



Reading Ground Water Levels with a Smartphone

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Most ground water levels in the world are measured manually. It requires employees of water management organizations to visit sites in the field and execute a measurement procedure that requires special tools and training. Once the measurement is done, the value is jotted down in a notebook and later, at the office, entered in a computer system. This procedure is slow and prone to human errors. A new development is the introduction of modern Information and Communication Technology to support this task and make it more efficient. Two innovations are introduced to measure and immediately store ground water levels. The first method is a measuring tape that gives a sound and light when it just touches the water in combination with an app on a smartphone with which a picture needs to be taken from the measuring tape. Using dedicated pattern recognition algorithms, the depth is read on the tape and it is verified if the light is on. The second method estimates the depth using a sound from the smartphone that is sent into the borehole and records the reflecting waves in the pipe. Both methods use gps-localization of the smartphone to store the depths in the right location in the central database, making the monitoring of ground water levels a real-time process that eliminates human errors.