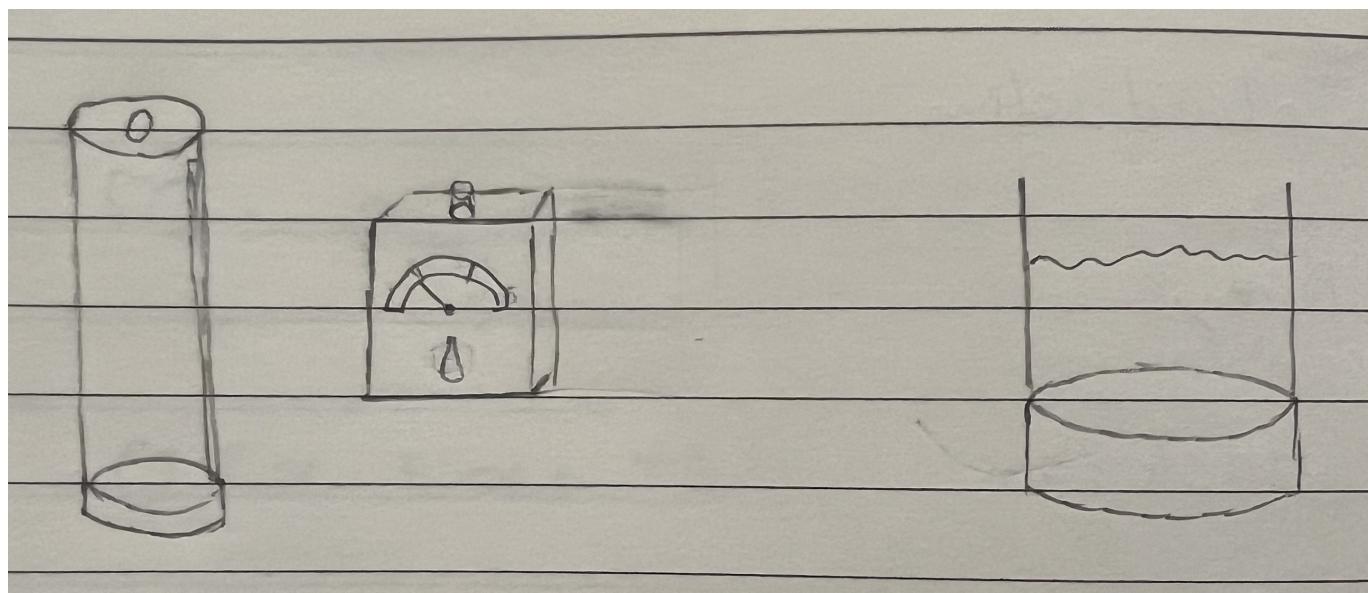


Hydration Tracker (Sensor + Display)

The goal of this product is to track how much water a user drink in a day. The sensor device would be a smaller puck that can be attached to the bottom of a water bottle to measure the weight of the content of the bottle. The display device would be a box where the gauge will measure if the user reach daily hydration goal.

