



Inexpensive, High Resolution Data for Quantifying Water Use, Conservation, and Differences by Gender

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We used an inexpensive, open source, water metering system for measuring water use quantity and behavior at high temporal frequency. We demonstrated this technology in two high-traffic, public restrooms at Utah State University before and after installing high efficiency, automatic faucets and toilet flush valves. We also integrated an inexpensive sensor to count user traffic. Sensing restroom visits and water use events allowed us to identify fixture malfunctions, average water use per person, variability in use by fixtures (faucets versus urinals and toilets), variability in use by fixtures compared to manufacturer specifications, gender differences in use, and the difference in use after retrofit of the restrooms with high efficiency fixtures. The inexpensive metering system can help institutions remotely measure and record water use trends and behavior, identify leaks and fixture malfunctions, and schedule fixture maintenance or upgrades, all of which can ultimately help them meet goals for sustainable water use.