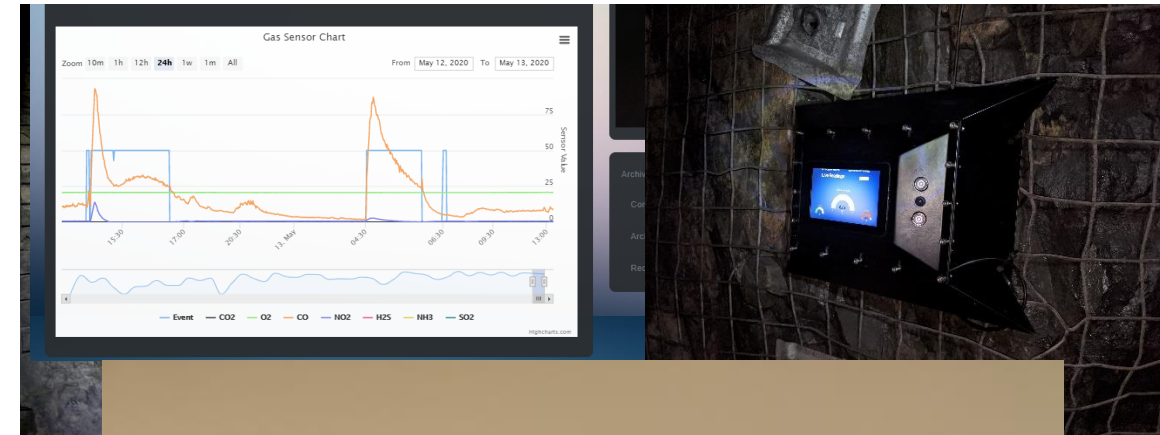- Competitively priced per unit compared to others on the market

RDI-EMS 12 Features

- Ruggedised Enclosure, Powder coated Stainless Steel to endure harsh environments

- Simple Sensor replacement for volatile Chem based gas sensors – Reduce down time and simple step by step sensor removal and installation

- Developed over 8 years – working with multiple mines and listening to ventilation engineers

- Simple infrastructure requirements – no need to run 240V/1000V to locations

- Can act as a WiFi Hotspot to expand existing WiFi infrastructure

RDI-EMS 12 Benefits

- Monitors in real time and alerts personnel about toxic and hazardous conditions

- Can be installed in key locations to reduce and potentially eliminate the need for ventilation surveys

- Reduce Re-Entry times after blasting allowing less down-time and eliminate risk of exposing Re-Entry crew to toxic gases

- Automate and control Ventilation Louvers and Fans using onboard trigger and threshold events from the RDI-EMS 12 digital or 4-20mA Outputs

- The RDI-EMS 12 uses the industrial standard Modbus TCP/IP protocol for seamless integration to existing infrastructure

RDI-EMS 12 Onboard Sensors

- Wind Velocity:

  - Direction and Speed (-40 to +40 M/S)

  - +- 2% Accuracy

- Temperature:

  - Dry Bulb & Wet Bulb (-20 to +80 Degrees Celsius)

  - +- 0.1 Degree Celsius Accuracy

- Humidity:

  - Humidity (0-99.9%)

  - +- 2% Accuracy

- Barometric Pressure:

  - 300-1,100 hPa (9,000m to -500m) +- 0.12hPa Accuracy (1m)

RDI-EMS 12 Onboard Sensors

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- Gas Sensors:

  - O2 – 0-25% range (Chemical sensor with 2 year life expectancy)

  - LEL – 0-100%range (NDIR Sensor with 5 year life expectancy)

  - CO – 0-1,000ppm range (Chemical sensor with 2 year life expectancy)

  - CO2 – 0-5% range (NDIR Sensor with 5 year life expectancy)

  - NO2 – 0-20 ppm range (Chemical sensor with 2 year life expectancy)

  - Optional H2S – 0-100ppm range (Chemical sensor with 2 year life expectancy)

  - Optional SO2 0-20ppm range (Chemical sensor with 2 year life expectancy)

