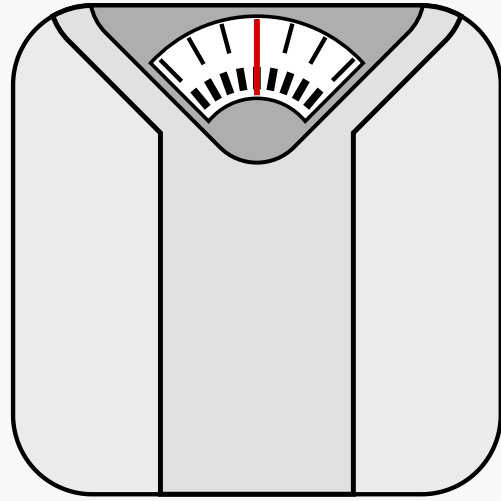
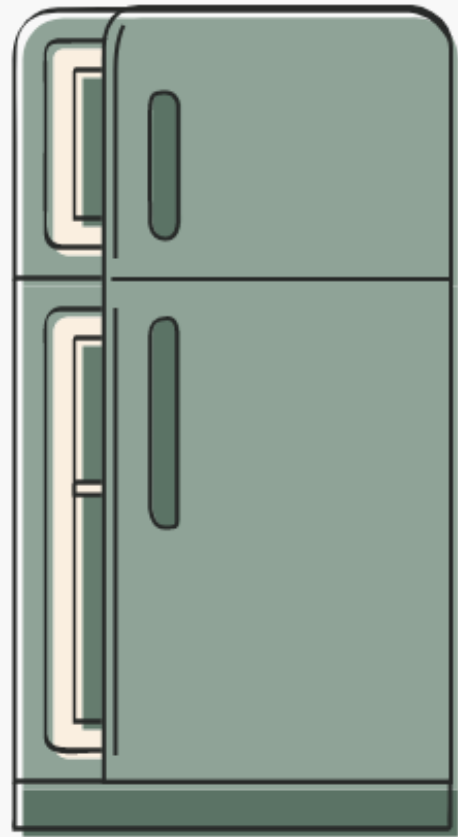




Smart-Milk-Container



Team Members: Liraz Poldian, Mika Shahar

Instructor: Benny Rochwerger



The Problem



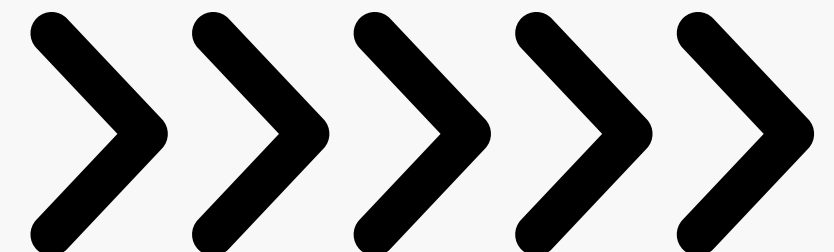
Many people start their day with coffee, cereal, or other meals that require milk.

Yet, one of the most common and frustrating household situations is discovering too late that the milk has run out — often in the morning when there's no time to run to the store.

Because milk is stored in the refrigerator in opaque containers, it's hard to track how much is left until it's almost empty.

On top of that, consumption habits vary daily, making it difficult to predict when the milk will actually run out. This uncertainty leads to two main issues:

1. You might be left without milk right when you need it most.
2. Some people overcompensate by buying extra milk "just in case," which often results in unused milk spoiling.



Our solution



Smart Milk Container!

Our Smart Milk system uses a weight sensor to automatically measure the remaining amount of milk in the carton, directly from the fridge.

