Welcome to the THESIS presentation by Thesis Group 4.

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PROBLEM STATEMENT

Existing emergency alert systems lack inclusivity and personalization, failing to address the diverse needs of individuals, including disabled people, the elderly, and non-disability people, during emergencies
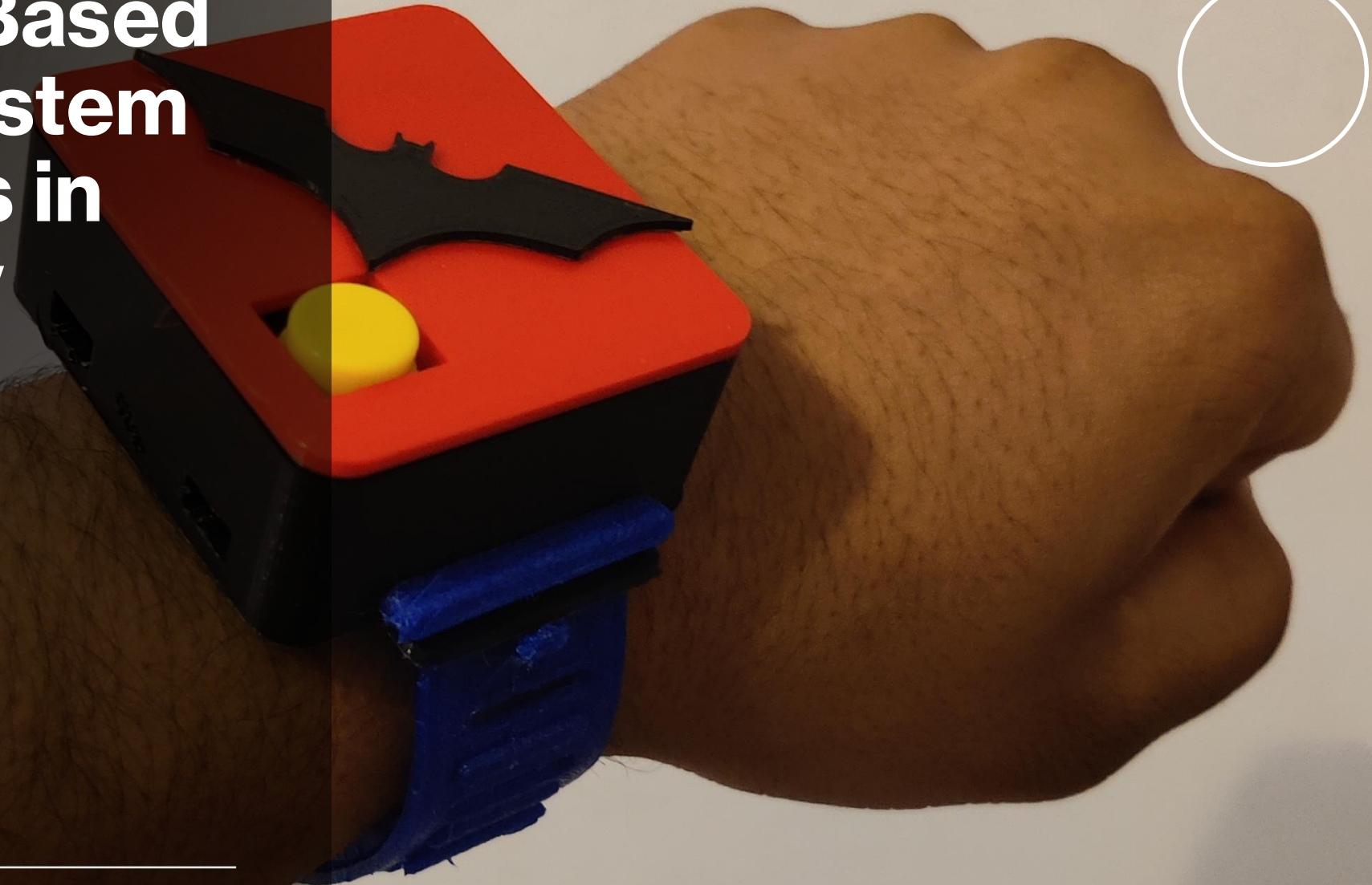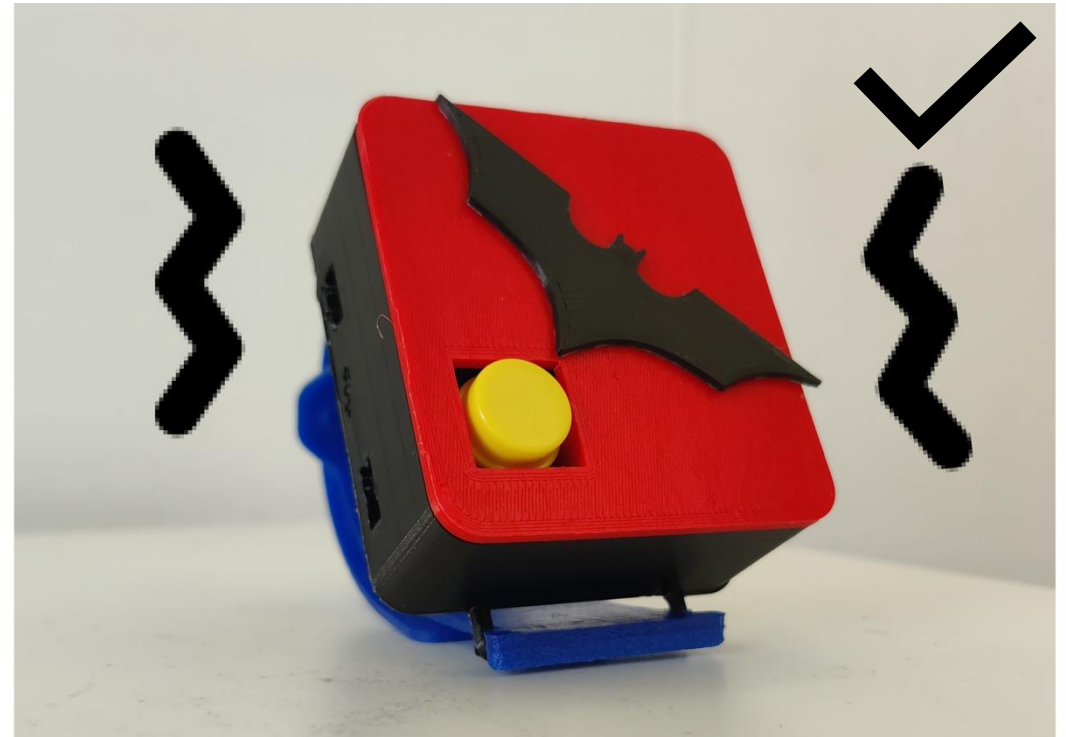
Wearable-Based Alerting System for Humans in Emergency Situations
