**Microcontroller selection:**

We have decided to use the Blue Gecko (EFR32BG13) as our Wireless SoC for this project. This provides various sleep modes (EM0 to EM4) and has a Bluetooth Low Energy stack. Furthermore, this Silicon Labs chip has a versatile development board that would help us prototype our product before sending it for production. The Silicon Labs IDE, Simplicity Studio, also provides an Energy Profiler which would greatly help with monitoring the various energy modes that our implementation is in and would give insight on how to reduce the energy consumption.

Datasheet link - <https://www.silabs.com/documents/public/data-sheets/efr32bg13-datasheet.pdf>

Dev kit link - <https://www.silabs.com/products/development-tools/wireless/bluetooth/blue-gecko-bluetooth-low-energy-soc-starter-kit>

**Sensors:**

**MMA8452q Accelerometer:**

To detect if the user is drinking or pouring the water

SparkFun link - <https://www.sparkfun.com/products/12756>

**FDC1004 Capacitance Sensor:**

2 strips of copper are to be stuck on the outside of the water bottle and the capacitance between the 2 strips is measured using FDC1004. Link to reference project - <https://www.hackster.io/team-protocentral/non-contact-capacitive-liquid-level-sensing-using-fdc1004-9333c7>.

SparkFun copper tape link - <https://www.sparkfun.com/products/10561>

FDC1004 Breakout board links - <https://www.digikey.com/products/en?mpart=FDC1004EVM&v=296>, <https://www.protocentral.com/gasliquid/1082-fdc1004-capacitance-converter-breakout-board-0642078949616.html>

**Temperature sensor:**

The temperature sensor is going to be used to measure the temperature of the water in the bottle. The temperature is stuck to the bottom of the water bottle on the outside. We plan to use the Si7021 sensor as our temperature sensor.

Si7021 datasheet - <https://www.silabs.com/documents/public/data-sheets/Si7021-A20.pdf>

Si7021 breakout board - <https://www.sparkfun.com/products/13763>