**Individual Report by Valerii Navalnyi — Phase Two**

For the project extension I kept acting as a Team Representative, coordinating our next steps as a team. I worked on the technical part, and thereupon I decided to completely focus on reliable connection to Google Sheets, external API, and Machine Learning.

Building upon the challenging foundations laid earlier, the focus shifted towards the more intricate technical aspects of our Smart Water Monitoring System — specifically, enabling internet functionality for our sensor-based device. This phase demanded a different kind of engagement, moving from foundational troubleshooting to system integration and data handling, areas where I took personal responsibility for implementation.

Technically, this stage represented a significant step forward, despite the initial hurdles. My primary contribution centred on integrating the Arduino system with external services. This involved configuring the device to communicate over the internet, establishing a connection with an external API to funnel data into Google Sheets for accessible logging and visualisation. Practically, this required delving into network protocols and API request/response handling within the Arduino environment – a task demanding the careful documentation review and thoroughness I learned was essential from our earlier experiences. Furthermore, I implemented a simple Machine Learning (ML) component, aiming to provide basic predictive insights or anomaly detection based on the collected water quality data. This involved researching appropriate simple models suitable for the microcontroller's constraints and integrating the necessary logic.

This implementation phase was not without its own set of challenges, primarily concerning the seamless integration of these distinct components – the Arduino hardware, network communication, the Google Sheets API, and the rudimentary ML logic. Debugging data flow across these different platforms required considerable patience and methodical testing. Nevertheless, the perseverance cultivated during the initial struggles proved invaluable. The prior frustrations, rather than fostering reluctance, now served as a stark reminder of the need for meticulousness, driving a more systematic approach to development and problem-solving this time around.

From a teamwork perspective, acting as Team Representative while also handling a core technical development stream required clear communication and coordination. Ensuring the team was appraised of the technical progress, potential roadblocks, and integration requirements was crucial. It reinforced the lesson learned earlier: reliance on teammates and being reliable oneself are paramount, especially when tackling complex, multi-faceted tasks. The collaborative spirit we had started to build felt more tangible as we navigated the complexities of this phase together, supporting the integration effort.

To summarise the key activities and outcomes of this second project phase:

1. Assumed the role of Team Representative, coordinating team efforts alongside direct technical work.
2. Focused on implementing the internet-connectivity features for the Arduino-based monitoring system.
3. Successfully integrated the system with Google Sheets using an external API for data logging and remote access.
4. Developed and implemented a simple Machine Learning component for basic data analysis on the device.
5. Navigated the technical challenges of integrating hardware, networking, external APIs, and ML logic.
6. Applied lessons learned from the first phase regarding thoroughness and persistence, culminating in the successful implementation of the core data handling and connectivity features.

This phase marked a period of significant technical learning and achievement, transforming earlier setbacks into a functional, interconnected system component, and further solidifying our collaborative approach as a team.