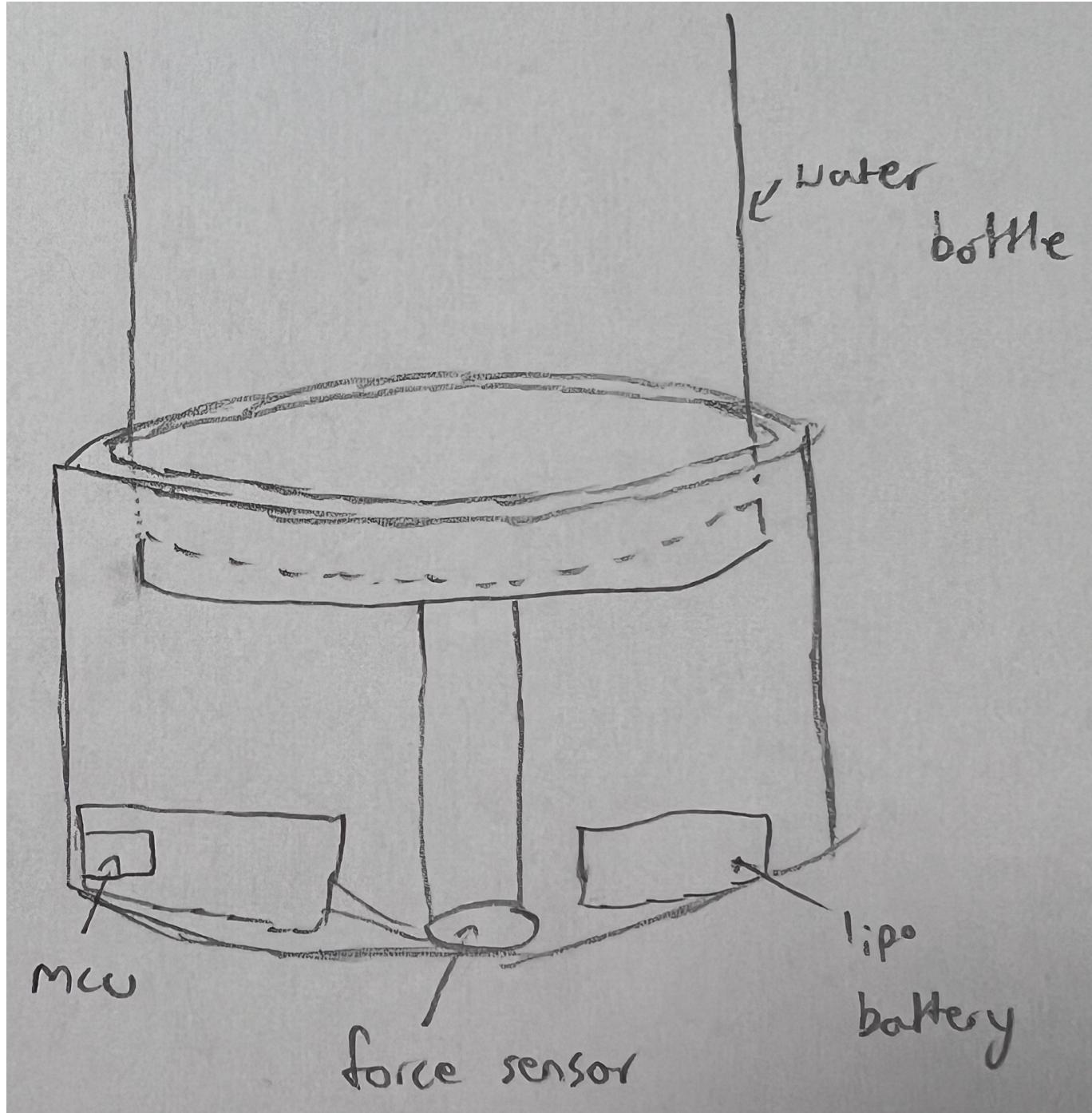
Overall form factor (concept sketch):

- **Sensor device:** coaster-sized puck attached under bottle (weight sensing + BLE)
- **Display device:** small desktop box with a water-drop window and NeoPixel gradient + top button



The look and form factor of the product

Slide 2 — Sensor device (weight + BLE)



