

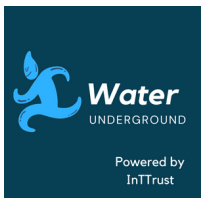
# AN IOT AND CLOUD PLATFORM EMPOWERING PEOPLE TO MONITOR AND PREDICT UNDERGROUND WATER HEALTH



## The water sustainability problem

Water is a vital and precious natural resource, not only to humans but also to most kinds of life on earth. However, it does not get the attention and caution it deserves, on the contrary, human activity is increasingly wasting it. Climate change is one of the crucial aspects of this problem. However, the lack of information and awareness are strong reasons for this disastrous attitude. Irrational human use of underground water heavily affects clear water availability. Besides over-pumping, fertilizers and other types of pollution gradually and steadily deteriorate water quality. Low-income communities, already the most vulnerable to any threat to the water supply, will be the worst affected.

## The innovative solution by InTTrust: 'Water Underground'



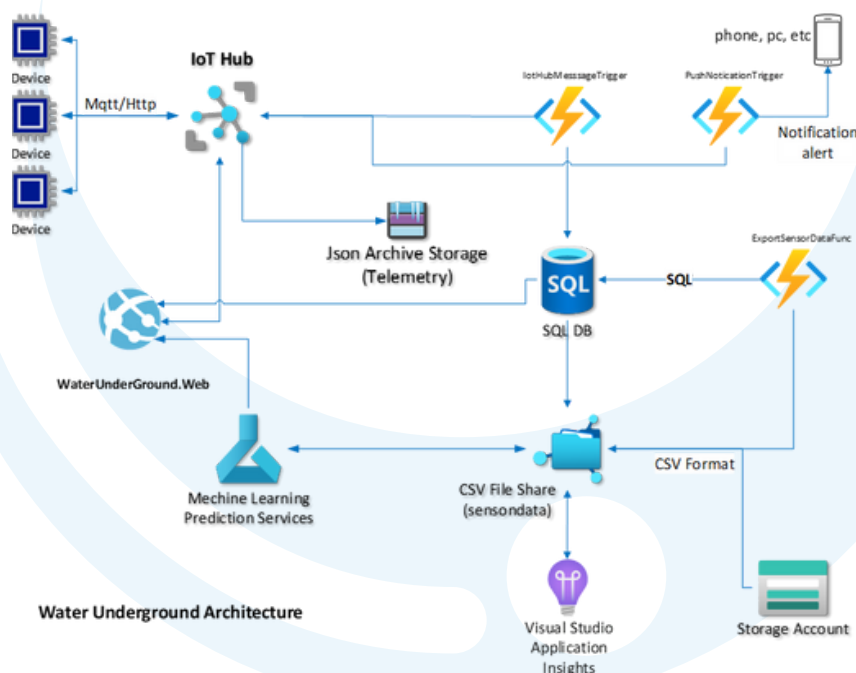
InTTrust can help both local and global communities with water sustainability by providing vital, real-time monitoring information, on quality and quantity trends of underground water. Using Cloud services and technologies as well as specifically designed hardware, based on IoT devices delivers an integrated solution by monitoring local underground water and environmental data from the field placed sensors to the Cloud. The innovative aspects of the solution include real-time reporting of critical attributes of underground water as well as their future trends.

Furthermore, it provides indications of unusual over-pumping and alerts on water quality changes. Additionally, more rational use of underground water is promoted and controlled usage and management can be achieved at the local government level.

## The solution to practice

InTTrust is using the latest and innovative Azure SQL, Signal Analysis, Data Analytics, M/L, A/I, Cloud and IoT Hub technologies to implement a solution addressing water sustainability challenges such as water quantity, quality and future trends.

## Interconnected IoT devices for real-time monitoring of the underground waters' level and quality.

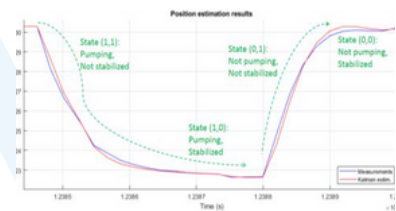


By taking a step further, the solution has been deployed, at wells in the Historic Municipality of Marathon and the Municipality of Fyli, Attica. The Mayor of Marathon, Mr Stergios Tsirkas, stated: "The 'Water Underground' solution enables us to have real-time data on the quality, quantity and future trends of our underground water resources". Mr Christos Pappous, Mayor of Fyli, has stated that "One of the most important projects is the hydrological independence of the municipality and we are very excited with the 'Water Underground' solution as it helps us to monitor the quality, quantity and future trends of the underground water in our municipality at any time".

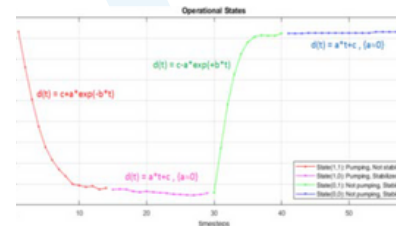
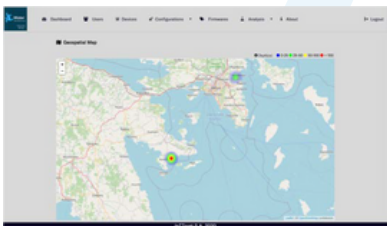
Device sensor chart - time analysis



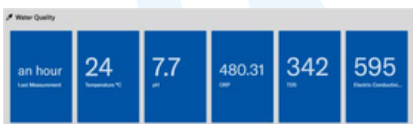
Pumping measurements



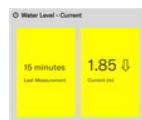
Map representation



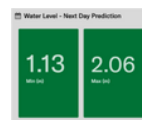
Water quality



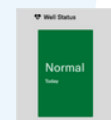
Water level



Water level-Next day prediction



Well status



Dr Michail Mavroforakis, InTTrust's CTO refers to the 'Water Underground' solution:

"The lack of information and awareness around the sustainability of Earth's natural resources have been established as big threats to humanity and other kinds of life. Inspired by scientific and technological progress, we envision a world where everyone can monitor the quantity and quality of the underground water in real-time, similar to the weather data. We took the opportunity of the contest and using state-of-the-art tools, we designed and created i) a readily available IoT device to collect environmental data and ii) a smart Cloud platform to store, analyze and present them. Furthermore, we provide ways to map, predict and improve the management of this vital natural resource."