



SHAD 2021 Design Project

AquaHome

Team Name: Aqua (Design Team 5)

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Link to the video: https://youtu.be/WN9aCfK_Xw0



The Problem:

The current overconsumption of clean water by Canadian households is unsustainable. According to the World Health Organization (WHO), using 50-100 litres of water per person per day is sufficient for basic needs. However, the average Canadian uses approximately 329 litres of water per day. This is due primarily to the lack of awareness on how much water is actually used per household appliance (toilets, showers, dishwasher, washing machine, etc...) and the individual's inability to track this water usage in real time.

Our Solution:

Our company AquaHome has designed a suite of hardware devices that are connected to a mobile app to track water consumption and provide analysis for improving daily water reduction efficiency. The three devices are the AquaRing, AquaTap, and the AquaClick. The AquaRing is easily attached to the existing ends of a pipe and calculates the water flow rate using a light sensor. The AquaTap is a smart tag to track the total amount of water utilized by a washing machine. The AquaClick is a pressure sensor for toilets and monitors the number of flushes, which have a fixed volume per flush. The AquaHome app will allow users to 1. view their daily water usage, 2. receive helpful tips on reducing water, and 3. have the opportunity to compete with other households on who can save the most water. AquaHome's integrated devices and app will provide Canadians with a new technology to lower their water/sewage utility bill and to reduce their water footprint.

The Potential Impact:

Water is our most precious resource, which is used for sustenance, agriculture and to generate energy. However, individuals are consuming water at alarming rates and clean water scarcity is a global issue. Although Canada is a freshwater-rich country, its water sources are threatened by overconsumption, urbanization, and climate change. To curtail these future problems, AquaHome will aid Canadians in making conscientious decisions to reduce their daily water consumption, save money, and gain a newfound respect for water. For example, by using AquaHome, a family of four in London, Ontario could save over \$75 each month by reducing their daily water usage from 329 litres to 100 litres.

