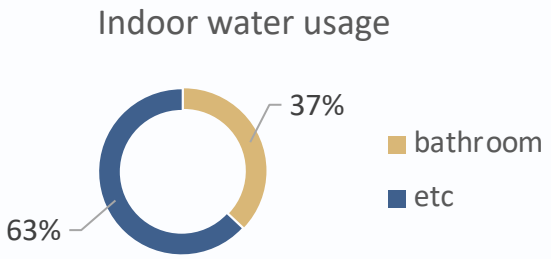
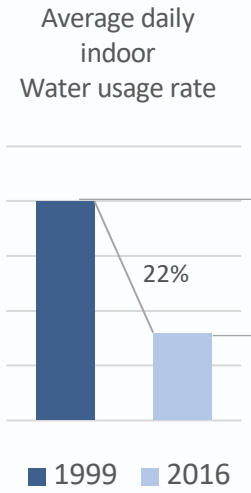
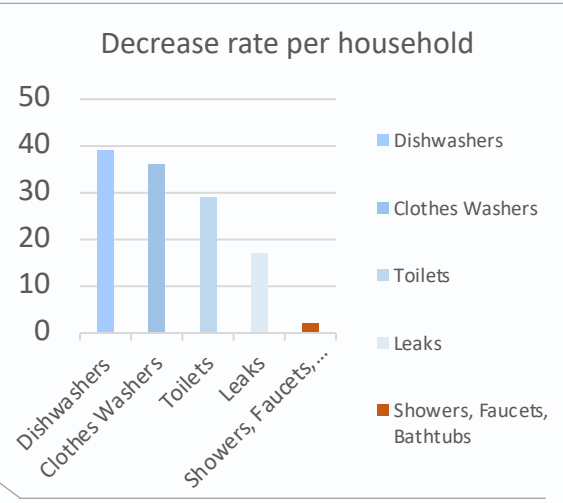
1. Research Problem

- How to waste water less?







According to US EPA, the average daily water consumption of every household is 1135L, which consist of 70% indoor usage. Among them, 63% drain in bathroom, where 120L are consumed per shower.

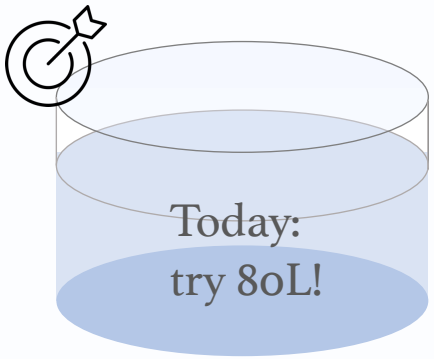
During 1999-2016 time period, the average daily indoor water usage reduced 22%. Still, Water Research Foundation found total reduction of usage in showers, faucets, and bathtubs remained 0%.

Shower is a particular activity in which we consume water relatively carelessly.

Therefore, we focus on personal responsibility in shower.
We would like to connect individual behavior into a collective sustainability with real-time feedback and community network.

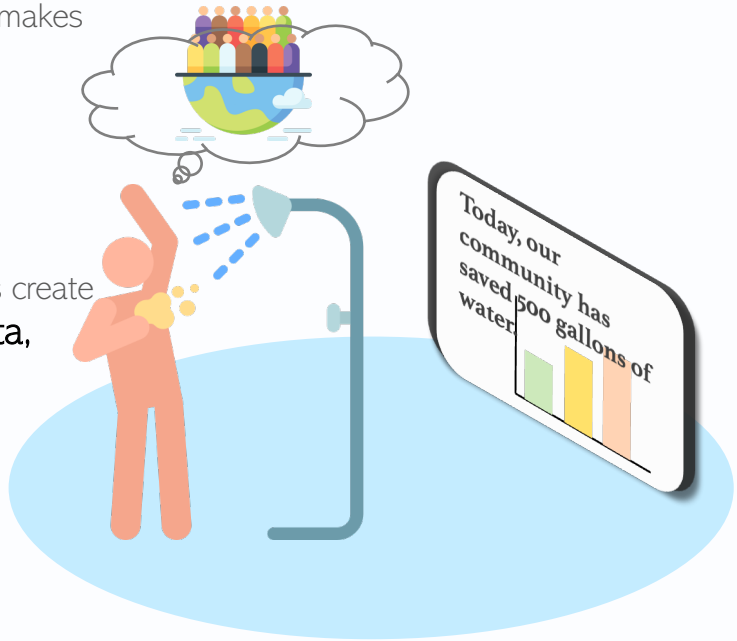
2. Our Solution

- Smart Water Monitoring System



Data view and goal set:

According to Locke's Goal-Setting Theory, setting goals motivates us to continue and achieve. Goal-oriented services like routine setting and progress tracking of Apple Watch's Workout app are well known examples. Here, #SHOWER suggests water consumption tracking and goal setting features. The users can track the drained amount in shower and set daily goals for sustainable shower. Thereby #SHOWER makes water conservation steady and fulfilling.



