

Best Bud Hydration

A man's best friend's best friend





Motivation



Problem

We have a duty of care to our dogs, but no real way to measure their hydration

Impact

Every dog owner and every dog is impacted by this

Solution

Measure it, and do it in a way that does not require any extra effort



State of the Art

- Automated water dispensers
- Refill reminders
- Can track consumption by way of knowing how much water is in the tank to start vs to finish

State of the Art

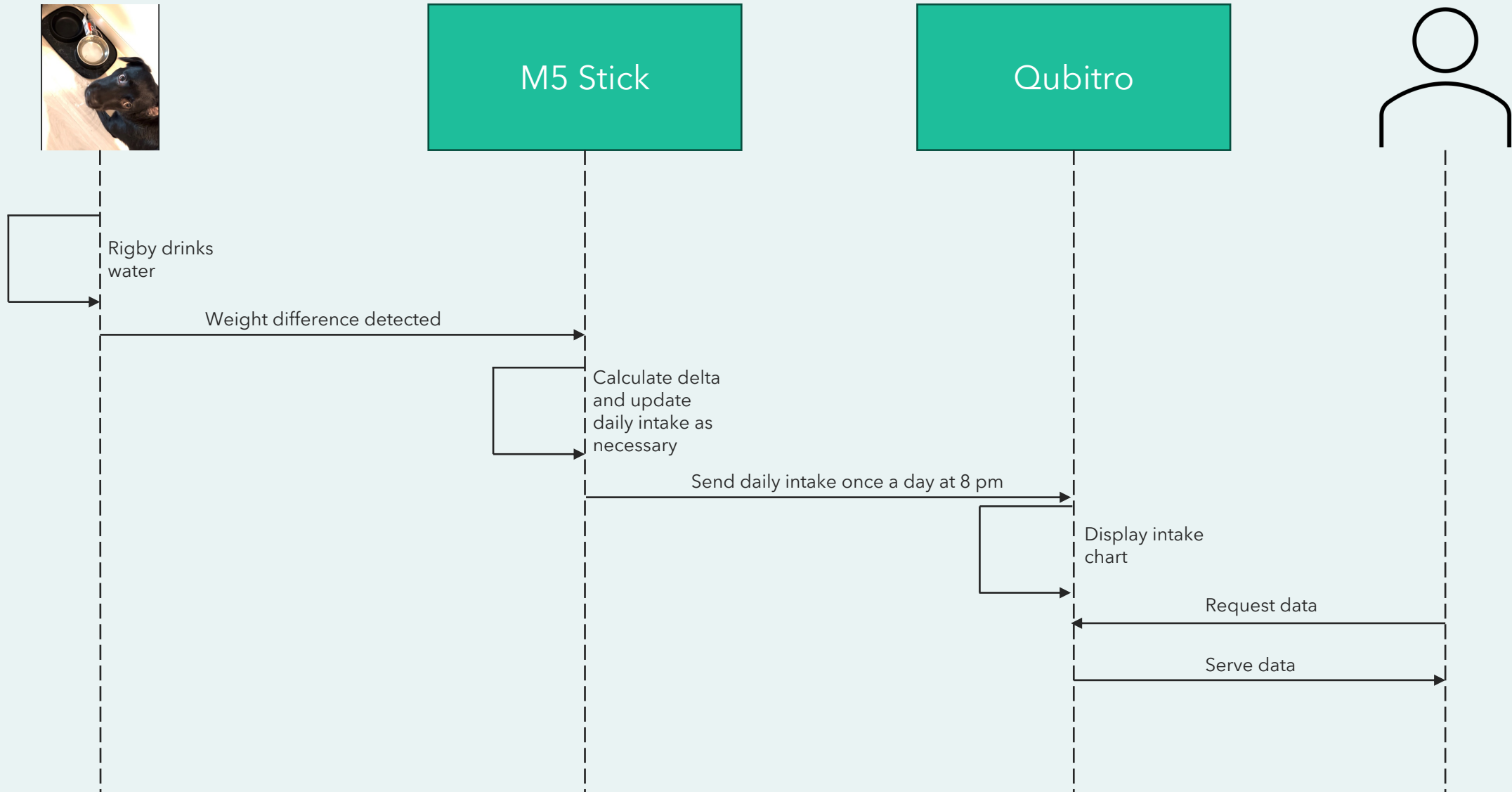
Art

Art

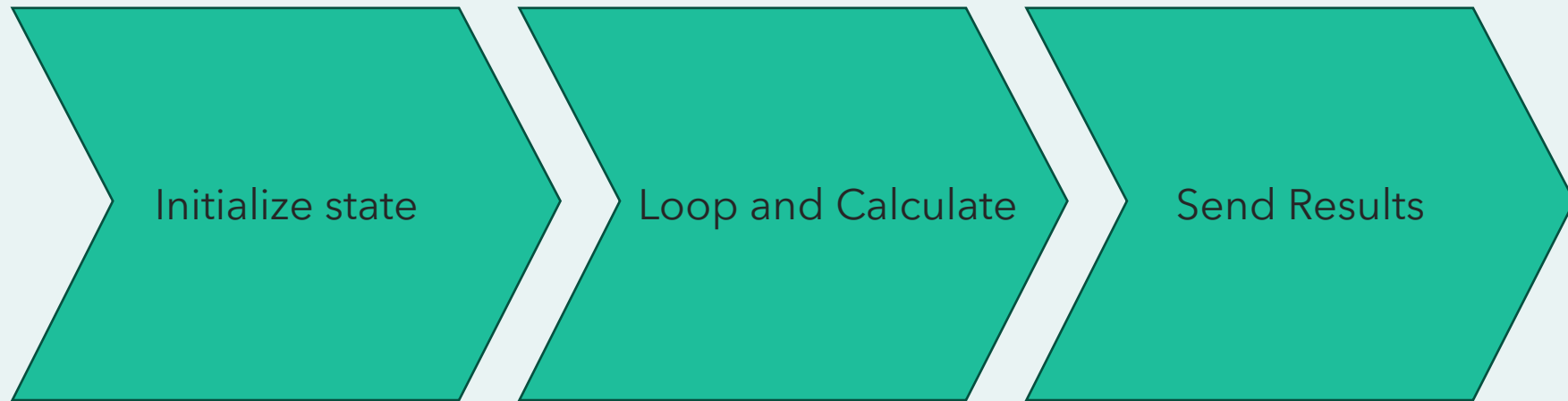
- Good ole fashioned water bowls
- Scales with semi-exposed wiring
- Tape. Lots of tape.
- Automated water consumption calculations

