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Empowering Solutions in IoT, Networking, and Smart Technology.

FloodSense

Sensor for water / river / well depth measurement

- *20mm - 600mm Laser*
- *1m - 50m Radar*

Battery operated ~ 1 year+

Solar options available

Cellular / LoRa connected

Remote configuration,15 days data cache

15 Min reporting interval

Programmable email / SMS alerts

GNSS location

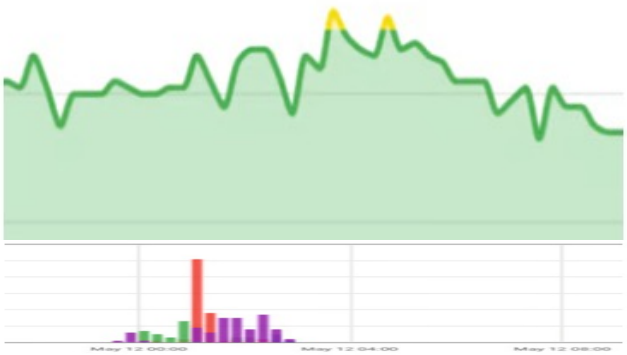
SaaS/DaaS (Sensor/Data as a service) business model

Rich cloud visualisation dashboards



Markets

- *Environment Agencies*
- *Public Municipalities*
- *Insurance Companies*



Specification

-20+50^{0}C Operation

IP65 Rating

Battery life 1-2 years

Depends on connectivity

Laser Version

+/- 5-8mm on flat surface

Self-Calibrating over temp

Radar Version

61GHz Sensor

+/- 2 to 5mm on flat surface

Self-Calibrating over temp

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AquaSense

Sensor for water quality measurement

- *Dissolved Oxygen, Temp*
- *Multi sensor*

RS485 – SDI-12 Interface

Battery operated ~ 1 year+

Solar options available

Cellular / LoRa connected

Remote configuration,15 days data cache

15 Min reporting interval

Programmable email / SMS alerts

GNSS location

SaaS/DaaS (Sensor/Data as a service) business model

Rich cloud visualisation dashboards



Specification

-20+50⁰C Operation

IP65 Rating

Battery life 1-2 years

Dissolved Oxygen

0.4 ppm ± 5 %; 20 ppm ± 5%

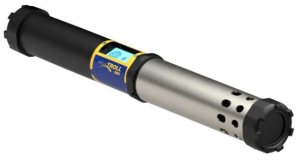
Multi-Sensor

pH, Turbidity, Salinity,

FDOM, Nitrates……

Markets

- *Environment Agencies*
- *Public Municipalities*
- *Insurance Companies*





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Empowering Solutions in IoT, Networking, and Smart Technology.

EnviroSense

Air Quality and pollution measurement sensors with LIVE data reporting



EnviroSense *measures Temperature, Humidity CO2, PM2.5µ, PM10µ,, NOx Index, VOC's*
Options for H2S and CH4

EnviroSense AI *also measures* NO_2 ,SO_2, CO, O_3
Dynamic continuous Machine Learning and AI correction for electrochemical sensors.

Cellular / LoRa connected
Remote configuration,15 days data cache
15 Min reporting interval
Programmable email / SMS alerts , GNSS location
SaaS/DaaS (Sensor/Data as a service) business model
Rich cloud visualisation dashboards with maps, charts and timed heatmap views

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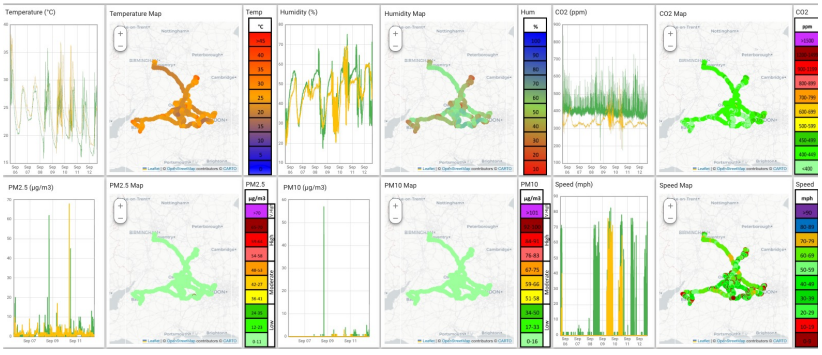
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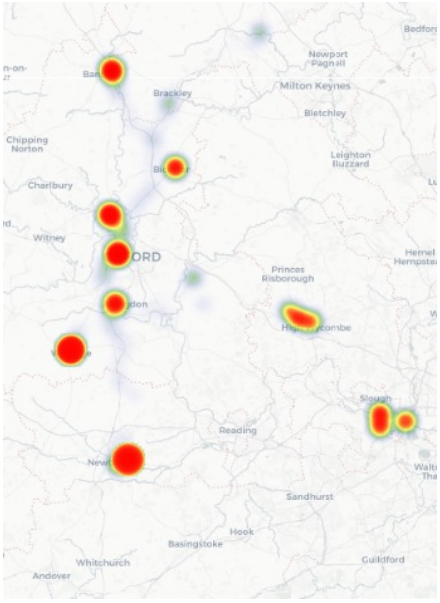
IP65 Rating

