



AQtap water dispenser.

Direct Sensors™ inside enables a robust and cost-effective water revenue collection platform for the developing world.

The situation

To start out, the requirements for the GRUNDFOS water revenue collection platform was to ensure a financially viable water supply platform for the developing world – in particular Africa.

The heart of the platform is the innovative water “ATM”(AQtap) and a unique water management system providing a novel modular approach to water supply. From dispensing stand-alone water kiosks at a communal water point to a minigrid of water points in an urban and rural environment. The AQtap needed a very accurate flowmeter, which could lead to a certifiable water “ATM” to secure the correct dispensing of water for payment, and a cost-effective and durable solution which would survive the harsh environments it can be exposed to. Other solutions being tested were either too costly, or not durable in the harsh environment settings with high temperatures and high humidity.

The Grundfos solution

The basic characteristics of the sensor are: without any

Topic:

Water Dispensing

Location:

The developing world – in particular Africa.

Company:

Grundfos

moving parts, high repeatability and inherent very low drift. The need for higher precision at lower flowrates required the usage of the latest flow-sensor from GRUNDFOS Direct Sensors™. The so called 5th Generation of flow sensors enables a flow accuracy, which, integrated into the AQtap, obtained the OIML R 49-2:2013. Furthermore, the signal from the sensor is used to distinguish between air and water in the system, which is necessary due to frequent air pockets in the deteriorated water infrastructure. The sensors are made in Denmark, but the actual “ATM” unit is assembled and tested in India by GRUNDFOS.

The outcome

Direct Sensors™ inside enables a robust and cost-effective water revenue collection platform for the developing world. On top of the physical unit an advanced and remote cloud-based, water management system is deployed and integrated with local mobile payment programs. More than 300 systems have been produced to date.

Quote:

“Effective revenue collection based on actual water consumption has been a breakthrough in how to supply water to the developing world. Knowledge about actual water consumption patterns is key to estimate the expected revenue flows and designing the right business models for NGOs etc. to obtain financial and operational sustainable solutions”

Jesper Ravn Lorenzen, Global Product Manager.

AQtap water ATM with revenue collection and water management

AQtap is an intelligent water ATM offering a unique and integrated platform for revenue collection and online remote management of water points. AQtap includes a smart card solution for water credit storing and water management system.

AQtap includes:



Smart card revenue collection
– where water credits are stored on WaterCards



AQtap dispenser unit
– where water is tapped and credits managed



Water management system
– where data from transactions and operations are processed and published

THIS IS HOW IT WORKS

Consumers load credits onto their WaterCard, either through local water credit vendors or via mobile payment. They are then ready to tap water, and this is done in four easy steps:



- 1.** Place the WaterCard in the slot to see the credit balance and water price
- 2.** Push the water button to start tapping water. Tapping is metered on the AQtap dispenser unit display
- 3.** Push water button to stop tapping
- 4.** Transaction is confirmed on AQtap dispenser unit display

Additional images



Vortex Flow Sensor VFS-QT with stainless steel pipe



AQtap dispenser unit