Data collect and share:

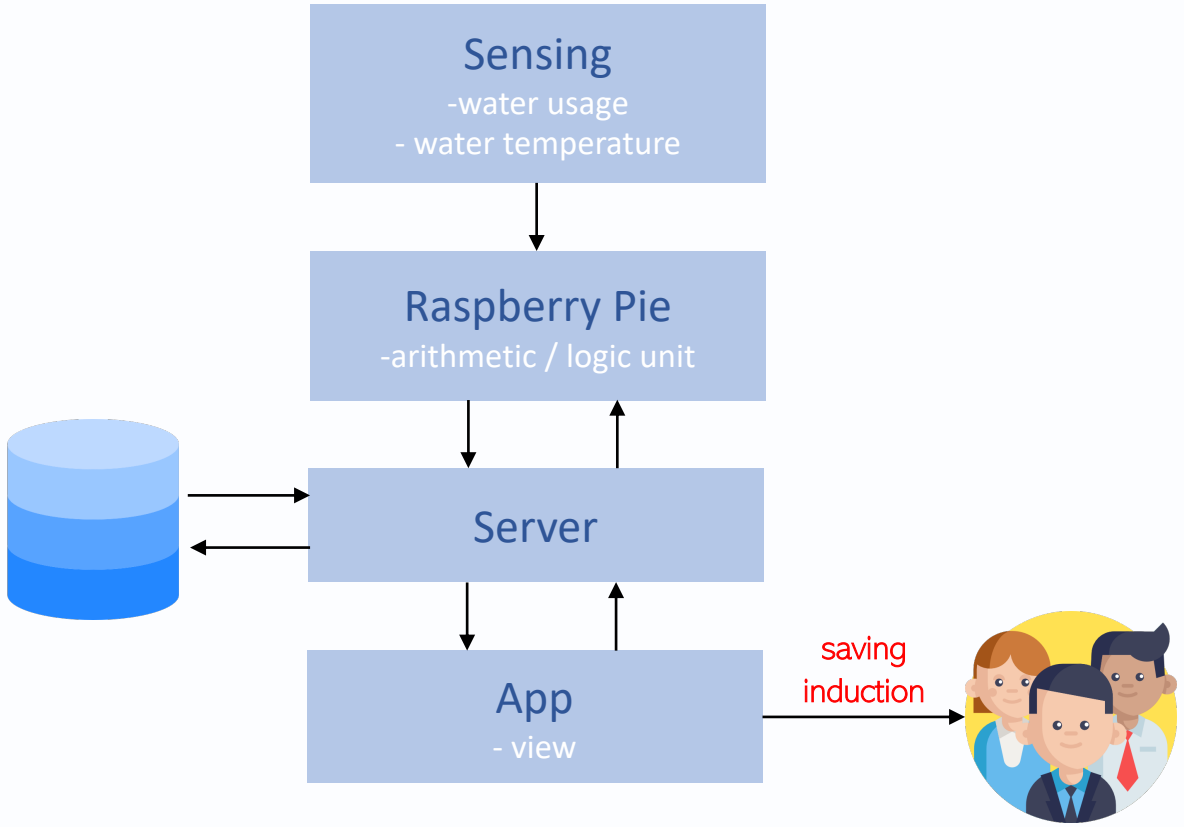
Connection creates bonding and leads to a motivation to the common goal. Like Runday app, where users create network of running crews and mentors, #SHOWER encourages steady efforts. Along with personal data, #SHOWER provides data of the user community, too. The users can check out the water consumption history and approximate saving statistics of the community. The collective green contribution will lead to even more participations and consciousness.

Suggest more saving:

#SHOWER creates a pop-up whenever excessive water usage or wasteful temperature happens. Other than the amount, it collects and notifies the water temperature data, and suggest a bit cooler shower for less energy consumption. #SHOWER nudges the user to be conscious and challenges them.

3. Technology Design

- How to make 'save come true'



Overview of product design

Sensing

- Flow sensor & temperature sensor collect data of user's water usage and water temperature, live

Raspberry Pie

- Perform arithmetic logical operations with sensing data
- Send data to the server

Server

- Send requested data to the app
- -Store received data in the database

App

- Display data in different forms:
  - Real time water usage and the water temperature as GUI, along with goal achievement chart
  - Water usage analysis as monthly report
  - Other users' statistics and history as diagram
  - And the amount of green contribution as diagram

Database

- Store real-time data from user