



LOW-COST INNOVATIVE TECHNOLOGY FOR WATER QUALITY MONITORING AND WATER RESOURCES MANAGEMENT FOR URBAN AND RURAL WATER SYSTEMS IN INDIA

ABOUT LOTUS

- Start date:** 1st February 2019
- Duration:** 48 months
- Budget:** 3,69 million €
- Aim:** Co-creation of innovative low-cost technology for India's water quality challenges

THE BACKGROUND

India must address serious challenges regarding the quality of water: among other issues, only 30% of the population has access to treated drinking water and more than 37 million Indians per year suffer from waterborne diseases.

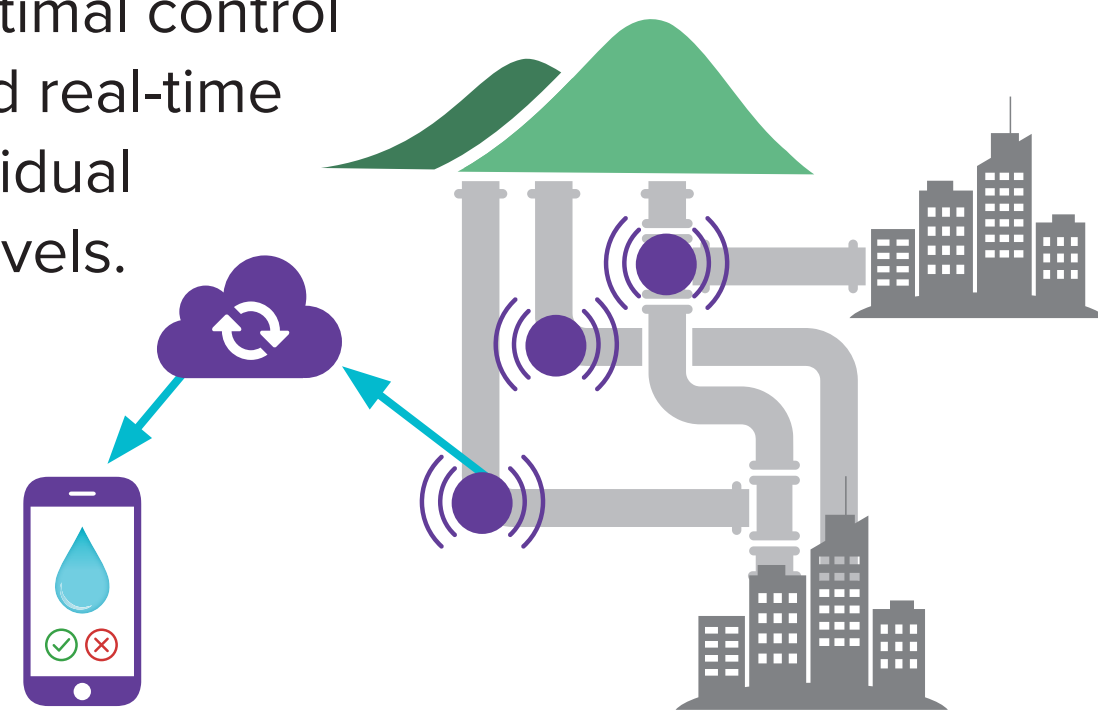
THE OBJECTIVE

The LOTUS project aims at co-creating, co-designing and co-developing an innovative multi-parameter sensor and tailor-made decision support tools for water management. These solutions will provide high tech reliability on a 24/7 basis in real-life applications and will be manufactured in India for India.

