AVEXIS - Aqua Vehicle Explorer for In-Situ Sensing

What is AVEXIS?
AVEXIS is a small-scale, low-cost mobile sensor platform (micro autonomous underwater vehicle) developed by a University of Manchester Research Group, for the real-time monitoring of bodies of water. Each vehicle can operate individually or as part of a group, or swarm.

Where can it be used?
In the water industry it could be used for reservoir and tank monitoring, and directed to take sensor readings at pre-determined points.

Benefits
- Mobile sensor platform allows for greater spatial resolution of measurements in enclosed spaces.
- Sensor apparatus can be situated to allow direct contact with water.
- High mobility and lack of tether allows for investigation of non-uniform and cluttered environments.
- Heterogeneous swarms allow for a diverse range of sensors to be deployed.
Potential sensor payloads could enable sensing of temperature, pH, turbidity, depth and dissolved oxygen for example. Acoustic ranging measurements are possible, with feasibility to use acoustic sensing to measure depth of sludge relative to the surface of a body of water.

Swarming capability allows vehicles to collaborate to improve both communications and positioning accuracy.

Individual nodes are low cost and disposable.

Development for new sensing applications is possible, with access to a responsive academic research team.

Some AVEXIS Stats

- Diameter of 250mm, which could be reduced if necessary
- 4 degrees of freedom
- Acoustic communications and positioning system
- Positional accuracy to within 0.22m in a 25m body of water
- Autonomous mode (untethered) or tele-operated (tethered)
- Sensor payload (carrying capacity) of up to 1kg.

OPPORTUNITY

We would like to gauge interest in the technology, assess suitability for applications in the water industry, and establish leads for future collaboration leading to commercialisation. We invite those who have an in depth knowledge of the water industry and its various sensing needs, and would be able to act in a consultancy capacity to assist us with this goal, to get in touch.

CONTACT

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