

# Individual Weekly Report

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Team: Bray IIoT Smart Solution

Date: 3/24/2025

## Current Status

### 1. What did you personally work on this past week?

Task	Status	Time Spent
Report: Engineering Standards and Regulations	Done	~2 hours
Report modifications	In Progress	~1 hour

Include **screenshots/graphics** to illustrate what you did this past week:

4 Engineering Standards, Regulations, and Considerations

4.1 Engineering Standards

The Bray IIoT health monitoring system this project works with integrates multiple engineering standards to ensure interoperability and reliability. Key standards in this project include:

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1.3 Solution Summary (Aysen)

By the direction of our sponsor, the proposed route we have decided to take is to implement a vibration/fugitive emission sensor. With the vibration/fugitive emission sensor, we plan to test for scenarios where vibration can be a key indicator of valve and actuator deterioration and failure. The solution would detect signs of failure, which would then trigger data to be sent to the already established user-side application where they can be alerted of the failure. Through this, Bray's customers should be able to have at least one more feature in their valves monitoring system that will allow them to know when repairs and maintenance are required for continued operation of their valve systems that are used in demanding industries.

1.4 Evaluation Summary (Matthew)

The smart valve functionality will be evaluated by completing a real-world demo of the solution. The smart valve will be set up in proximity to the base station. It will then be verified that the valve communicates with the dashboard under normal circumstances. Following this, a vibration/fugitive emission sensor will be introduced and it will be verified that the valve communicates the non-normal status of the system to the dashboard. If email alerts are implemented as a part of the project, this functionality will also be verified.

2 Related Work

Smart valve IIoT systems can be found across multiple industries. From water to waste management to oil and gas, systems similar to the one we are working on can be found everywhere. Though they are similar, many of these systems have specifications that make them best suited for the specific task they are being used for. Additionally, not all systems include an accompanying web application for further monitoring of the valve system. With such widespread usage of these systems, determining the novelty of our project comes down to how we can modify an existing system to make it so that it becomes more effective at doing what it was designed to do.

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### 2. What problems did you run into? What is your plan for them?

We are still facing difficulty using the LoRa transmitter and test hardware. We have asked Bray for some guidance on using the test hardware and we will continue to explore and work the issues.

### 3. What is the current overall project status from your perspective?

The project is still behind but we are making steady progress.

4. How is your team functioning from your perspective?

The team's communication has improved overall and everyone is eager to get stuff done.

5. What new ideas did you have or skills did you develop this week?

I got more experience using the legacy code and learned more about MQTT.

6. Who was your most awesome team member this week and why?

Aysen has been putting in good work and helped solve the connection issue of the gateway.

#### Plans for Next Week

What are you going to work on this next week?

- Modify and update Project Report
- Evaluation Plan Project Report
- MQTT Configuration