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Data acquisition and measuring device for quality testing of well water

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Testing water quality of drinking water wells on a regular basis is an important part of maintaining a safe and reliable source. Visiting such places, collection of samples, analyzing and providing results is a traditional method and all these processes are time consuming and expensive. This research addresses such issues by proposing a system which can be remotely operated *via* any Bluetooth enabled PCs. The system consists mainly of a Data Acquisition System (DAS) and the measuring device. Parameters that can be measured using this system are total dissolved solids (TDS), electrical conductivity (EC), temperature and pH.

The Data acquisition system, which is the brain of the system, includes a graphical user interface (GUI). The measuring device has one microprocessor and sensor nodes to measure each parameter. Once the transceiver receives a command signal from the data acquisition system the microprocessor sends commands one by one to each of its sensor nodes (EC, TDS, temperature etc.) to process. This system uses a sequential measuring process to reduce the complexity of the system. Once all the nodes are processed, each result is sent to the data acquisition system serially *via* the transceiver. In order to save power, the measuring device will go to sleep mode until the next command from DAS is received.

In this system, no man power is required for sample collection as this device is fixed to a place. There is no restriction or conditions for mounting the device. Time and cost spent for sample collection and analyzing are greatly reduced by the remote accessing method and self-operated laboratory procedures. Manual graph referring, calculation or observations to obtain the results are not required as the graphical user interface (GUI) displays all the water quality parameters in the device. This unit enables the user to find the water quality remotely and automatically.

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