12v DC with Solar option

Markets

- *Environment Agencies*
- *Public Municipalities*
- *Insurance Companies*
- *Courier Companies*
- *Schools*
- *Hotels*
- *Airports*
- *Shopping Malls*





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RadSense

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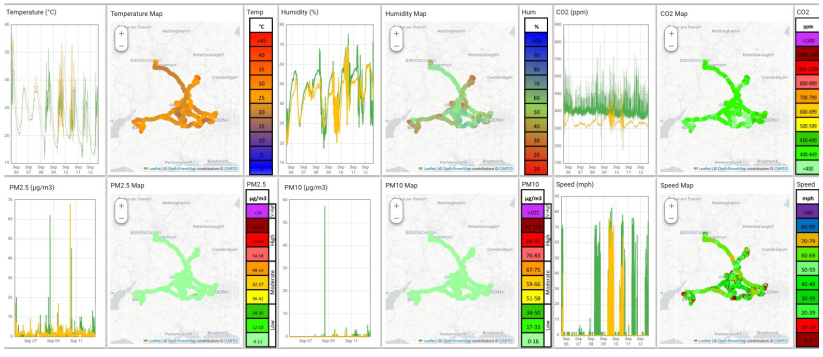
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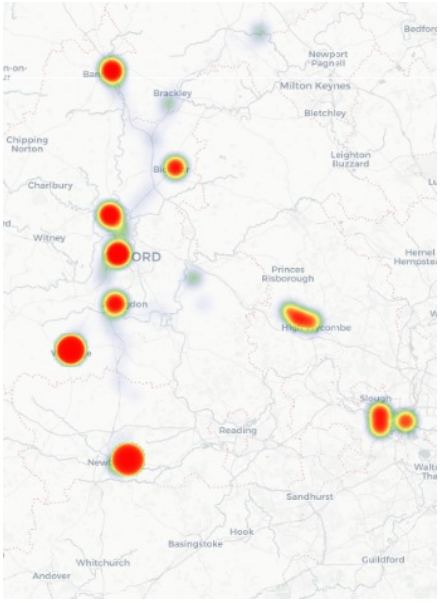
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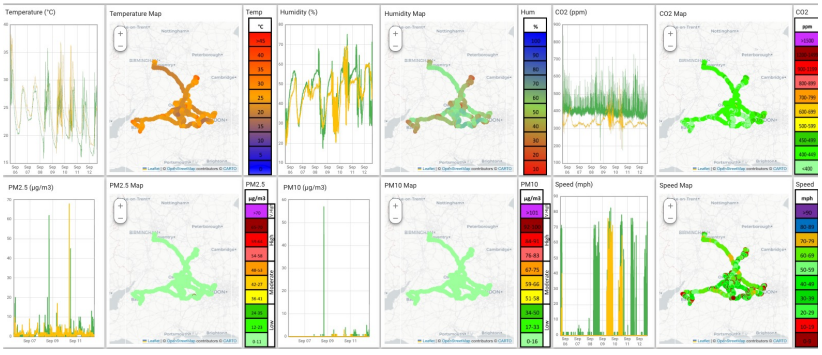
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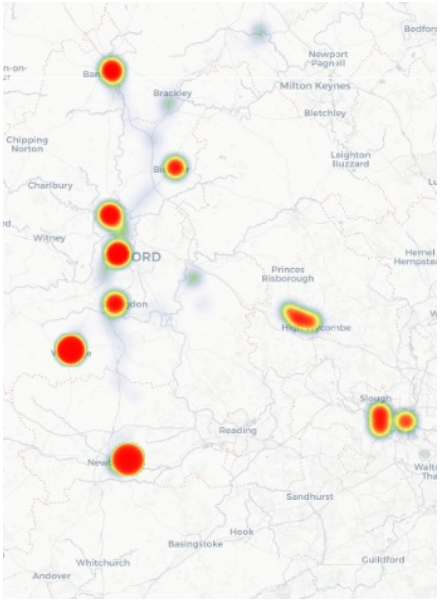
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200mm

