

Factsheet

This is a micro-budget project designed to provide live monitoring and a data history of water quality in the Lower part of the River Brent. Initially volunteer-funded, it is now supported by the Environment Agency.

Using sensors for temperature and conductivity to calculate total dissolved solids (TDS), a reading is shared with a home computer every 15 minutes, building a timeline which can act as an alarm system or tool for subsequent analysis. TDS readings are affected by substances dissolved in water, such as detergent, food waste and human waste, all of which afflict the Brent. We cannot use these probes to detect oil, which is also a significant problem.

On an increased budget, it would be possible to add probes for Dissolved Oxygen (vital for marine life, and badly affected by pollution), Nitrates (present in human waste), etc.

Each unit comprises probes, circuit board, battery, solar panel and SIM card, set within a water-proof housing. We are currently constructing a fleet of floating units, designed to survive the 2 metre height range of this volatile, urban river. Battery life without solar input is several months, and with it, indefinite.

The devices have been in the river for over a year, during which period the design has evolved, but we are still very much at the learning stage.

It is vital to note that although the sensors can report increased TDS, they cannot identify the source of that. They are intended to be used as an early warning system, to be backed up with more detailed investigation, ideally based around available testing kits for nitrate, phosphorous and dissolved oxygen, and as a record which can be studied to interpret factors impacting on quality, such as patterns in pollution events, times of day, days of week, etc., which can then be connected with potential sources.

We also possess Hanna checker devices for nitrate and phosphorus, and are in the process of purchasing a dissolved oxygen testing kit. These are used to follow up on signals from the network, to try and build a more detailed understanding of what might have caused a changed reading.

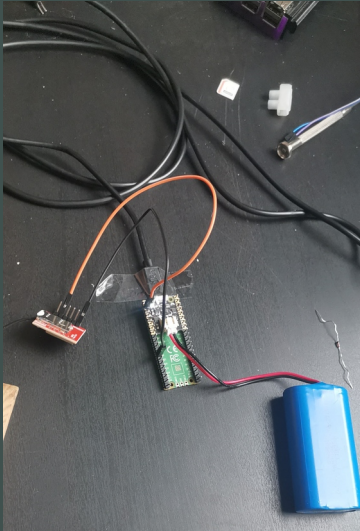
We are at present a small team, and the ethos is homemade, micro-budget. We have received funding from the EA for 2023-24, and we hope that this period will enable us to establish more clearly the effectiveness of our system.

We would like to see devices like ours deployed in a range of water courses to bring attention to pollution so that it can be prevented in future and we are looking at ways to make these more widely available once our trial has been completed.



**RIVER
BRENT**
MONITORING NETWORK

First Prototypes: May 2022



Current designs: October 2023