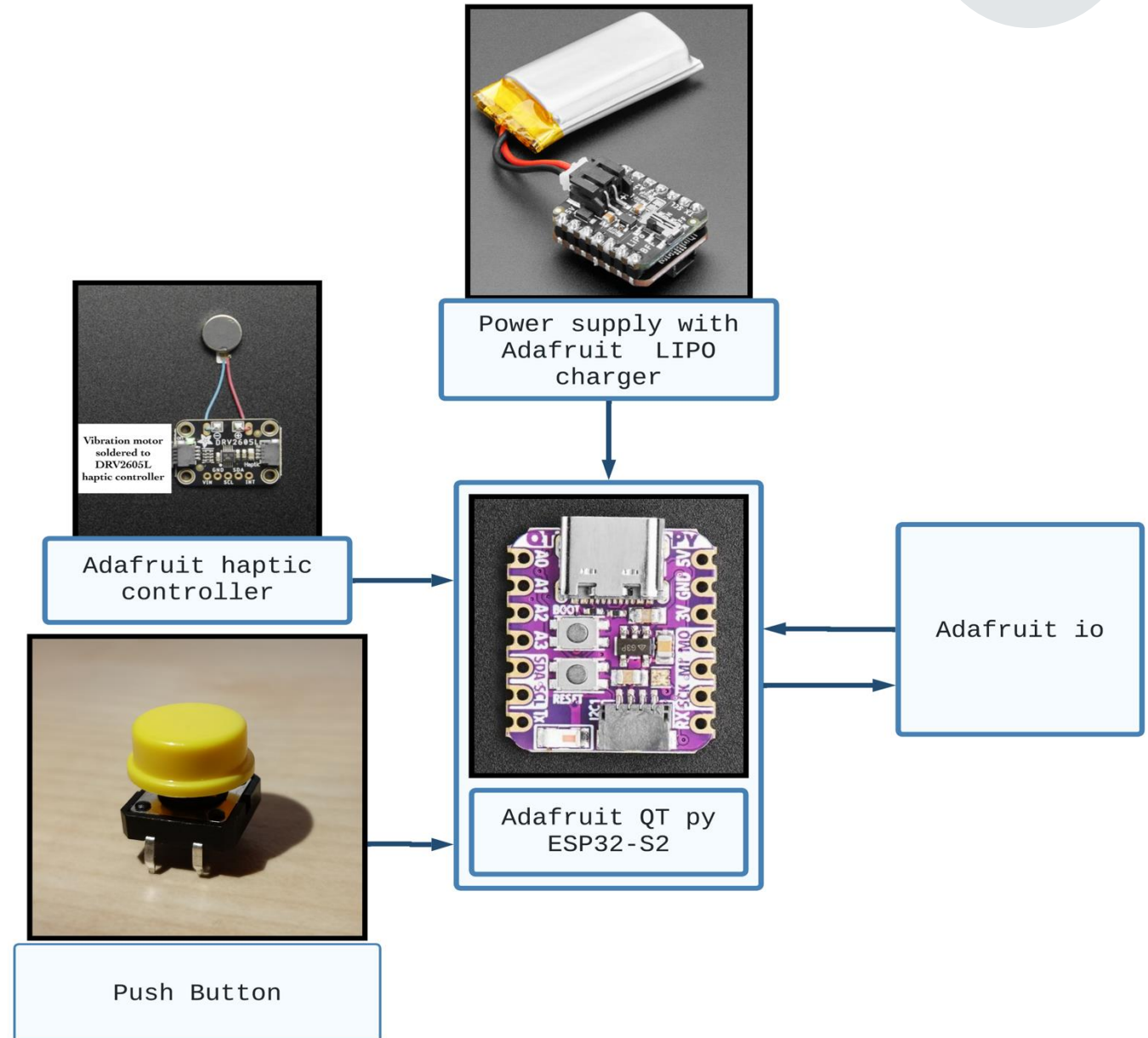
Enhancing inclusivity in emergency situations
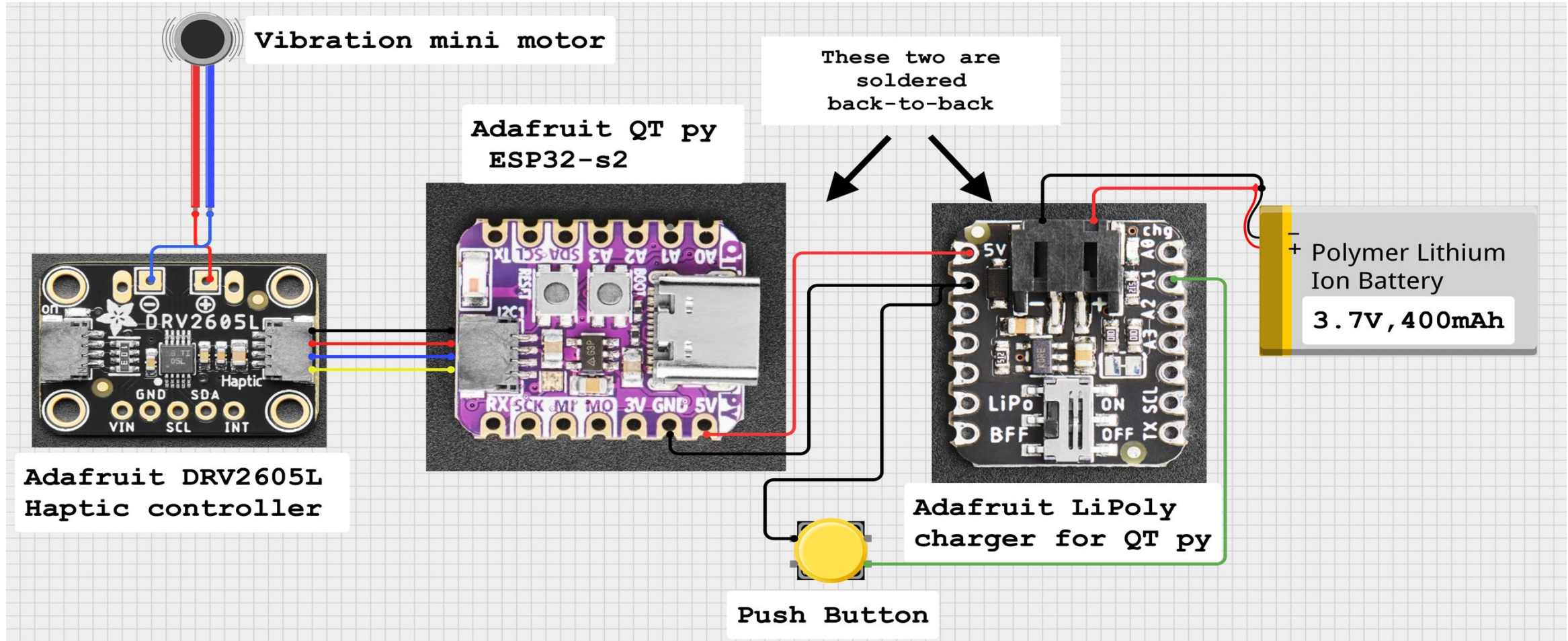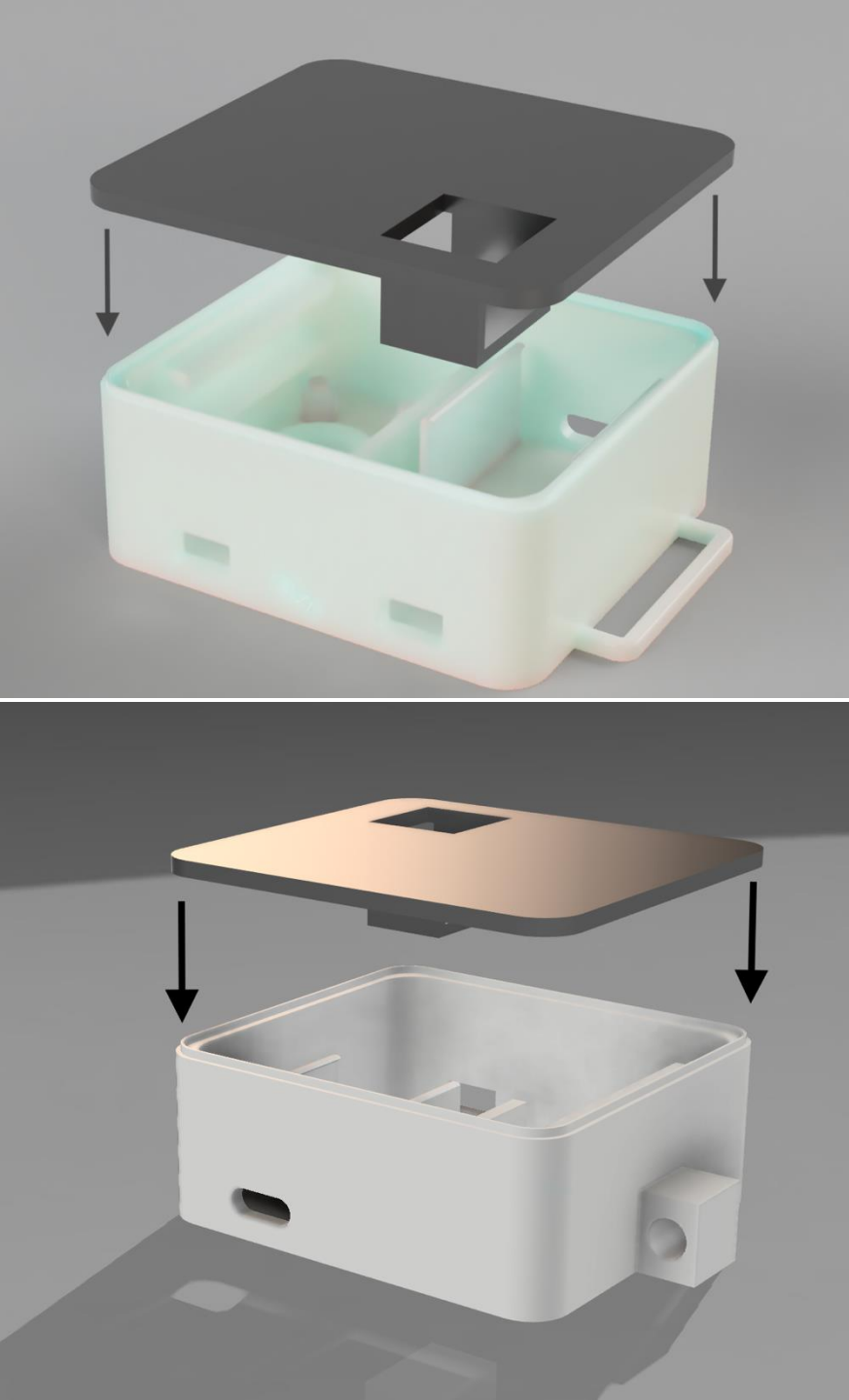
What are we using to alert people?