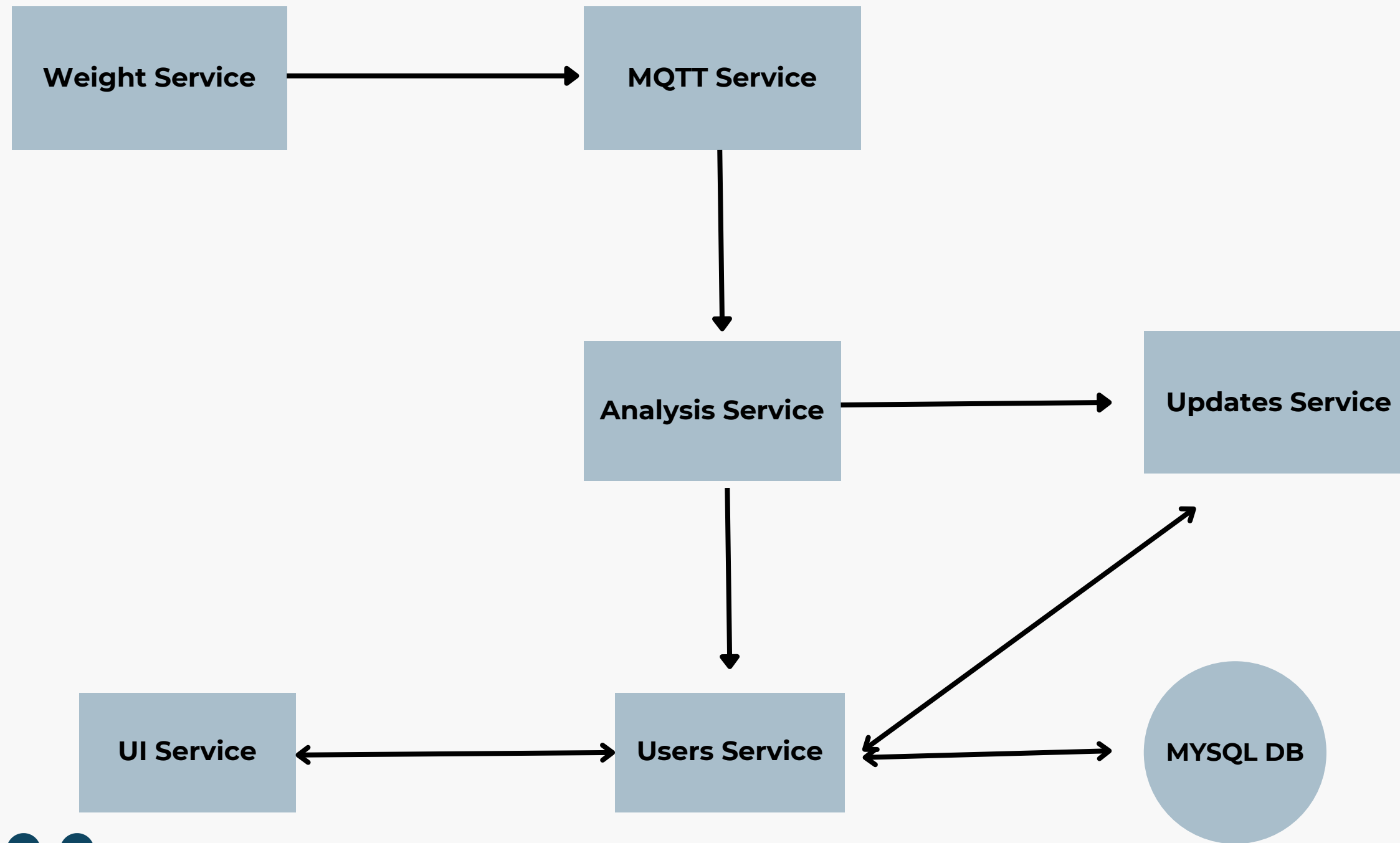
The data is sent in real time, processed and displayed on a web interface.

Users can instantly see how much milk is left, track daily consumption, get predictions for when the milk will run out, and even get notifications of when the milk is running low.