90mm

Specification

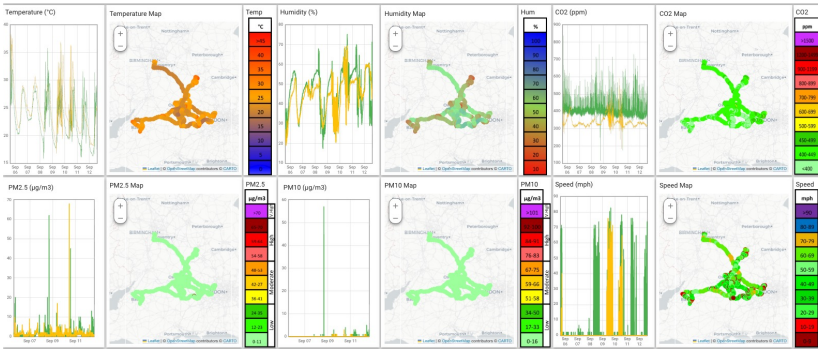
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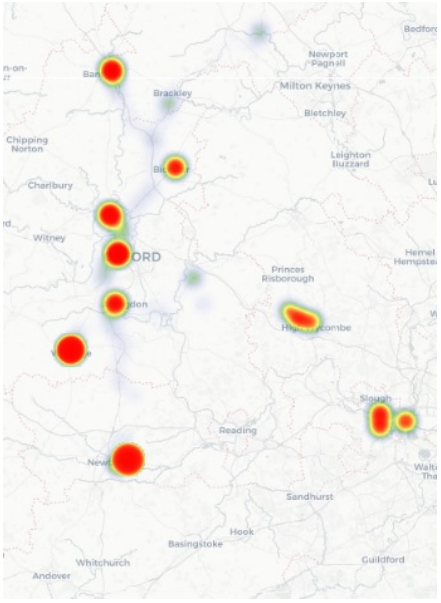
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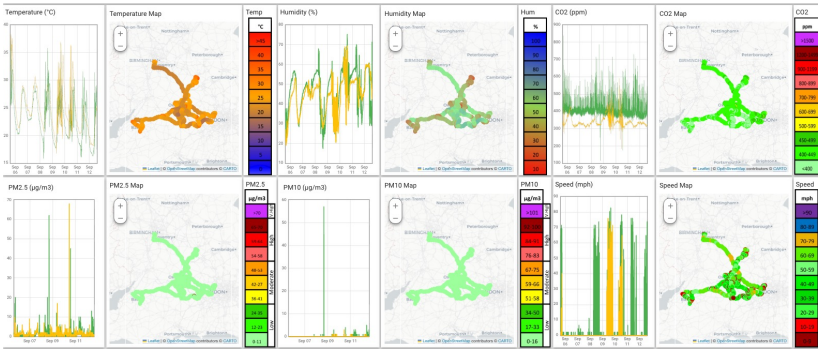
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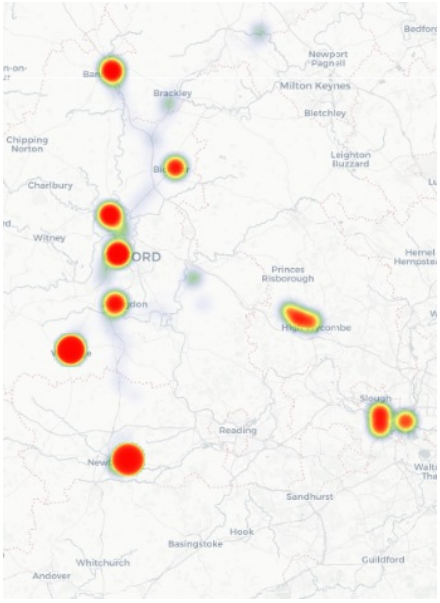
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Application Note

HAMILTON

River Water Quality Indication Using Real-time Dissolved Oxygen Measurement

Industry: Waste Water
Application: Water pollution monitoring & measurement
Hamilton products: VisiWater DO P Arc 150 FC10

Monitor. Visualize. Protect: River Health in Real-time

Introduction

River water quality is a widespread concern, and ensuring it is free from pollution and able to support life is essential for many countries.

