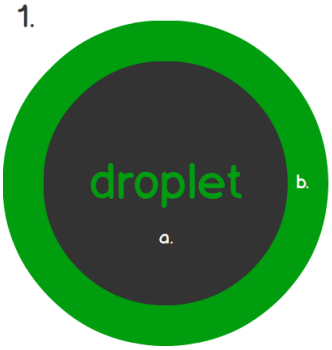
4B: The Droplet water heater system

The Droplet water heater system makes use of the Mental Models of the common household owner in its thermostat-like design. This Mental Model will aid users in using the product. A simple display making use of Iconic Representation to keep the Signal/Noise Ratio low and provide clear and understandable feedback to users.

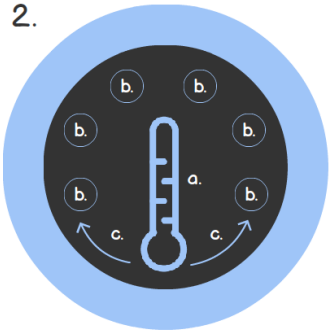
1.



1a. Touch screen. The entire surface of the Droplet system is an interactive touch surface. Touching the screen once will open the main menu. The screen shown here is the "sleep" screen. This screen applies Visability by displaying the text and the outer ring green if the system is performing optimally and red if a problem has been detected.

1b. The outer ring will glow with the color that matches the text in the middle. Either red or green.

2.



2a. The option displayed here is the menu option that the user currently has selected. The user may tap the screen once to choose it.

2b. These are the other options that the user may choose from. To switch between options, the user may flick their finger over one of the arrows on the bottom of the display. Flicking once will move to the next option in that direction.

2c. Arrow indicating how to switch between options.

*The option selected here is to change the upper or lower temperatures.

*The outer ring glows white on this screen

Return to Sleep screen

Sync with phone app

Connect to Wi-fi

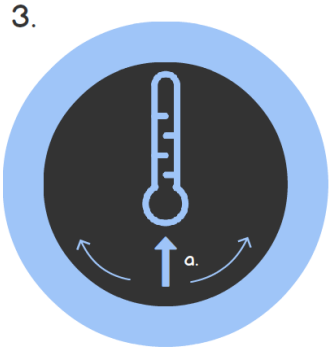
Turn water heater off

Drain water heater*

Check system pressure

*To drain the heater, a Two-Step Confirmation is required. After inputting the drain option here, the user must also press the drain button on the water heater itself.

3.



3a. Users have the option of adjusting either the upper or lower temperature. Users also have the option of returning to the previous screen.

3b. To adjust the temperature, users drag their finger around the outer ring which will slowly fill as they do. This is a instance of Natural Mapping. Starting at the top-center of the ring and going clockwise will raise the temperature and fill the ring with color starting with blue (cold) and transitioning to red (hot) as they progress to the top-center again. Once completely filled, the user cannot raise the temperature anymore. The maximum and minimum temperature are based on the highest and lowest tempreature that can be safely reached.

3c. Numerical temperature display in fahrenheit. Users may switch between fahrenheit and celcius by tapping the letter.

4.

The Droplet system detects three types of problems. Leaks, pressure spikes or drops, and loose valves. When a problem is detected, the system will display the "!" screen and glow red. When the screen is touched, the specific problem detected will be displayed using the graphic representation, clearly informing the user of the problem.

Water Leak

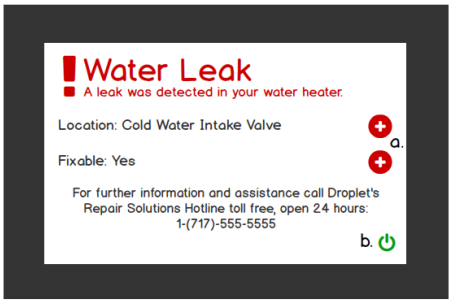
Pressure Spike/Drop

Loose Valve

After touching the screen again, the user will be asked if they would like to turn their heater off for repairs. The user may switch between yes and no with the arrows. This is a form of Confirmation.

If the user selects no, the system will return to normal, except the outer ring will remain glowing red until the problem is no longer detected.

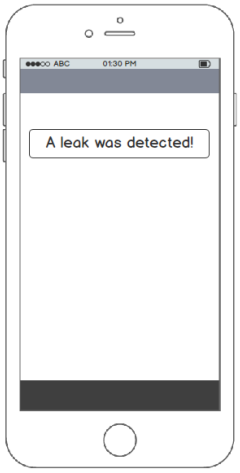
If the user selects yes and turns the heater off, the wall mount will dim and display a faded power button until pressed again to turn the heater back on.



When the user chooses to turn off the system, the display on the water heater will remain on, displaying a detailed account of the problem, where it took place, and if it's easily fixed. The hotline of the heater's company will be displayed if the user has any questions on repairs.

4a. The top button will open a screen that displays a diagram of the exact location the leak was detected. The bottom button will open a screen listing possible solutions to the problem.

4b. A manual power button that will turn the heater back on.



When a problem is detected, the user will recieve a notification on any device that has downloaded the Droplet app and has been synchronized with the wall mount.

Through the app, the user may remotely monitor the system and power the system down in case of a problem. When they choose to power the system down from the app, similar to the wall mount, the app will "shut down" leaving only the option to contact the Repair Solutions Hotline until the heater is powered back on.