USE CASE

Guwahati city water system management

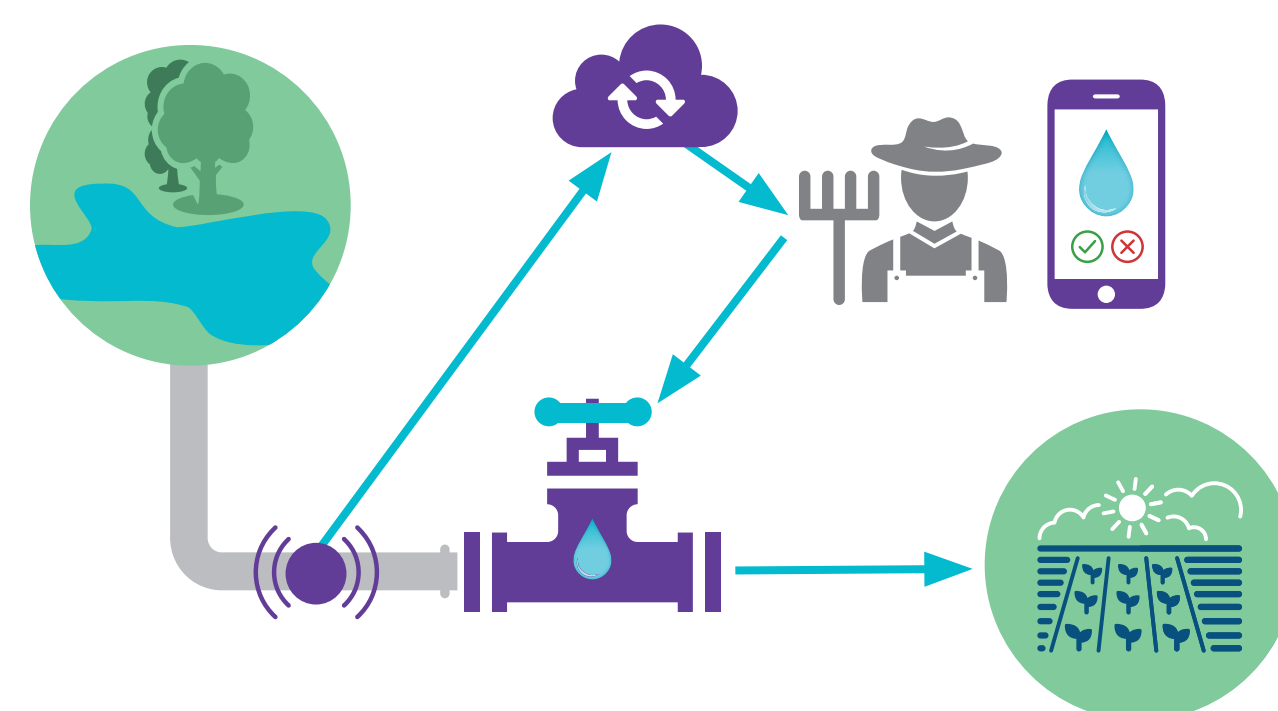
- Increased water supply from 2 hours per day to 12 hours per day for Guwahati residents in the South Central Area
- Tap water will be possible to be consumed without further local treatment
- Reduction of operational cost by 10% and non-revenue water by 10%
- Optimisation of chemical dosage by 10% with the help of optimal control algorithms and real-time sensing of residual chlorination levels.



USE CASE

Jalgaon: Irrigation system management

- Real-time and long-term quality monitoring of water used for irrigation
- Sustainable water management by optimisation of flow rate and fertigation based on measured water parameters and external factors (e.g. weather, soil, crop growth stage)
- Increased life span of drip irrigation systems by early detection of risk factors for clogging