DESIGNED SYSTEM

Power supply with Adafruit LIPO charger

Adafruit haptic controller

Push Button

Adafruit QT py ESP32-S2

Adafruit io

Hardware Integration

Vibration mini motor

Adafruit QT py ESP32-s2

These two are soldered back-to-back

Polymer Lithium Ion Battery

3.7V,400mAh

Adafruit DRV2605L Haptic controller

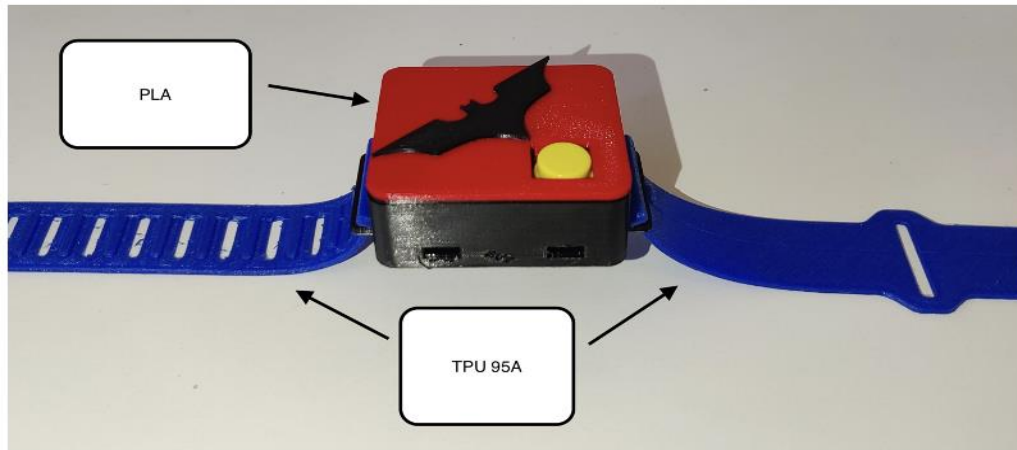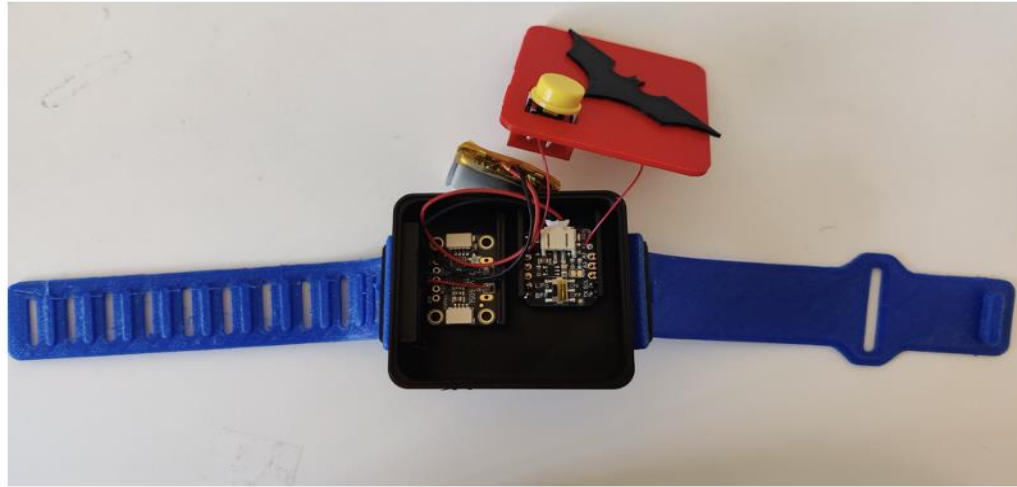Adafruit LiPoly charger for QT py

Push Button

DESIGNED PROTOTYPE

- Fusion 360

- Ultimaker Cura

- Material used

    - PLA (Polylactic Acid)

    - TPU 95A (Thermoplastic Polyurethane)

- PLA used for wearable head

- TPU 95A is used for the straps of the wearable.

