Smart Faucet – project description:

Our project is to control the temperature of a faucet in a contactless way using Bluetooth Low Energy technology. This avoids getting in contact with the germs and bacteria on the faucet in public places like restaurants, public toilets, hotels, party halls etc. There are several contactless faucets already available in the market, but they don't adjust the temperature of water according to a user's preference. This would be very uncomfortable for the user. Our project on the other hand, will be a convenient and safest way of washing hands with preferred water temperature.

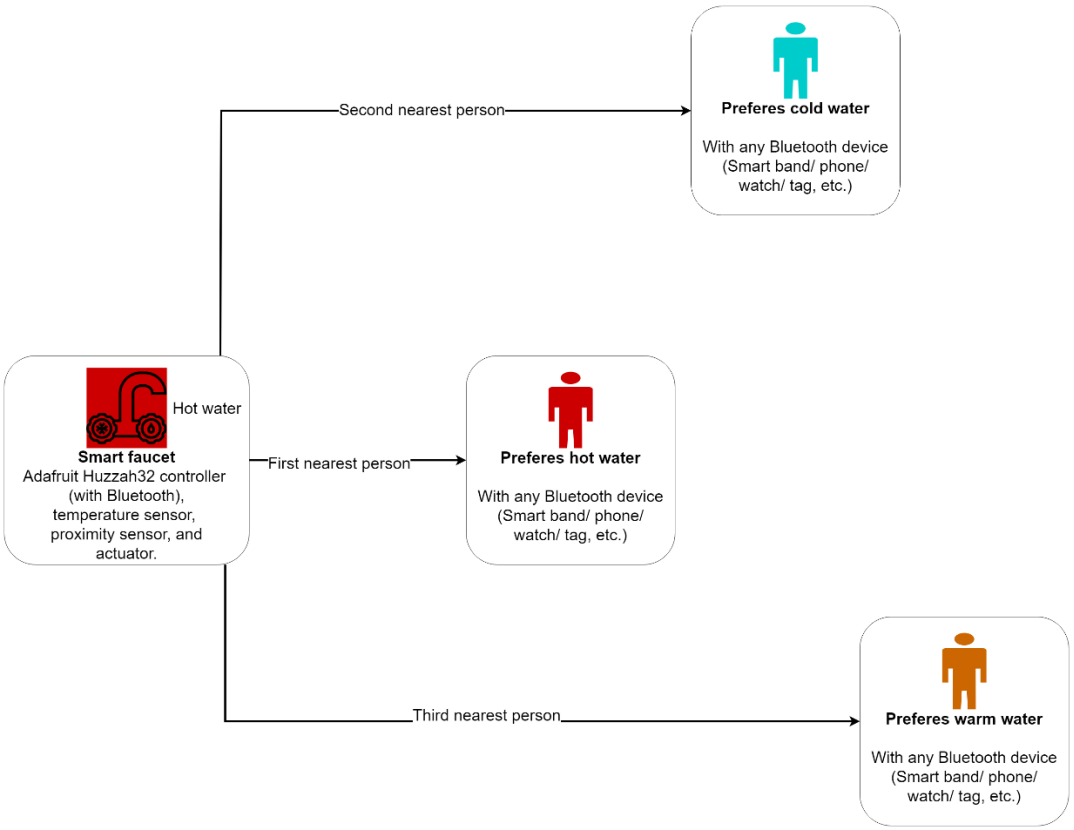
The Smart Faucet project consist of the following components,