  - Optional NH3 0-100ppm range (Chemical sensor with 2 year life expectancy)

Gas Sensors
ON BOARD GAS DETECTORS

Sensor Value	Status	Calibrated	Last sensor read
CO2 = 0.05%	OK	Jan 16, 2022	03/02/2022 13:17:41
O2 = 21.01%	OK	Jan 16, 2022	03/02/2022 13:17:41
CO = 0.00ppm	OK	Jan 16, 2022	03/02/2022 13:17:41
NO2 = 0.00ppm	OK	Jan 16, 2022	03/02/2022 13:17:41
H2S = 0.00ppm	DISABLED	Jan 16, 2022	03/02/2022 13:17:41
NH3 = 0.00ppm	DISABLED	Jan 16, 2022	03/02/2022 13:17:41
SO2 = 0.00ppm	DISABLED	Jan 16, 2022	03/02/2022 13:17:41
LEL = 2.09%	OK	Jan 16, 2022	03/02/2022 13:17:41

Gas Sensor Chart

Zoom 10m 1h 12h 24h 1w 1m **All**   From Jan 22, 2022 To Feb 3, 2022

- O2: 21.11
- LEL: 1.797
- CO: 1.2715
- CO2: 0.04
- NO2: 0.0355
- Event: 0

Friday, Jan 28, 19:00

24. Jan   26. Jan   28. Jan   30. Jan   1. Feb   3. Feb

RDI-EMS 12 Onboard Sensors

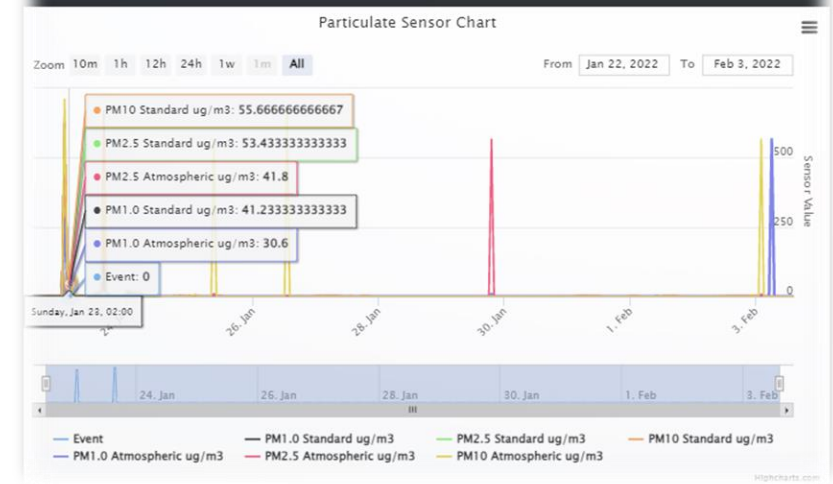- Dust Particulate:

  - (pm1, pm2.5, pm10 range 0-1500ug/m3) with a 3 year sensor life expectancy and +- 10 ug/m3 accuracy

- Live camera stream with IR Lighting (up to 1080p) with motion recording of captured events

- Integrated Blue/Red Status indicators (breach conditions can be set for red flash)

- Optional inclusion of A/V alarm, red/blue beacon and low power/status alerts
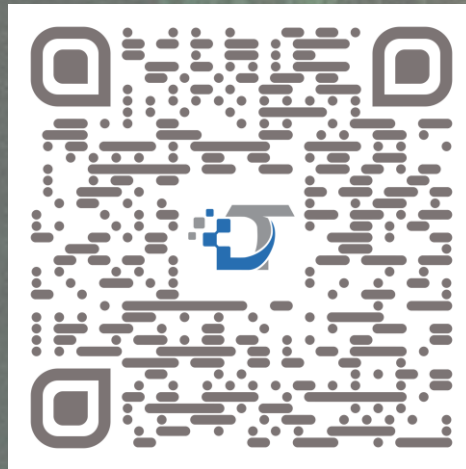
- Optional Inputs and Outputs (Analog & Digital)

Thank you

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