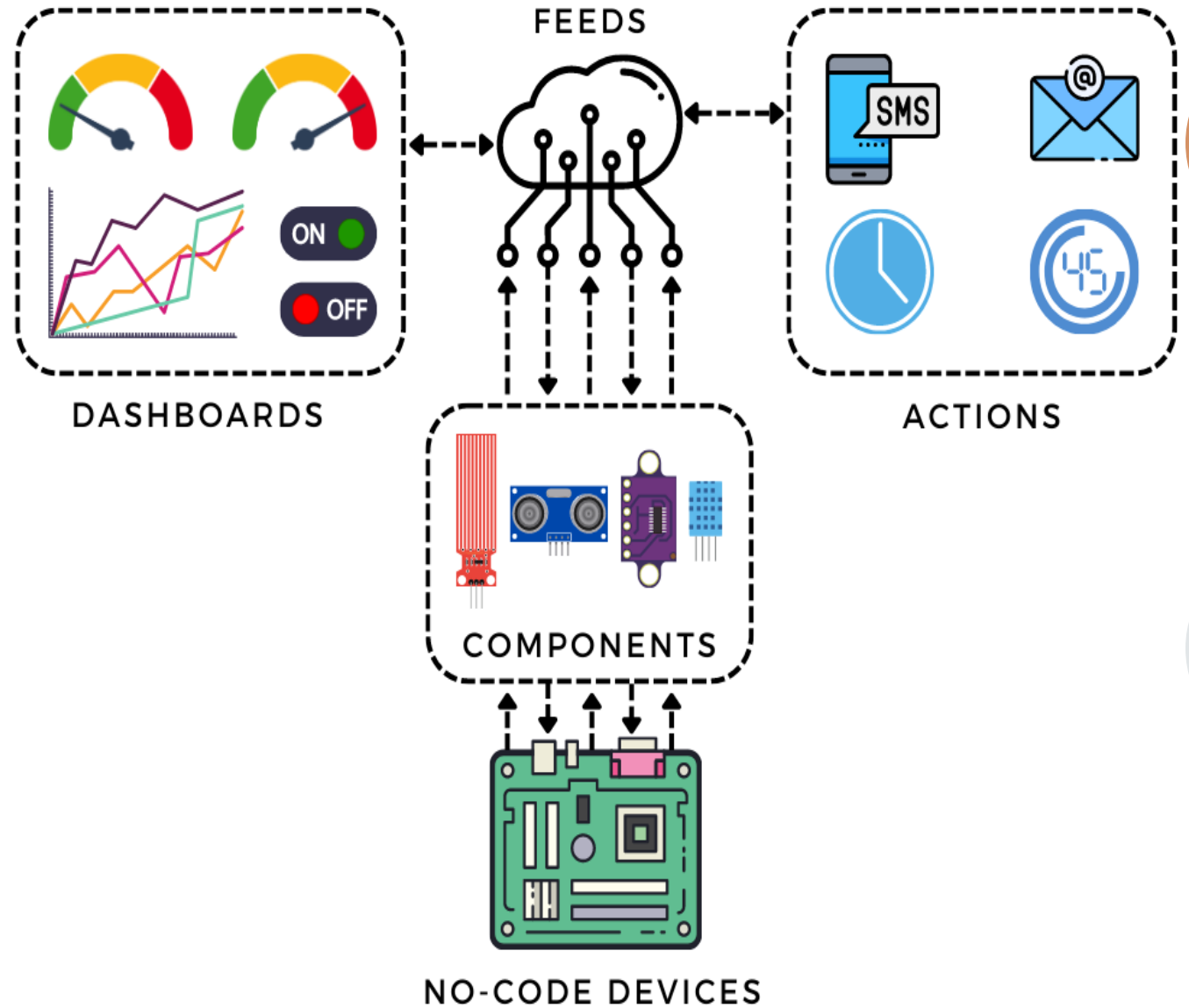# Assembled Prototype

PLA

TPU 95A

SOFTWARE INTEGRATION

Libraries used

- Adafruit_DRV2605.h

- AdafruitIO_WiFi.h

- Bounce2.h

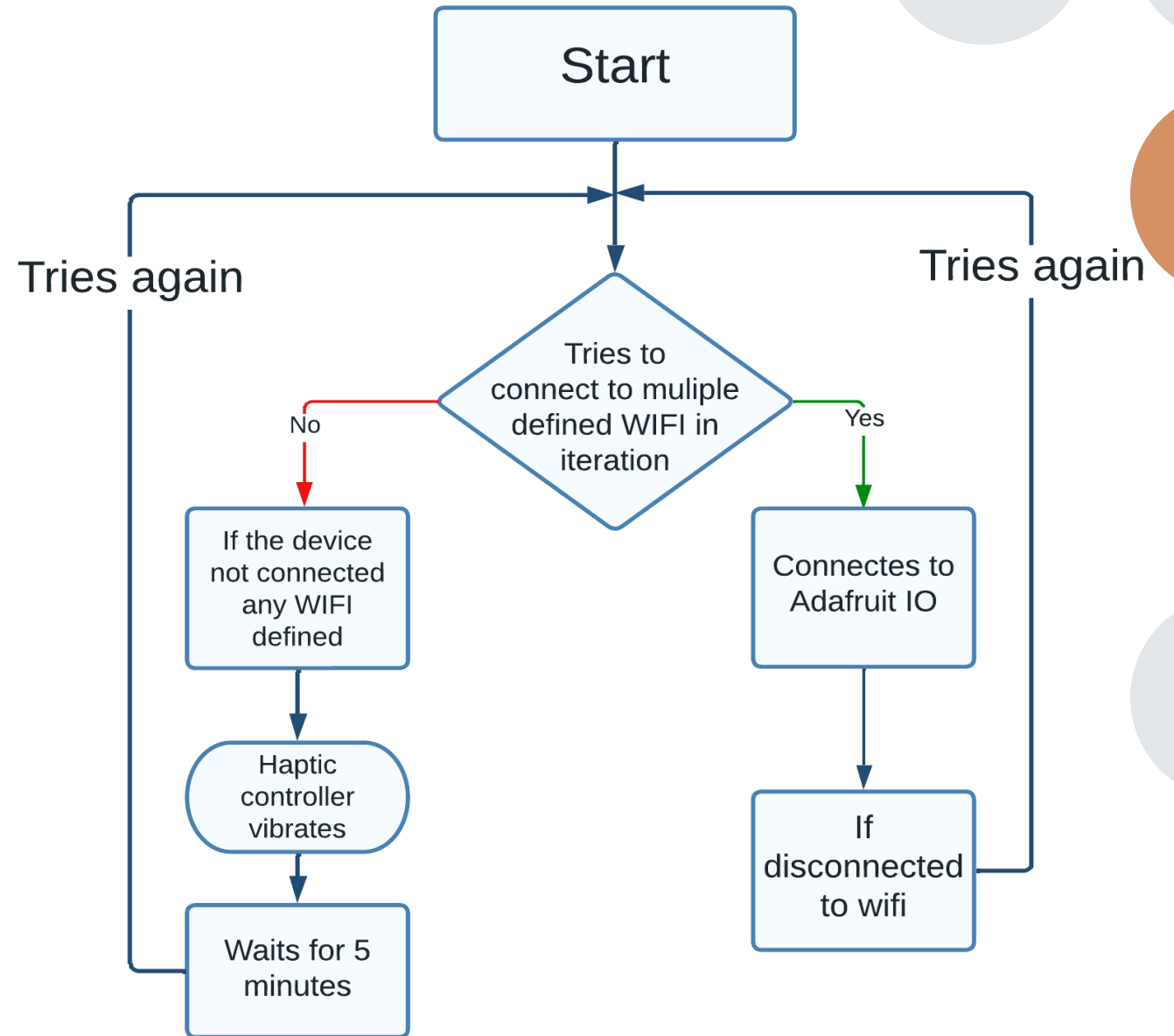- WiFi.h

WHAT IS ADAFRUIT IO?
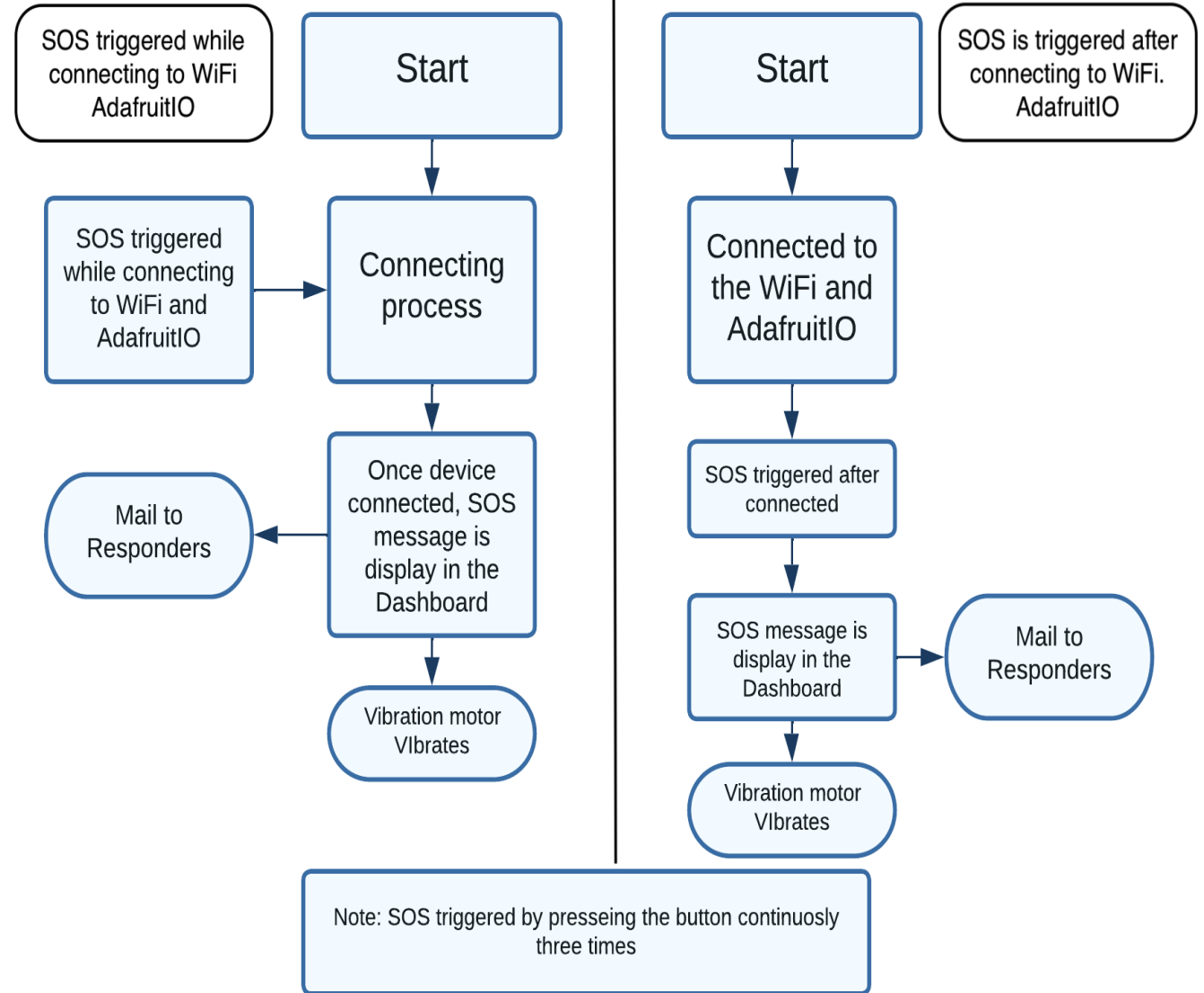
- Feeds
- Dashboard
- Actions

SYSTEM FUNCTIONALITIES

