REPORT WEEK (10/20/2023)

In this week's update, we focused on calculating the power requirements for our project, considering both the sleep mode and normal mode. These calculations were a crucial step in ensuring our device's energy efficiency. We determined the power consumption per day and analysed how different operating modes would impact the overall power usage.

Moving forward, our plan is to prioritize prototyping the previous version of our device. We aim to get it up and running by the end of this week, which will allow us to conduct practical tests and further refine our design.

Normal Mode : 100 mA with Wifi.
Light Sleep : 2 mA no Wifi.
Deep sleep : 100 μA.
} This are peaks.

Now considering :

A cart operates 7 days a week. (no weekends).

Each day

12 hr working hr.

12 hr Non working hr.
(100 μA).

On an avg 15 min * 4 shifts. = 1 hr.
(100 mA)

Energy
~~Current~~ consumption by board in 24 hr:

$$\underbrace{100 \times 10^{-3} \times 1 \times 60 \times 60 \times 3.3}_{\text{when in use.}} + \underbrace{100 \times 10^{-6} \times 23 \times 60 \times 60 \times 3.3}_{\text{when ideal.}}$$

$$= 100 \times 10^{-3} \times 60 \times 60 \times 3.3 \left(1 + 23 \times 10^{-3}\right)$$

$$\simeq 6 \times 6 \times 33 \left(1.023\right) = 1215.324 \text{ J.}$$

Now getting Amph consumed per day:

$$= \frac{1215.324}{60 \times 60 \times 3.3} = 0.1023 \text{ Ah consumption a day.}$$

$$= 102.3 \text{ mAh consumption } \text{" "}.$$

So,

Approx → 100 mAh a day

So for a week we will need a battery :

7 days ≡ 7 × 100 ≡ 700 mAh.

* Digikey part no. → 1471-MIKROE-4475-ND

3.7 V — 6 Ah

May last for 50 days