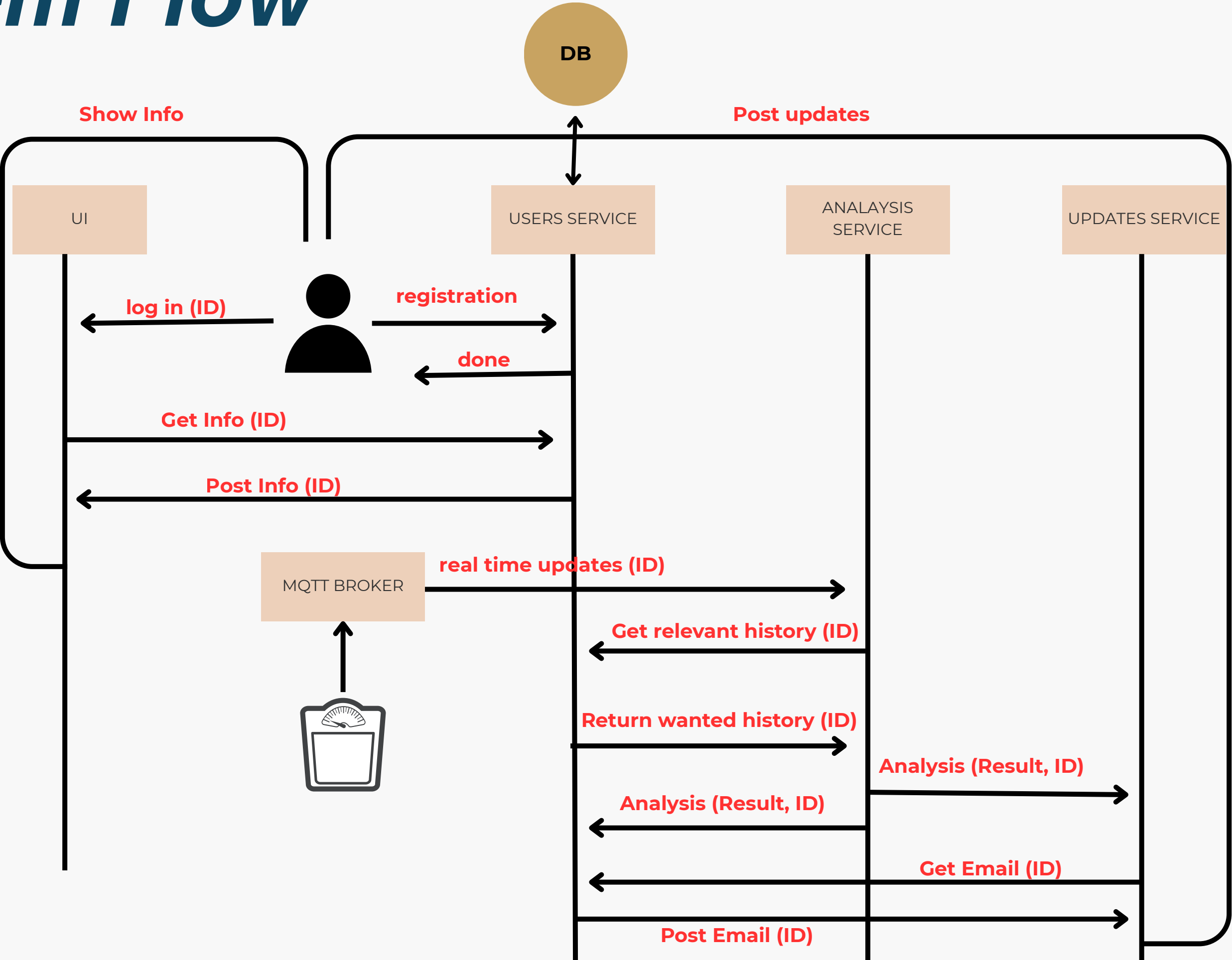
This way, you'll never be surprised by an empty carton again — and you can reduce waste by buying only when needed.