1. DEVICE CONNECTIVITY TO WIFI AND ADAFRUIT IO.

Start

Tries again

Tries again

Tries to connect to muliple defined WIFI in iteration

No

Yes

If the device not connected any WIFI defined

Connectes to Adafruit IO

Haptic controller vibrates

If disconnected to wifi
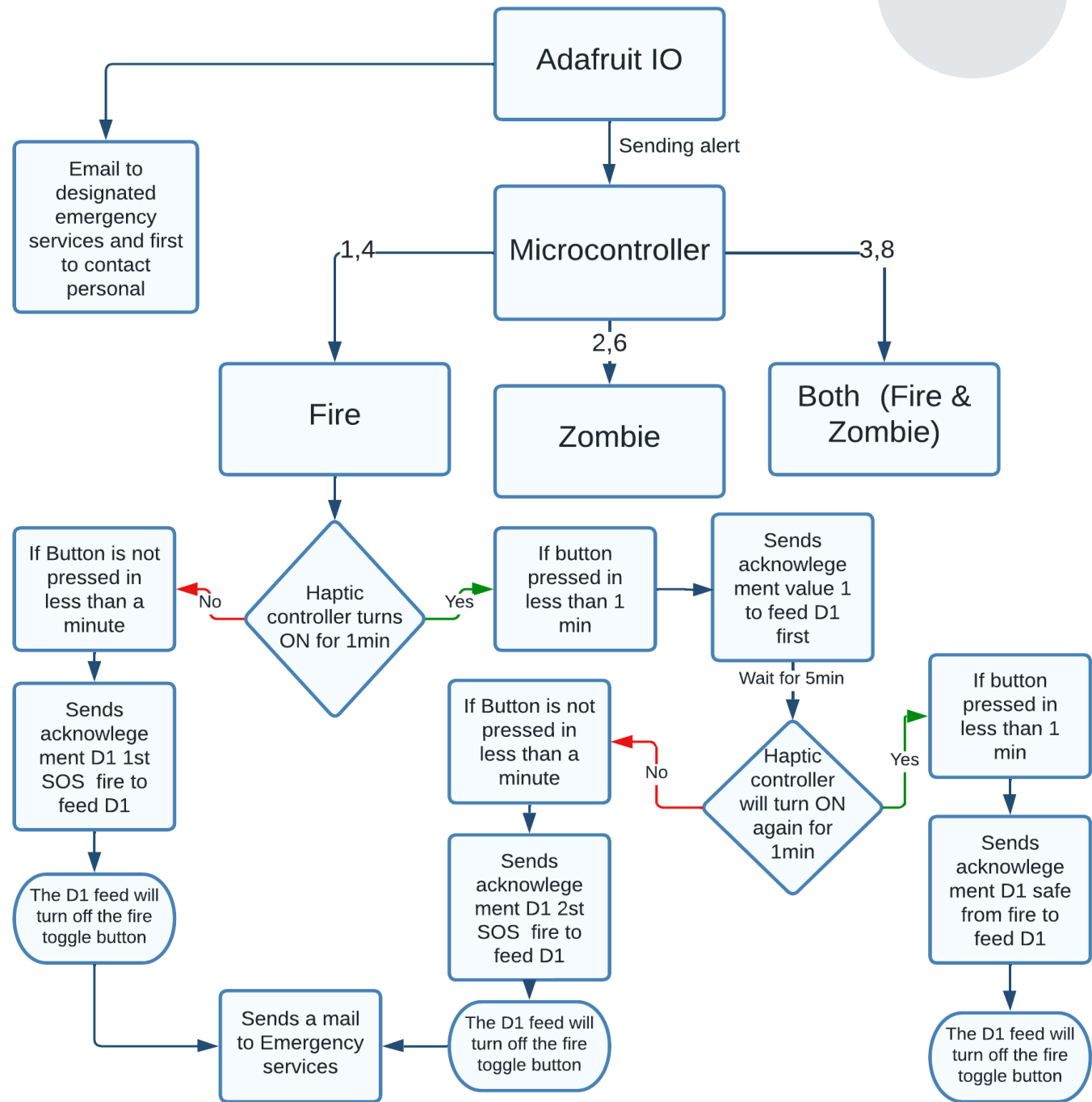
Waits for 5 minutes