To address this challenge, a novel water quality monitoring system, AquaSense, has been developed by Technocomm Consulting Ltd. AquaSense is a novel, easy to install, integrated wireless remote water quality monitoring system that has been developed to measure parameters such as temperature, pH, dissolved oxygen (DO), and salinity in water management applications.



Figure 1: The VisiWater P integrated into the AquaSense system in the river for in-situ measurements.



Figure 2: The solar powered telemetry system connected to the AquaSense system featuring VisiWater P.

A key aspect of river health, and therefore a critical measurement is Dissolved Oxygen (DO). Accurate and timely measurement of DO indicates river health and can provide an early warning system for effluent pollution, therefore measurement systems should strive to deliver real-time measurement and efficient data-storage for traceability. Hamilton's submersible DO sensor, VisiWater P, is integrated into the AquaSense system for DO measurement and will be the focus of this application note.

In-Situ Measurement of DO in Rivers

For DO measurement, the VisiWater P integrated into the AquaSense system is placed directly in the river for in-situ measurements (Figure 1). The probe is inserted into a plastic drain pipe to protect it, and connected to the solar powered telemetry system (Figure 2) that collects the time stamped data every 15 minutes.

The VisiWater P probe collects data on the DO levels in the water. These readings are then transmitted wirelessly by the AquaSense system to a central location where they are stored for data traceability.

Live Insights into River Health are Possible

The AquaSense system delivers live, accurate DO readings to a user-friendly graphical dashboard, providing a clear, real-time view of the river's health (Figure 3).

The system can also generate customizable alerts which are triggered when DO levels fall outside of the norm. This allows for early detection of potential pollution events, such as the discharge of harmful effluents (Figure 4).

Streamlined process for DO measurement in Rivers

In summary, the AquaSense system, with its VisiWater P probe, offers a streamlined process for measuring DO. This can aid effective monitoring of river water quality by providing continuous data to facilitate early detection of pollution, and ultimately support the river's ecological balance.

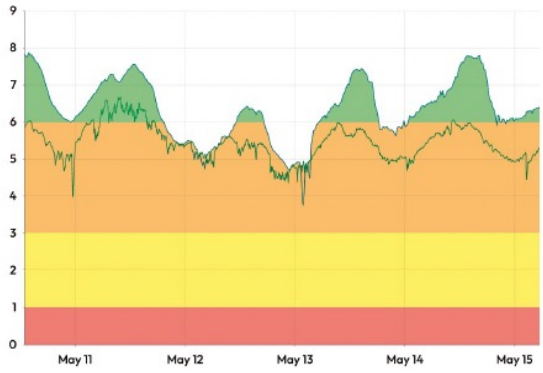


Figure 3: Dissolved oxygen measurement of river water over several days.



Advantages

- Provides continuous, real-time data on river health
- Enables early detection of pollution events
- Supports effective monitoring of river water quality, ensuring data traceability to enhance reliability and accountability

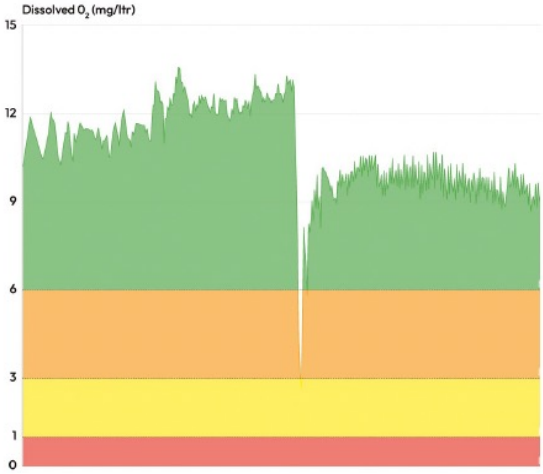


Figure 4: Dissolved oxygen measurement during effluent discharge incident.

Author: Bijan Mohandes, Managing Director

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