System Architecture Components

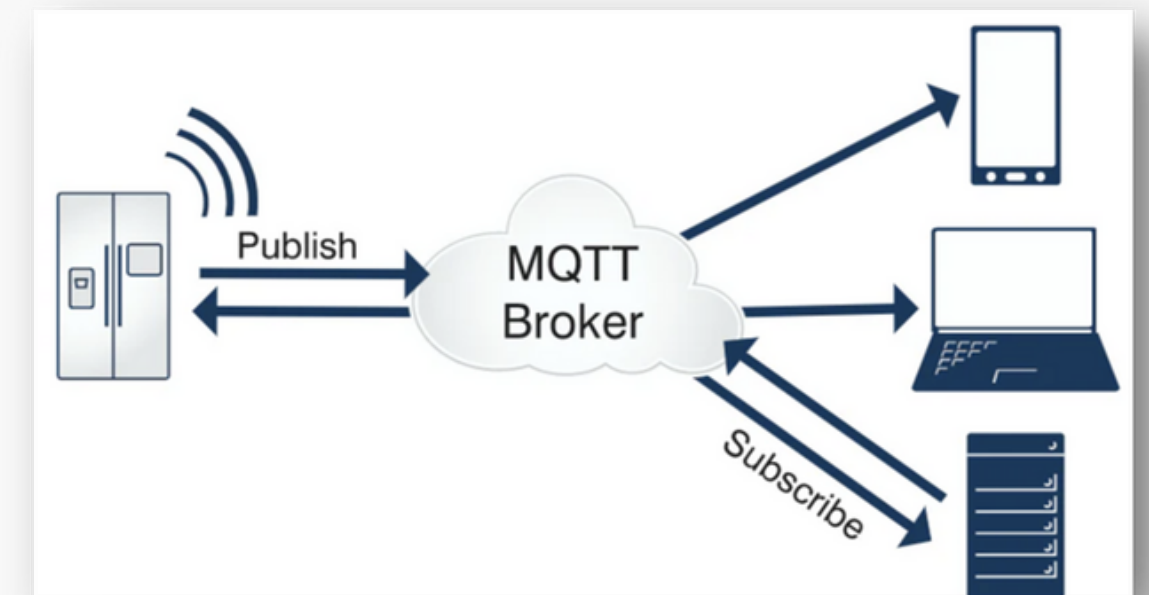
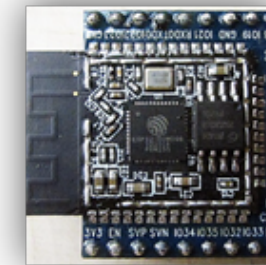


