

Mobile and wireless Monitoring of water tanks in rural water supply systems

In Maharashtra, every summer is welcome with the news of scarcity of water across the state and everybody starts discussing on the subject. Different methods are adopted and discussed across the state to conserve a drop of water. Here is a short note about how mobile and wireless technology can successfully implemented and how it can play a vital role in monitoring a drop of water.

Ossian Agro Automation Private Limited, a Pune based business organization founded by Mr Santosh & Rajashree Ostwal, an Engineer couple born in the farmer's family who has been working in e-Irrigation domain since last 24 years gaining a massive attention from the global communities like UNFAO, GIZ, USAID, UNICEF, Mobile World Congress, World Bank etc.

Ossian has smartly captured an acute pain in the drinking water supply systems and found simple wireless solutions which can be extremely useful in monitoring the water levels in the water tanks as well as controlling the water pumps. They have not only found out the technical solution but derived a life and time tested business model to implement it on the larger scale.

Succeeded internationally by the brand "Nano Ganesh" across India and overseas in rural sector, they have come up with a scalable, sustainable, replicable and marginally profitable socio-entrepreneurship business model for implementing the technology for all the village WATER TANKS in the state.

Connect every water tank and water pump to a mobile phone....!

Challenges for the village water operators in the rural water supply systems – It has been the tedious task in



maintaining the justified distribution of water to the citizens.

- Remote locations of the tanks and pumps - An operator has to exercise a trip from pump near water source, water tank on the hill top or elevation, valves in the distribution network.
- Odd schedule of operation - He has to carry out these duties during the night as well as early morning period.
- Difficult terrain - An operator is always stressed due to the burden of water distribution and physical trips in the difficult terrains.
- Every season has its own challenges for the operator to travel to the pump as well as tank area.
- Odd electricity and fluctuations
- Fear of animals and shocks
- Expenses on fuel, motor cycle
- Unsecured family at home.

Though an operator acts an important and crucial role of fulfilling the thirst of the citizens, his sweat and blood is terribly dissipated.

There is a huge wastage of water, electricity and civil structure due to overflowing of water. E.g. running of even 5 HP water pump for 15 minutes can fill up the water tanker. Hence, instant monitoring of the water levels is very much essential which can be very well solved by the mobile connected pumps and water tanks system.

Technical Solution to overcome the challenges

The Technology for Drinking Water Supply Systems in the rural zones– Most of the Grampanchayat scheme comprises of a water pump, a tank, purification systems, distribution network etc..Nano Ganesh is an internationally awarded technology for monitoring of water level and accordingly controlling the water pumps with the help of a mobile phone and electronics hardware. The Nano Ganesh hardware is simcard enabled device which is easy to handle system which can be used by any illiterate person irrespective of education, age,

gender and language.

Hence by mobile-connecting the water tanks and pumps, the pumping efficiency can be improved assuring saving of huge energy and expenses in the physical trips to the sites.

With the help of a mobile phone and Nano Ganesh system:

- An operator can control the water pump from any place or from home,
- He can understand the availability of the power supply at the water pump end,
- He can get text SMS or audio tones on his mobile phone about any faults in the
- water pump
- He can get different text messages related with the water levels in the water tanks on his mobile phone.
- In few models, the data of water flow can be taken on the cloud for the analytics.

There is one more technology

solution – Wireless Automatic Water Level Controller for the distant water tanks and water pumps.

In the rural zones, due to problems associated with the labor and large distances between the pump and tanks, the data of the water level can be passed easily to the controllers with the help of the wireless links.

In this, there is a Transmitter situated at the Overhead Water tank along with the sensors for bottom and overflow level in the tank.

There is one receiver placed near the water pump starter panel which receives the command signals about water levels in the tank from the Transmitter.

Depending on the need of the water in the distant water tank, the receiver actuates the relay which in turn controls the starter of the water pump. Hence the system becomes fully automatic.

The frequency of the transmission is in ISM band having the maximum range of radio frequency to

1.5 KM maximum in line of sight.

Hybrid System - One can add the GSM system here at the Receiver end for sending the SMS of the status of the water level, motor on/off etc. Hence, the water pump will be ON as soon as the water tanks water level goes to low level and will turn off as soon as tank is full. At the same time, the SMS are sent to the operator about the functions by additional GSM unit. So, this system becomes hybrid.

Fully Automatic GSM Water Level Controller System -

In this system, there are two GSM units, one at the water tank sensing and transmitting the water level signals and other GSM unit at the water pump which operates the relay of the water pump starter as per the water requirement automatically. It sends the corresponding SMS of the water level and pump on/off status to the users mobile phone.

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