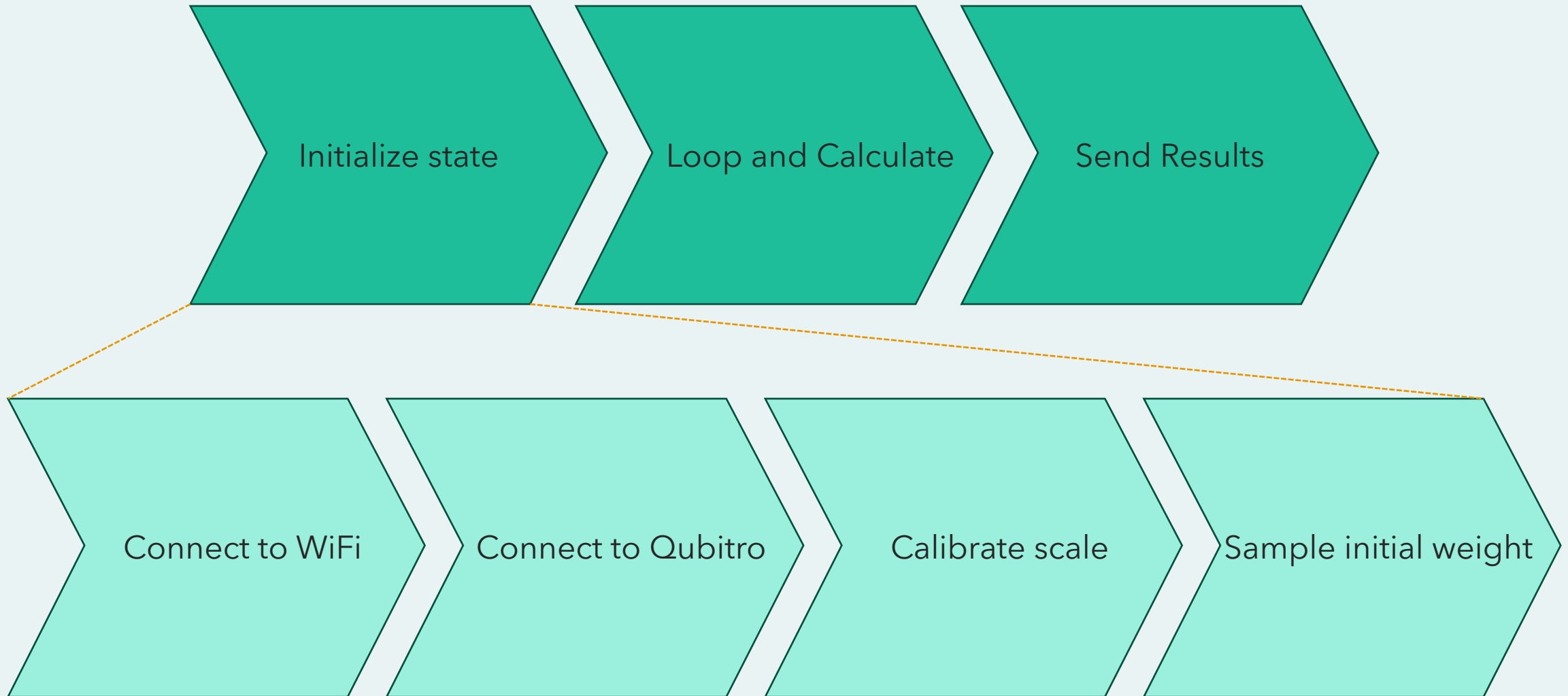


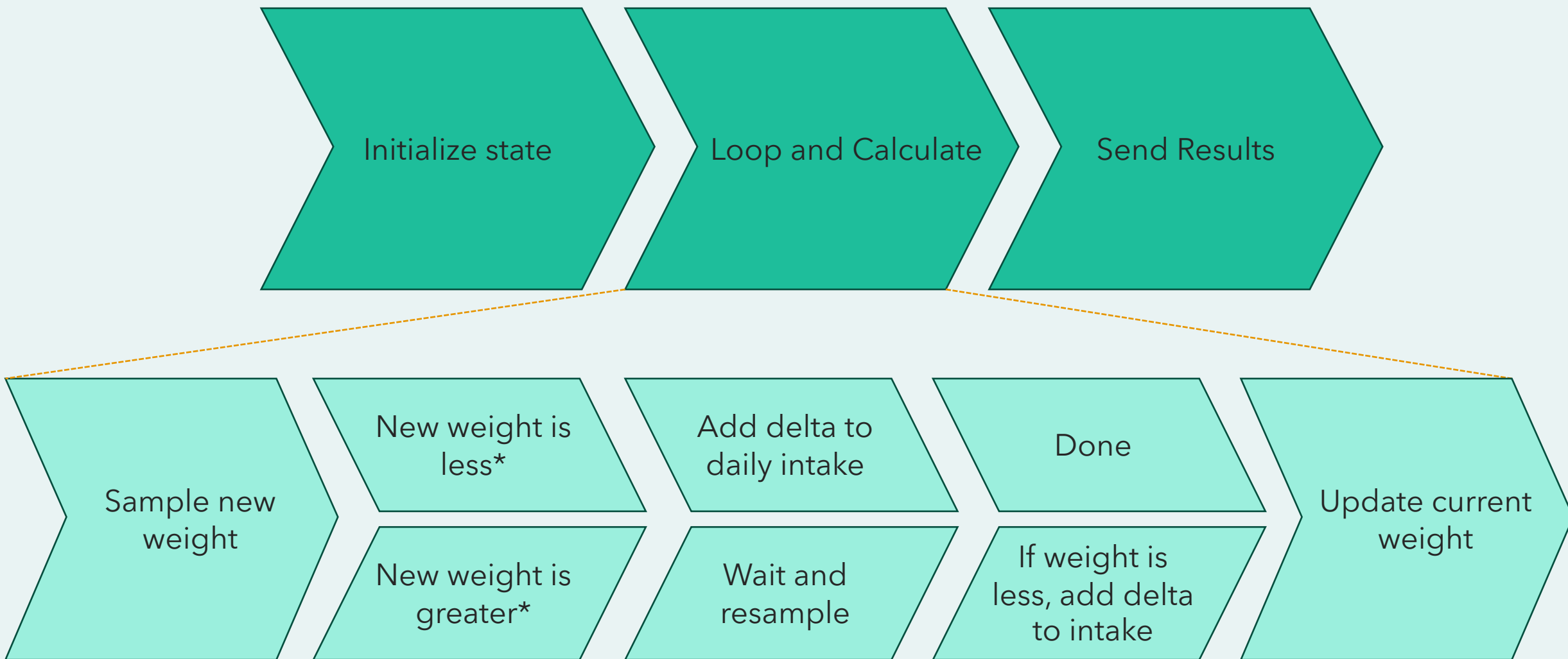
Sequence diagram



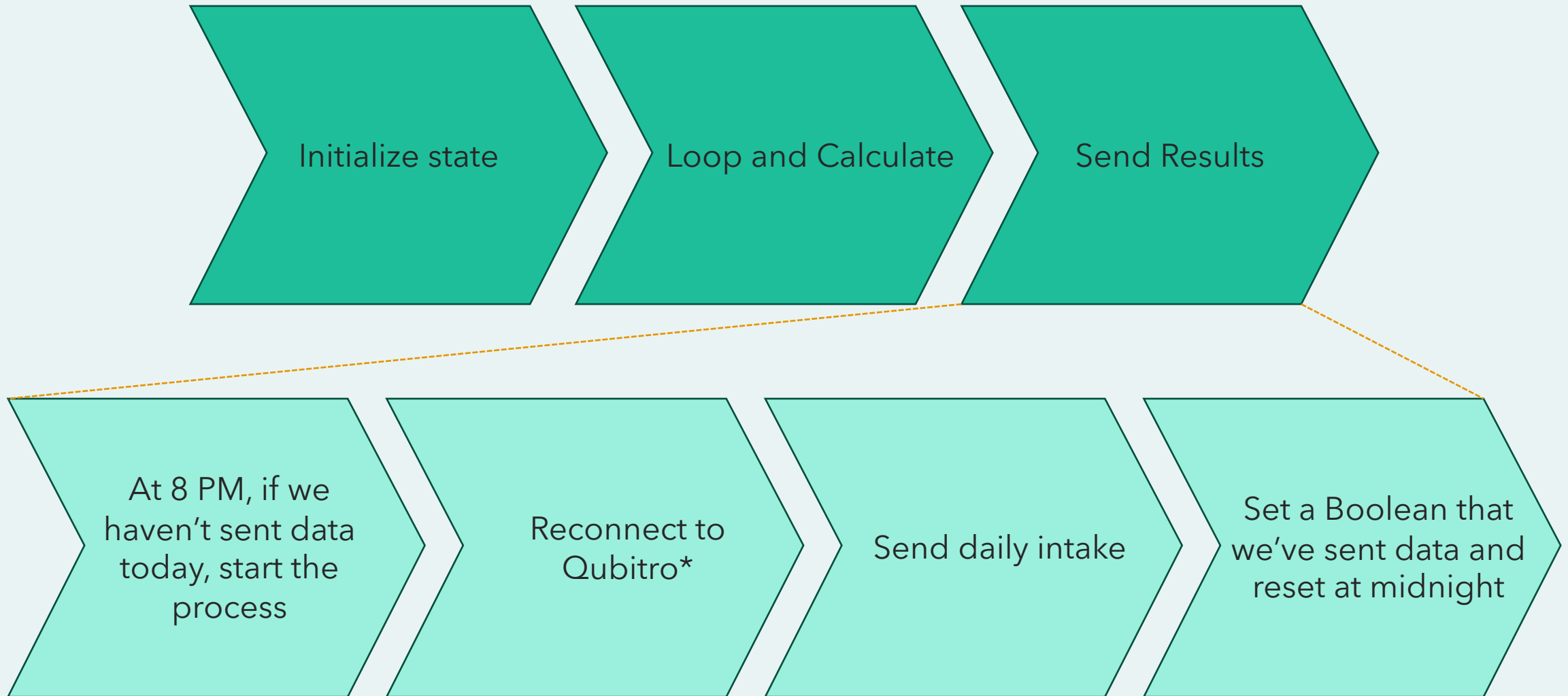
Code Overview







*with a tolerance of 4 grams



*Previously was sending dummy data

Outputs

```
send dummy to keep connection
UNITS: 17.47          UPDATED: 41.48          DELTA: 24.01
Increase detected. Waited 20s and got new weight: 36.86.          DELTA: 19.39
INTAKE: 0.00

current hour: 13

send dummy to keep connection