System Flow

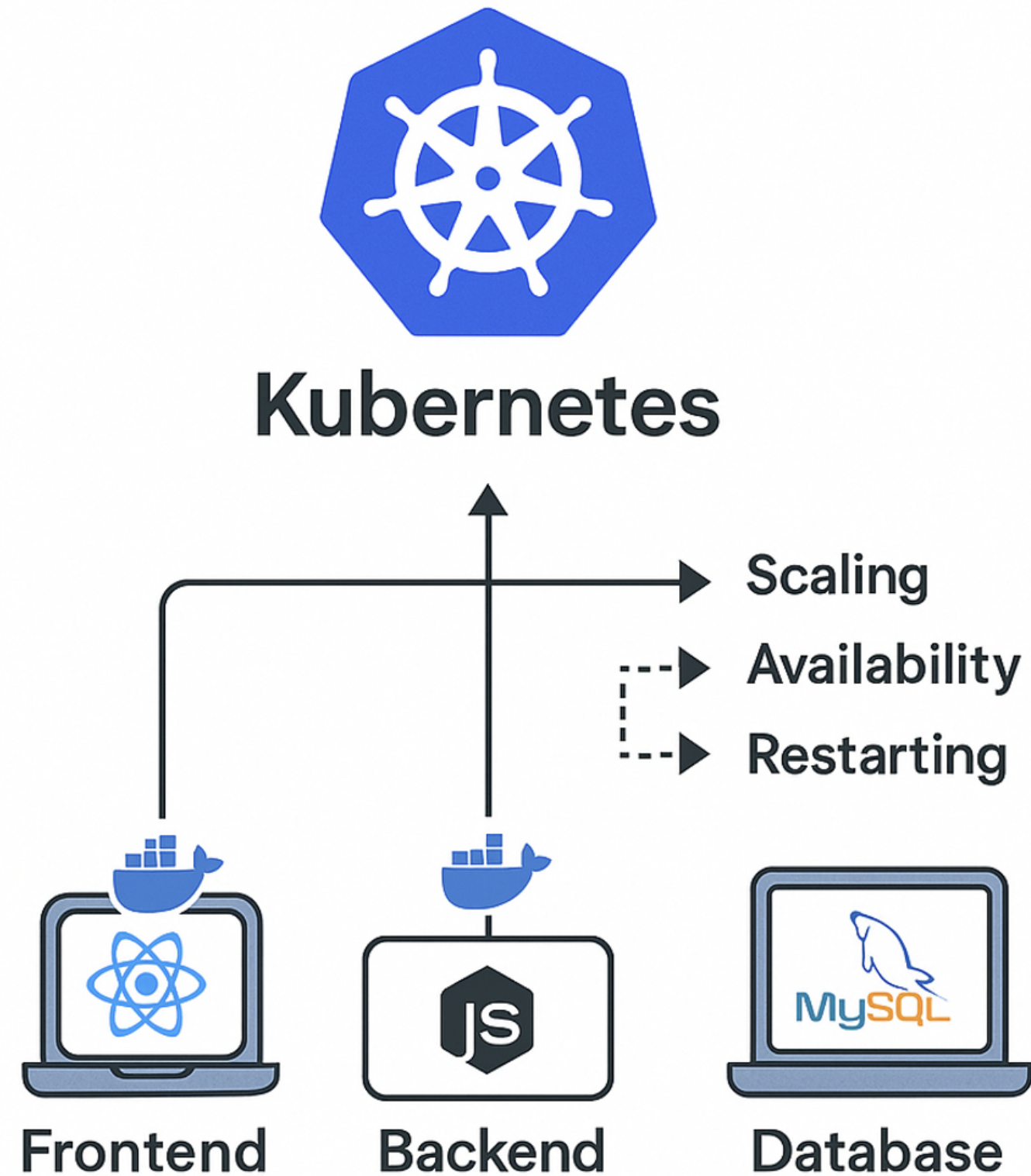


Technologies we used

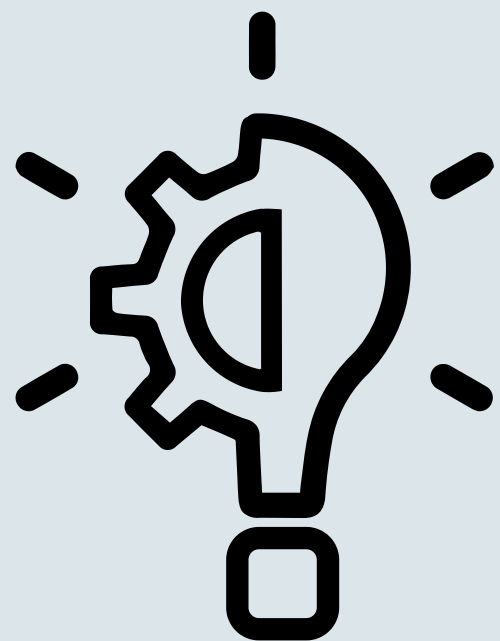
- Hardware: ESP32, HX711, Load Cell, ARDUINO UNO
- Communication: MQTT Broker (Mosquitto)
- Backend: Node.js
- Database: Mysql
- Frontend: React.js, HTML/CSS, Axios
- Deployment & DevOps: Kubernetes, Docker
- Development Tools: VS Code, Git



How Kubernetes is used



- Keeps the system reliable and running at all times.
- Isolates services and simplifies development across environments.
- Enables easy scaling as the project grows





Thank you