2. USER-INITIATED SOS TRANSMISSION FROM THE DEVICE.
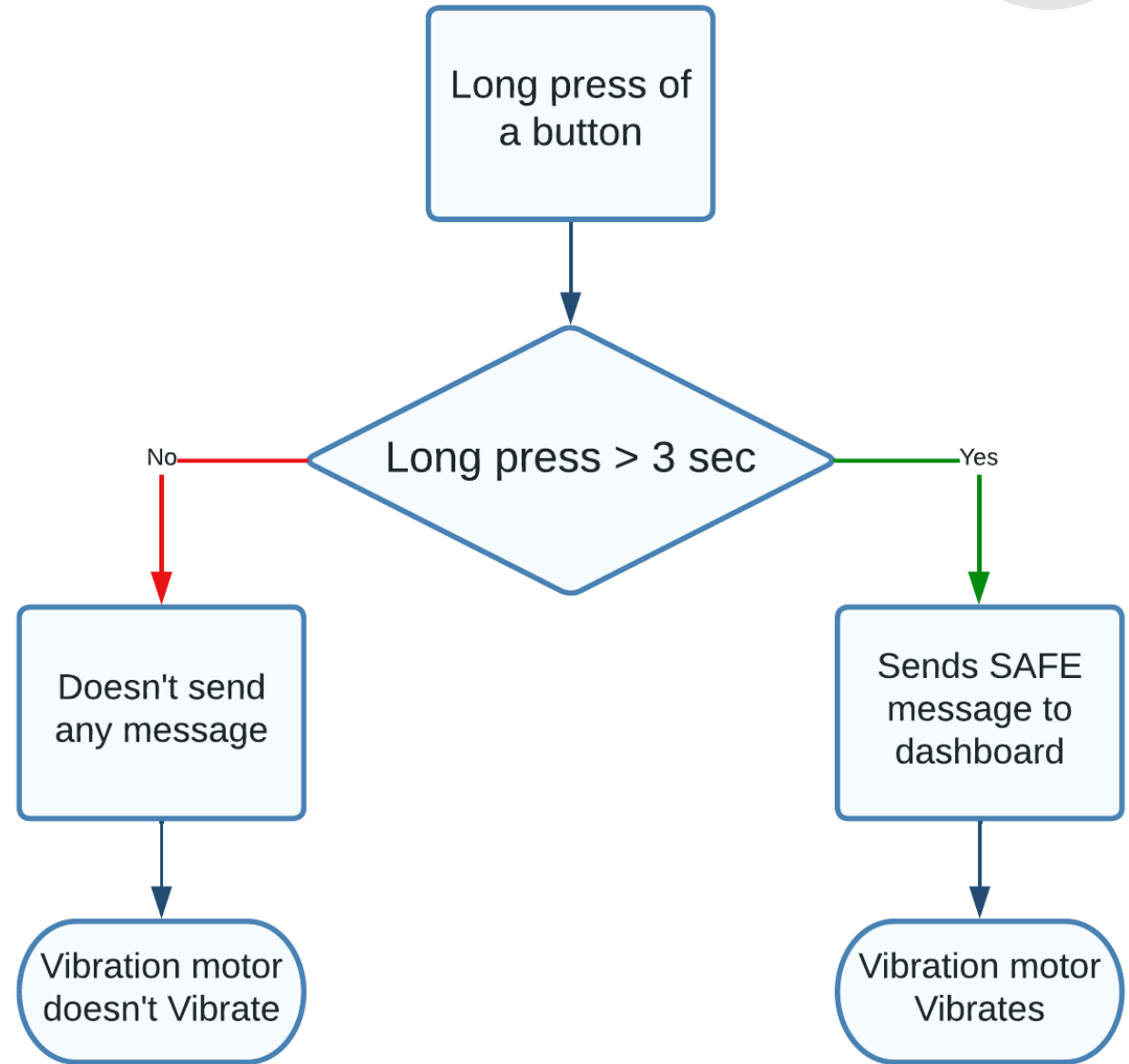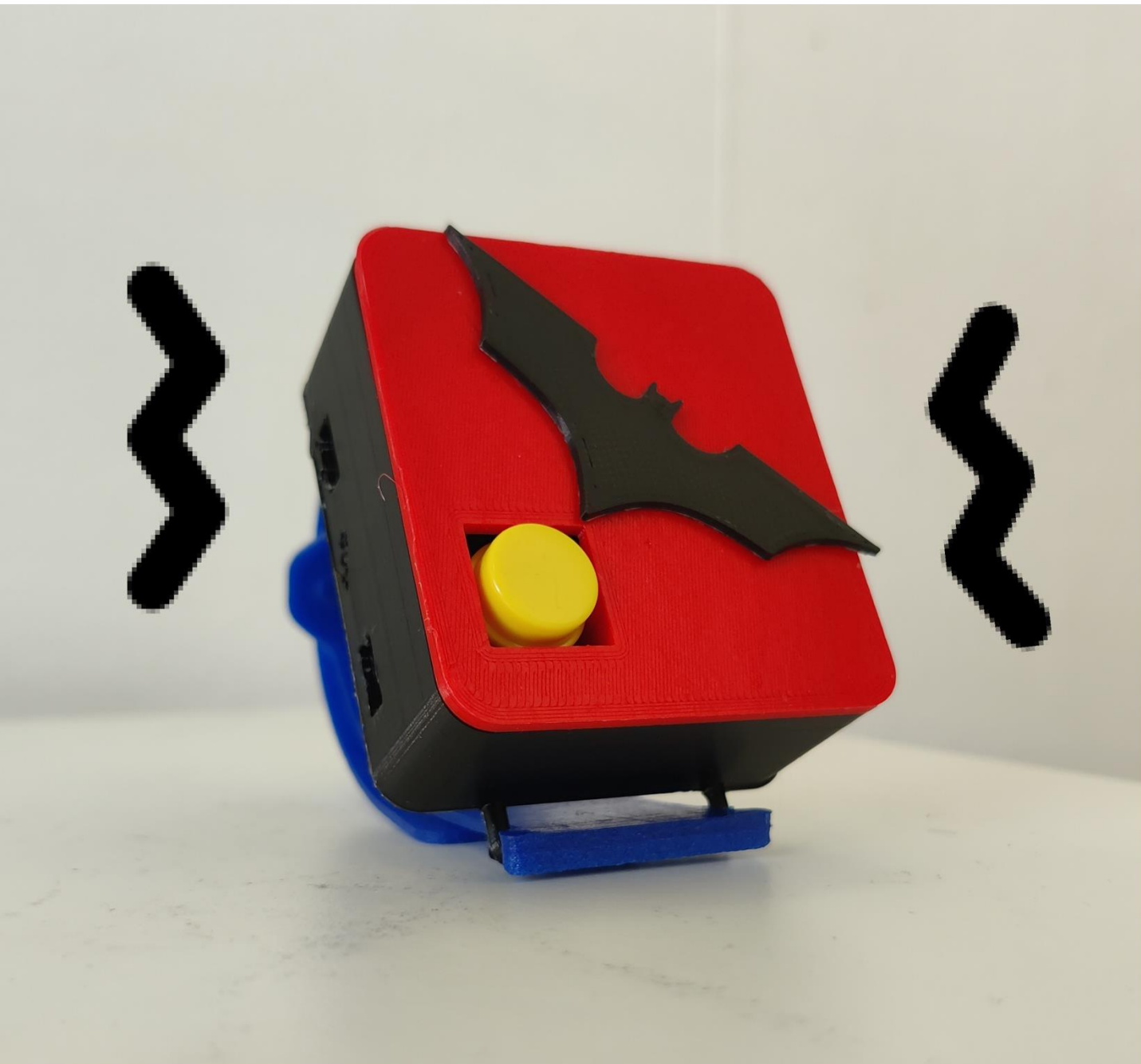
3. Alert transmission from Adafruit IO and reception of an acknowledgement from the user after sending the alert.