UNITS: 36.86          UPDATED: 37.62          DELTA: 0.77
INTAKE: 0.00
```

```
UNITS: -73.00          UPDATED: 114.36          DELTA: 187.36
Increase detected. Waited 20s and got new weight: 114.46.          DELTA: 187.45
INTAKE: 55.54

current hour: 20

UNITS: 114.46          UPDATED: 88.16          DELTA: -26.29
INTAKE: 81.83

current hour: 20
```


Keeping the Connection Alive

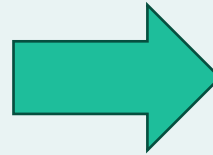
Overview Data Functions Settings

Historical Data

Raw Data

Nov 26, 2023 at 12:06 PM - Nov 27, 2023 at 12:06... Last day Export data < > Refresh

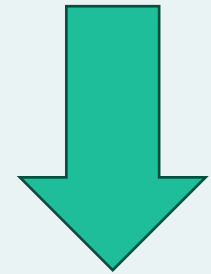
TIME	DUMMY	INTAKE
Nov 26, 2023 at 8:03:58 PM GMT-0...	0	
Nov 26, 2023 at 8:02:49 PM GMT-0...	0	
Nov 26, 2023 at 8:01:40 PM GMT-05...	0	
Nov 26, 2023 at 8:00:31 PM GMT-05...	0	
Nov 26, 2023 at 8:00:31 PM GMT-05...		150.076096
<pre>{ "intake": 150.076096, "time": "2023-11-27T02:00:31.004122Z" }</pre>		
Nov 26, 2023 at 7:59:21 PM GMT-05...	0	
Nov 26, 2023 at 7:58:12 PM GMT-05...	0	



