The Global Water Crisis claims 3.4 million lives each year. PumpMinder and Water4 target communities where current pump maintenance by the government is insufficient. Water4 hopes to create a sustainable business model by which water is sold to communities in order to have funds available to make any necessary repairs and to eventually upgrade pumps. This creates an opportunity for long term sustainability through local business.

The Goal

Preliminary Work: Estimate the volume of water drawn from a pump by measuring how much time water is flowing out of the pump. Use data concerning how often pumps need to be repaired, and the useful life of the pump, to set water costs per unit volume. Water costs are set such that communities have enough funds to maintain and upgrade pumps as needed and pay the pump minder that collects the water use fees.

Accountability: The pump manager is held accountable for charging the correct fees by having to reconcile total fees collected each month with the total volume of water pumped as recorded by the PumpMinder system.

Our System

Our system uses a water presence sensor, clock, PIC microcontroller, and LCD display to track and show the amount of hours water has been pumped to a precision of three decimal places. A button is used to either display the hours on a short press, or reset them on a long press. Our power supply is 4 AA batteries which are intended to last well beyond a month’s duration.

We delivered our first prototype to Water 4 on April 5, 2016, and have already designed and are preparing to manufacture a second version based on feedback received from Water4.

Future Goals and Development

- Iterative approach to client’s requests
- Improved accessibility
- Increased battery lifespan
- Decreased cost
- Bluetooth connectivity to smart devices
- Remove internal display
- Tampering protection
- Mass production

Further Information

For more information about Water4:
www.water4.org

For more information about PumpMinder:
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