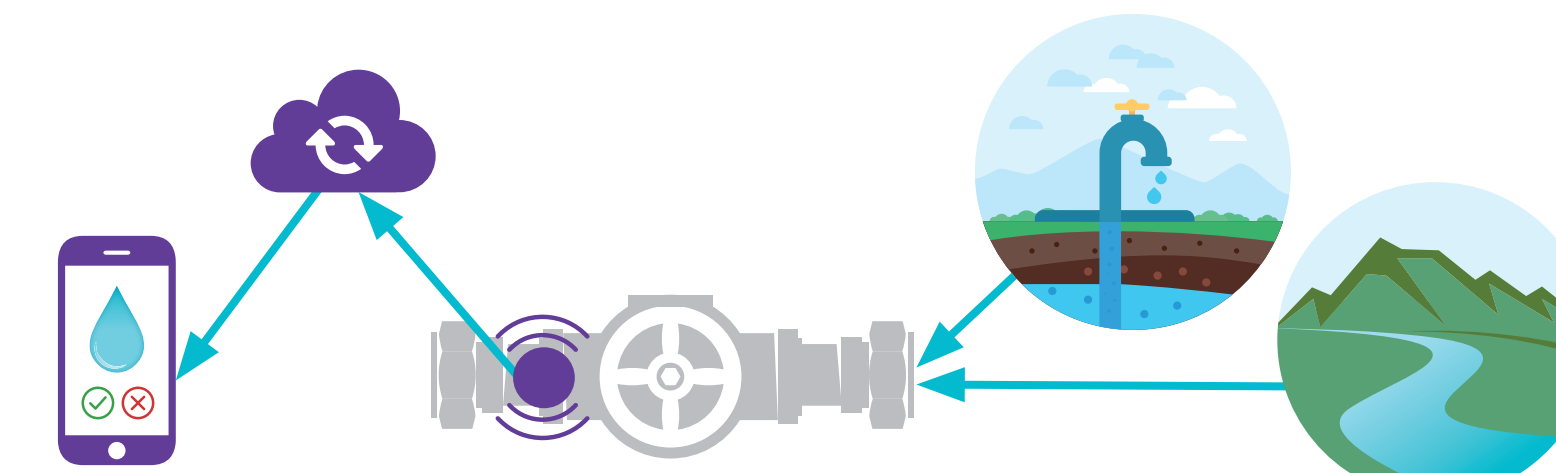


USE CASE

Groundwater and river water monitoring system

The LOTUS solutions will be implemented in 3 locations:

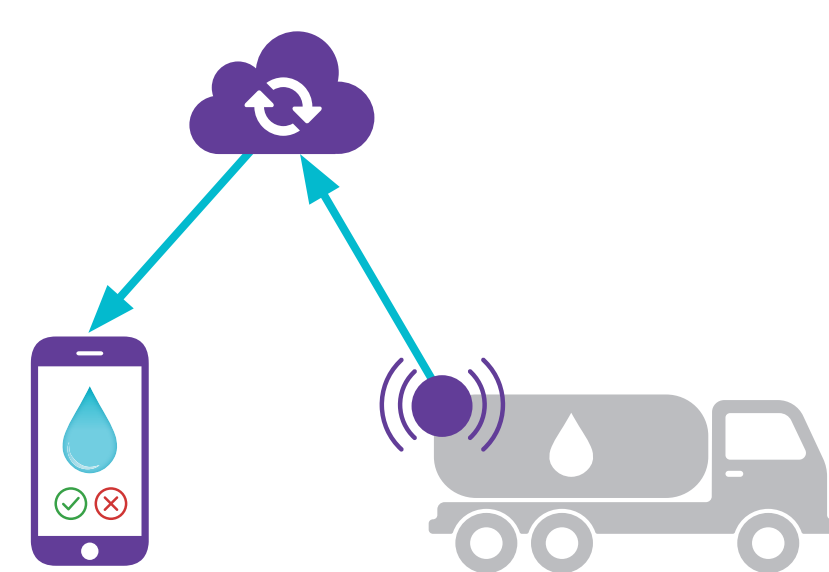
- In Guwahati: to assess the surface water pollution, understand the environmental fate of different pollutants and assess the fitness of water for different uses
- In Varanasi: to assess the Ganga river water quality to know the extent of water pollution and assess the suitability of water for different uses
- In Bengaluru: to monitor the groundwater quality through the collection of water quality data and the identification of the best treatment technology