The look and form factor of the Sensor device

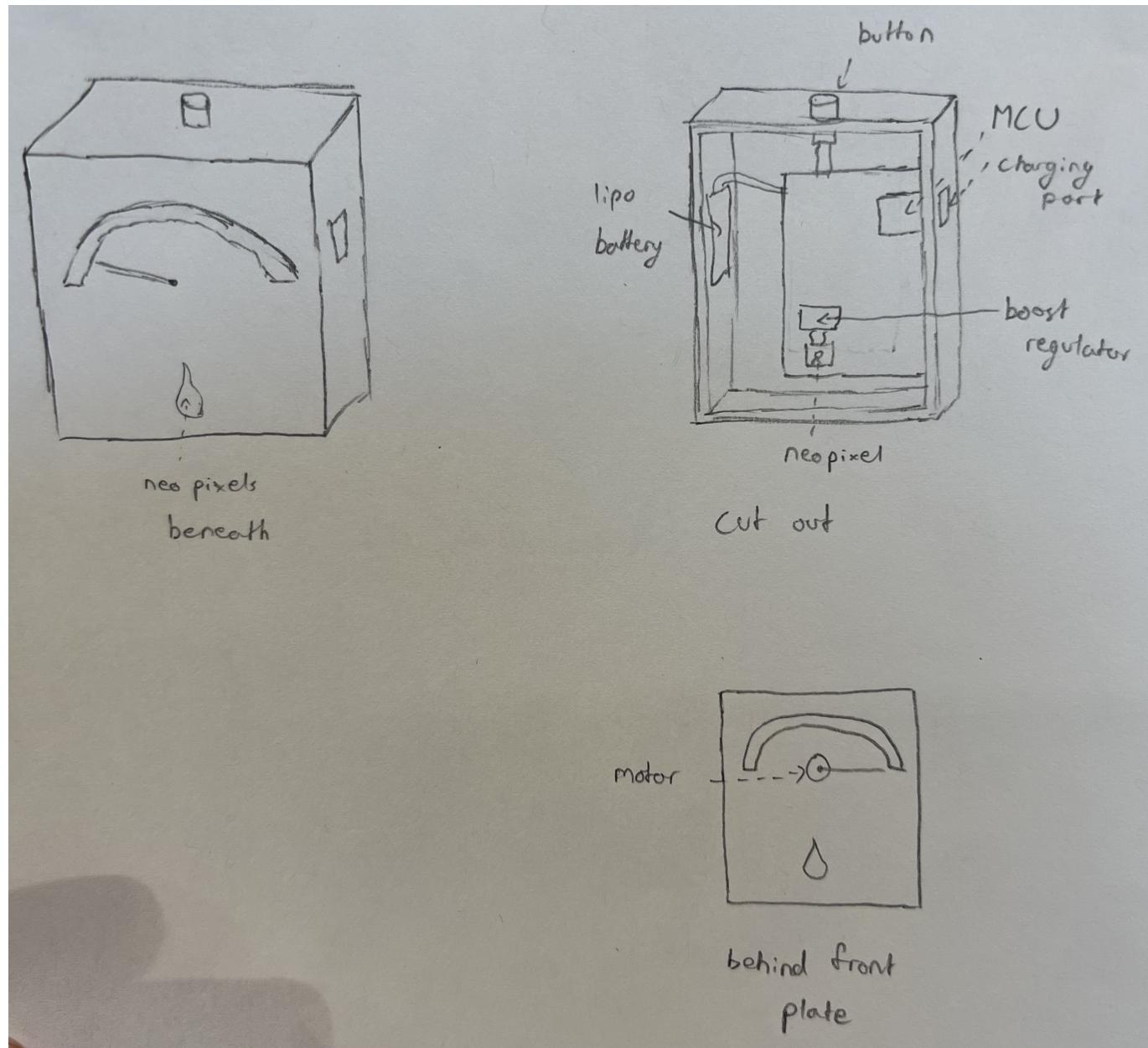
How it works

- The sensor device measures bottle weight using a **force sensor**.
- The **ESP32-C3** reads the digitized force, filters noise, computes weight delta (consumed water), and save the data.
- It then sends updates to the display using **Bluetooth Low Energy (BLE)** when it's connected.

Key parts (with part numbers)

- **Force sensor:** UNEO GHF-10 flat membrane resistive force sensor
- **MCU:** ESP32C3
- **Battery:** Lipo Battery

Slide 3 – Display device (NeoPixel gauge + Wi-Fi + button)



The look and form factor of the display device

How it works

- The display device runs an **ESP32C3** that:
 1. Connects to the sensor over **BLE** to receive weight/consumption updates
 2. Move the **motor** to reflect current consumption toward daily goal
 3. Updates the **NeoPixel** gauge behind a water-drop window (green→yellow→red)
 4. Syncs daily usage to the cloud over **Wi-Fi**
 5. Holding the **top button** will tare/calibrate the sensor for an empty bottle

Key parts (with part numbers)

- **MCU:** [ESP32C3](#)
- **LED gauge:** [XL-5050RGBC-WS2812B](#)
- **Battery:** [Lipo Battery](#)
- **Boost regulator:** [TPS61023](#)

- **Button:** PTS636
 - **Motor:** 28BYJ-48 – 5V Stepper Motor
-

Slide 4 – Communication + system flow (2 figures)

Figure A: Device communication (block diagram)

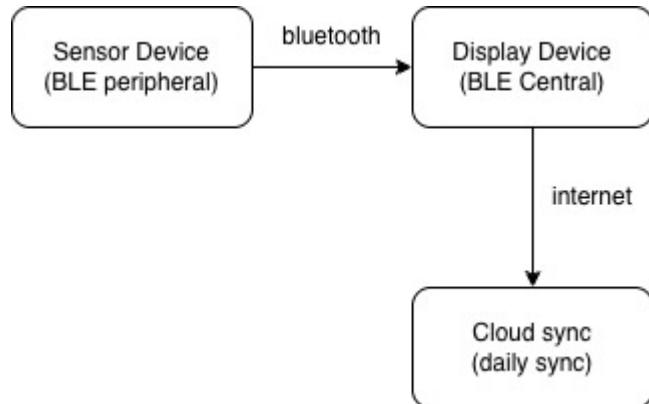


Diagram displaying how the device communicates

Figure B: Detailed data flow (how the system works)

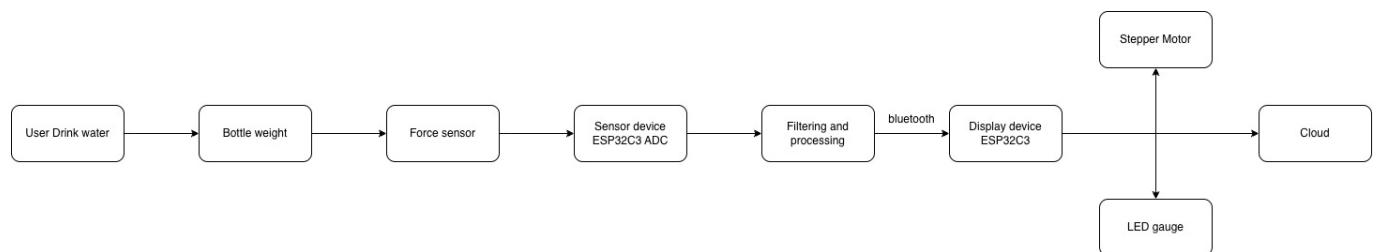


Diagram displaying how the data flows in the system

Repo structure

- **README.md**
- **images/**
- **datasheets/**
 - (PDFs for each part)