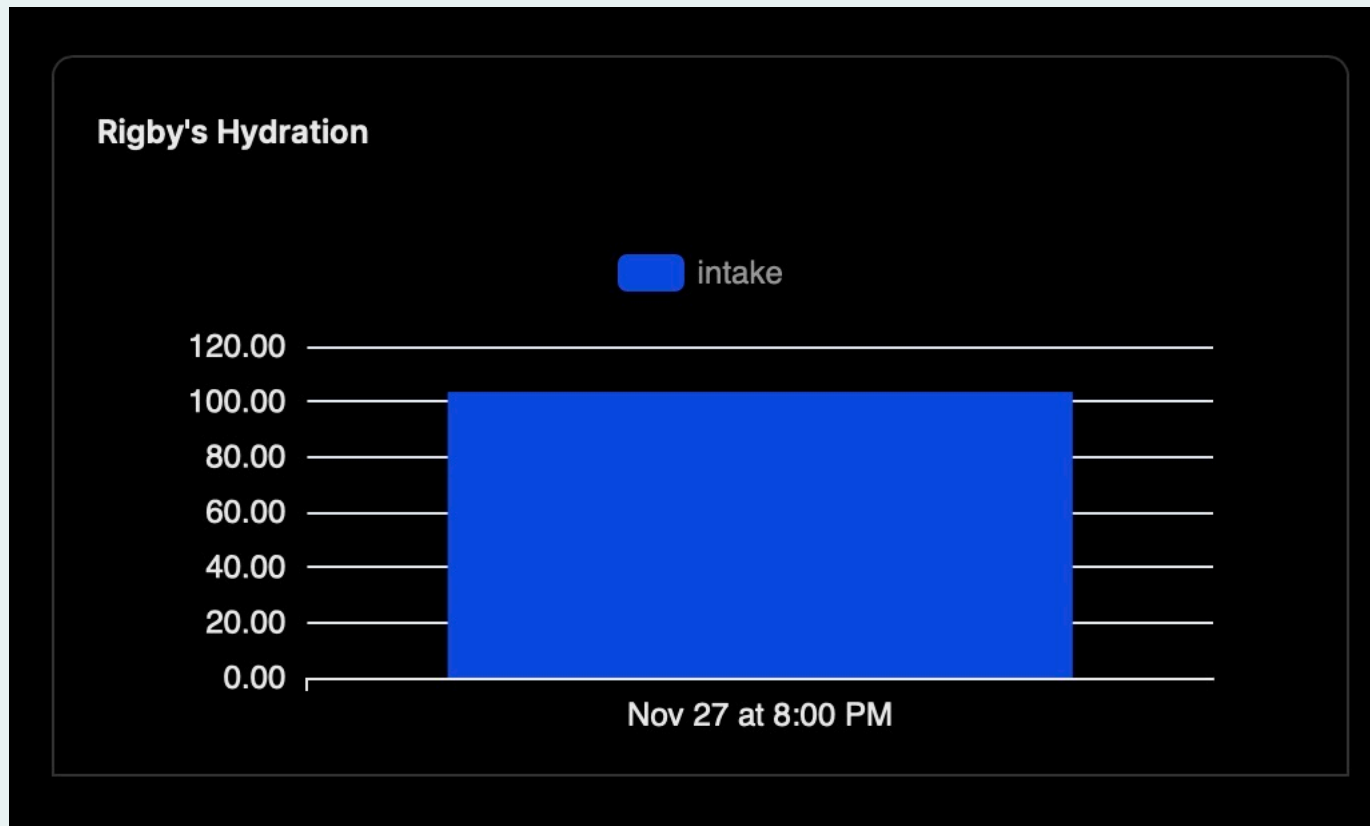
```
// 8 pm and we haven't sent yet
if(currHr == 20 && !sentToday) {
    // did this to ensure intake doesn't get reset before it gets sent to qubitro
    if(!mqttClient.connected())
        qubitro_connect();
    float tmpIntake = intake;
    static char payload[256];
    snprintf(payload, sizeof(payload)-1, "{\"intake\":%f}", tmpIntake);
    mqttClient.beginMessage(deviceID);
    mqttClient.print(payload);
    mqttClient.endMessage();
    Serial.print("It's 8 pm. Sending intake: ");
    Serial.print(intake);
    intake = 0;
    sentToday = true;
}
```

Woof...

- One scale = one bowl
- Hardware limitations
- Only measuring at home
- Spillage



Results



- 1 oz per pound of body weight
- 28 pounds = 28 oz
- 28 oz = 793mL
- Rigby (might) need to be drinking more

In Conclusion