USE CASE

Tanker-based water distribution system

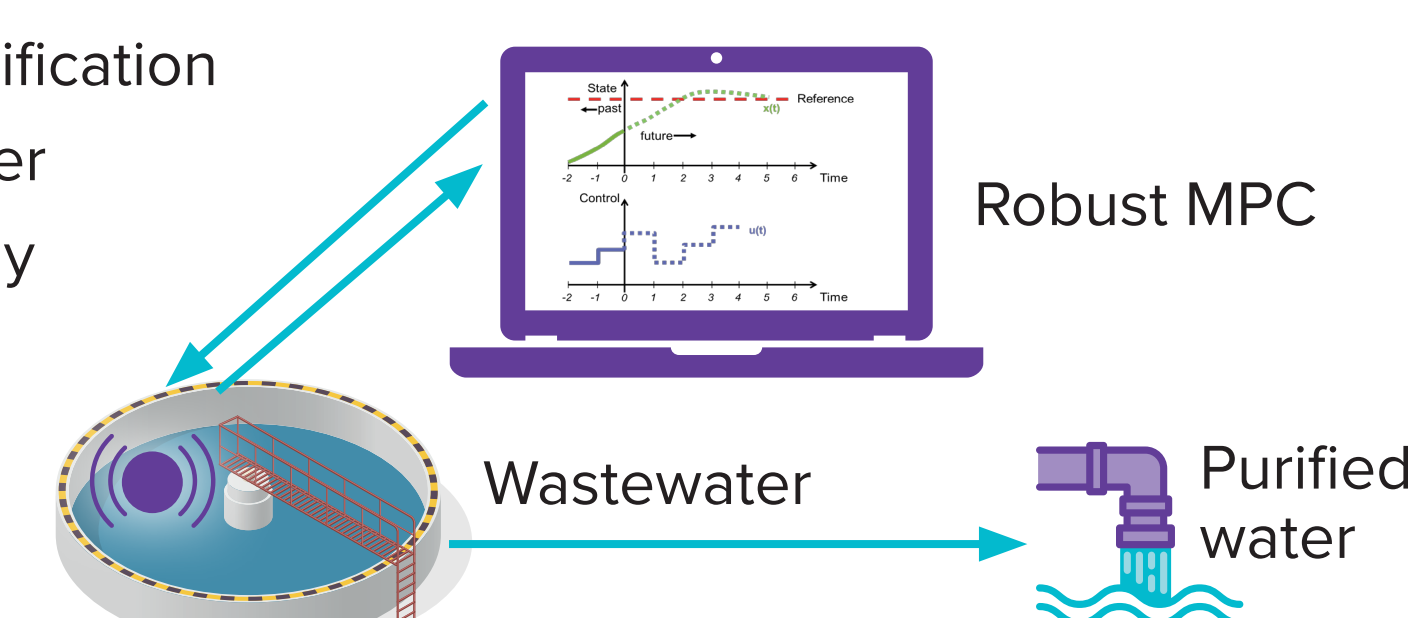
- The Lotus sensor will offer customers with access to water quality data
- The software and mobile application along with the sensor will:
 - Ensure right pricing for customers by meeting demand with supply
 - Optimise delivery operations of the tanker fleet



USE CASE

Improved operation of wastewater treatment plants

- Conventional and algal-based purification
- Better quality of the outgoing water
- Better efficiency in terms of energy input and valuable products