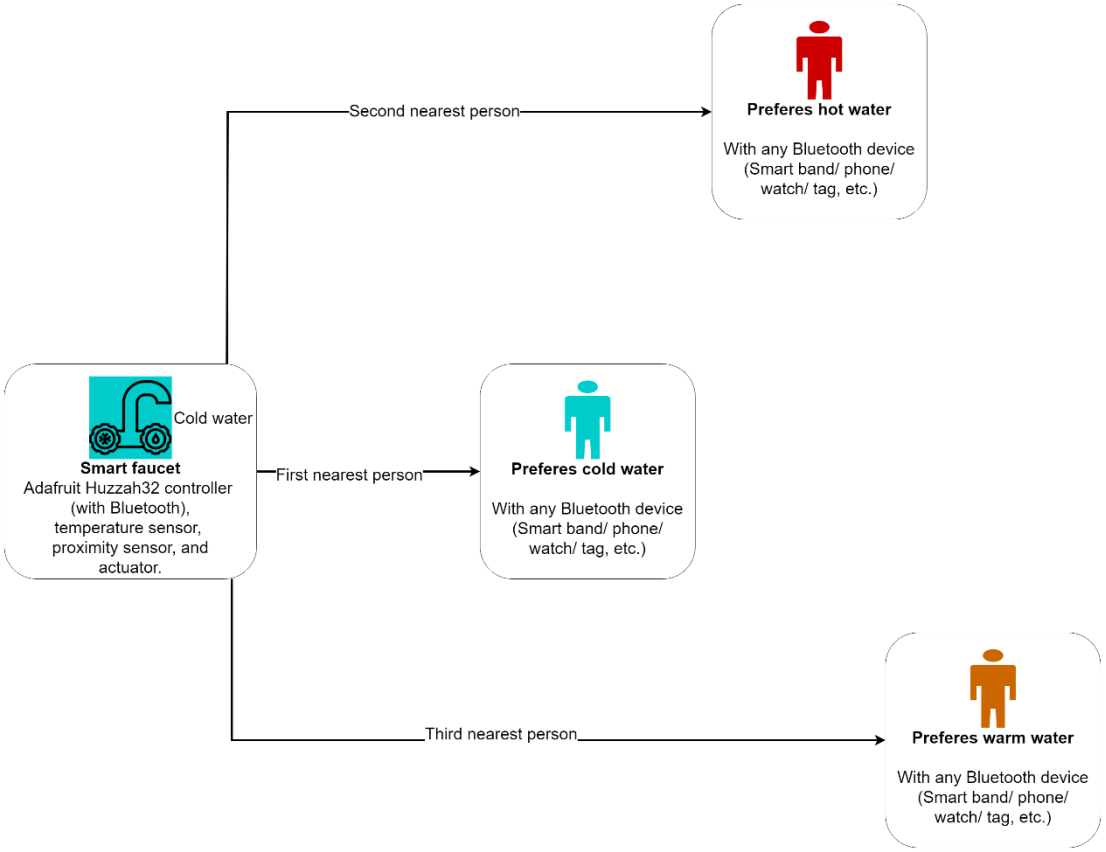
1. A waterprooff temperature sensor to measure temperature of the water.
2. An Adafruit Huzzah32 controller (Bluetooth Low Energy) to detect the nearest person.
3. A mechanical actuator to actuate the hot and cold water valve in the faucet.
4. A proximity sensor to trigger the water flow.
5. Any Bluetooth device for the user to set his/her water temperature preference (e.g. smart band/ phone/ watch/ tag, etc).

Working:

The Smart Faucet detects the first nearest person to it with the help of Bluetooth Low Energy technology. The nearest person would have the preferred temperature value stored in his Bluetooth device (for e.g. smart phone, band, tag etc.). The faucet reads the temperature value from that Bluetooth device and then adjusts the hot and cold valves in it to give the water with preferred temperature. The proximity sensor is to trigger the water flow.

Block diagrams:




Second nearest person
Preferes hot water
With any Bluetooth device (Smart band/ phone/ watch/ tag, etc.)
Cold water
Smart faucet
Adafruit Huzzah32 controller (with Bluetooth), temperature sensor, proximity sensor, and actuator.
First nearest person
Preferes cold water
With any Bluetooth device (Smart band/ phone/ watch/ tag, etc.)
Third nearest person
Preferes warm water
With any Bluetooth device (Smart band/ phone/ watch/ tag, etc.)