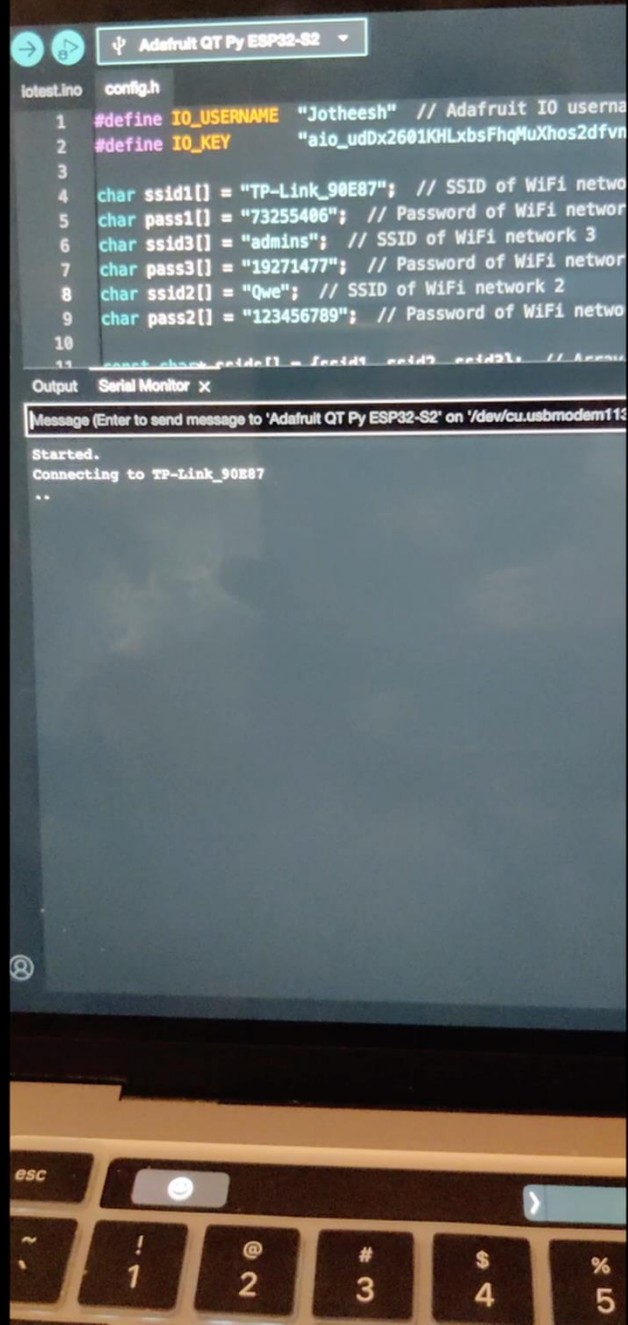# 4. LONG-PRESSING THE BUTTON COMMUNICATES A 'SAFE' MESSAGE TO THE DASHBOARD.

Working Demo

Device trying connecting to WIFI in iteration

RESULTS

The average percentage of alerts recognized by different age groups

Age group	No of people	The average percentage of alerts recognized
$15 <$ Age <21	3	83.33 %
$21 <$ Age <30	7	94.28 %
$31 <$ Age <45	2	85 %
Age >50	5	72 %

SYSTEM LIMITATIONS
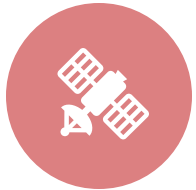
The device is not water-resistant

it cannot receive alerts when it is not connected to a Wi-Fi network.

Web server traffic

Future Work

GPS services.

Health monitoring, including heart rate monitoring, fall detection, and oxygen levels.

Dedicated application for user customization.

Integration of built-in cellular connectivity for Wi-Fi.

Making it more compact.

THANK YOU

"**Fear** is a tool

When the device vibrates

It's not just a **signal**

It's a **warning**"

Questions