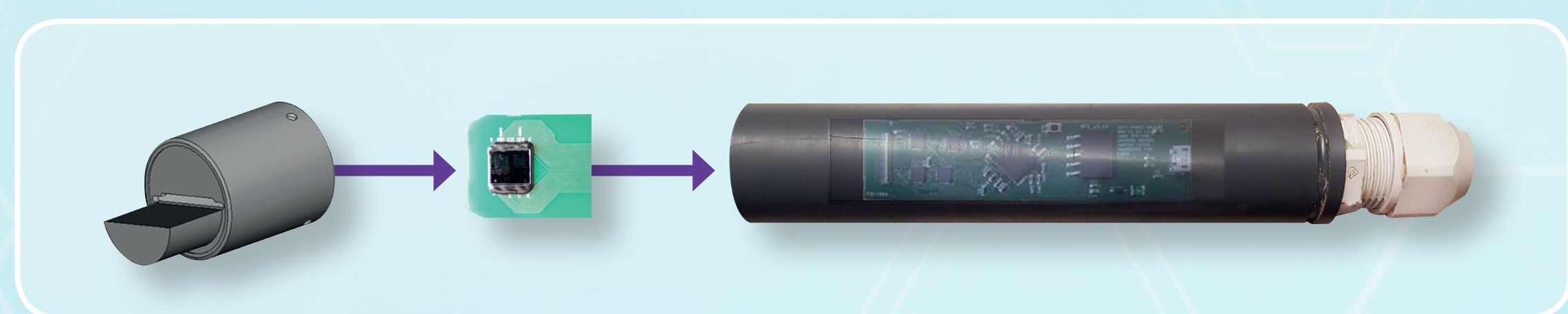


LOTUS SOLUTIONS

The LOTUS sensor:

The LOTUS solutions are based on a multiparameter water quality nanosensor. Once deployed in the field in India, the sensor will be used to provide tailor-made decision support for a range of applications.

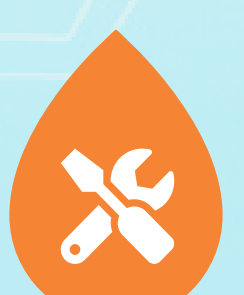
The LOTUS sensor leverages an electronic tongue based on functionalised carbon nanotubes. The chemical sensor array is packaged with different casings and connectivity solutions to match the diversity of the Indian context.



The LOTUS sensor is unique !



It is less expensive



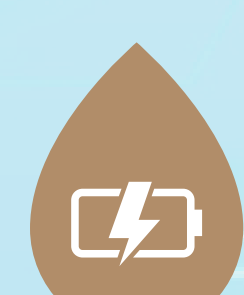
It measures multiple parameters



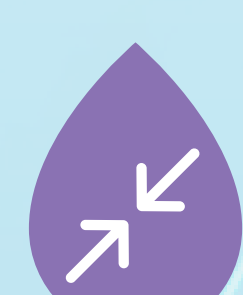
It can link to online platforms to support data visualisation



It transmits in real time



It consumes less energy

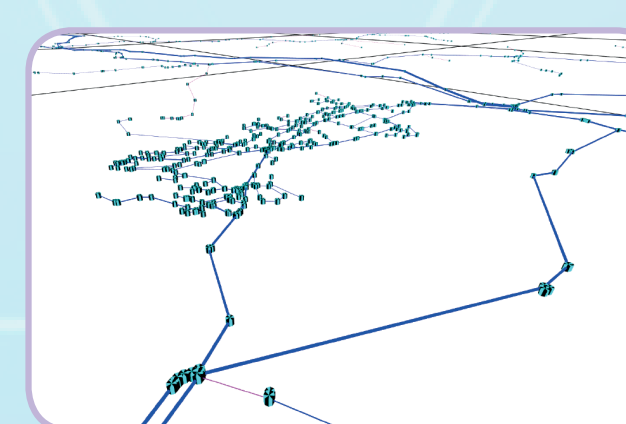


It is 10 times smaller

The LOTUS software

LOTUS will develop software tools that :

- Are based on open standards and interfaces
- Collect and process measurements and data
- Offer high quality visualisation
- Include relevant tools (e.g. EPANET) for smart water management
- Can be used for strategic and operational purposes



Example of data visualisation

CONTACT US

- www.lotus-india.eu
- Contact us and subscribe to the LOTUS mailing list
- https://twitter.com/lotus_indiaEU
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