Affordable Real-time Water Quality Monitoring System Using Bio-sensors and Machine Learning.

Group BSE25-30

The data collection mechanisms we are considering for this problem are Interviews and Survey because they provide a comprehensive understanding of the problem from different stakeholder perspectives, ensuring that the water quality monitoring system we develop is both technically robust and user-friendly.

Why Surveys?
Surveys are an efficient way to gather large amounts of data from a wide range of water consumers. Given the nature of the system, which is designed to serve the general public, it is important to capture the concerns, expectations, and experiences of potential users. Surveys allow us to:

Reach a large audience: With minimal resources, surveys can be distributed to a diverse group of people, giving us access to varying opinions and behaviors regarding water consumption and safety.
Quantitative insights: Surveys can be structured with closed-ended questions, making it easy to analyze trends in consumer awareness, water usage habits, and their level of concern about water quality.
User expectations: The data collected will help us understand what users expect from a real-time water quality monitoring system, how they currently assess water safety, and whether they trust existing water sources.
By using surveys, we can ensure that the system we develop aligns with the needs and expectations of the public, making it more likely to be widely adopted.
Link to Survey -
https://docs.google.com/forms/d/e/1FAIpQLSdW5hNEaa2iwMzTg2oKKGdO_UQX9kWHNnjfSXUXj94pwDeFwg/formResponse

Why Interviews?
Interviews, on the other hand, allow us to gather in-depth insights from water professionals, such as environmental engineers, scientists, and public health experts. This is critical because:

Expertise and technical knowledge: Professionals have a deep understanding of water quality indicators, the science behind bio-sensors, and the potential role of machine learning in improving water quality analysis. Interviews give us the opportunity to tap into this specialized knowledge.
Problem-solving insights: Through open-ended discussions, interviews allow experts to provide nuanced feedback on the technical challenges, practical limitations, and opportunities for improvement in current water monitoring systems.

Regulatory and compliance factors: Professionals can offer insights into industry standards and regulations that the system must comply with, ensuring that our solution not only functions well but also meets safety and legal requirements.
Link to Interviews - https://forms.gle/9bxJP7gNBryvigxU7

By combining insights from both surveys and interviews, we are able to capture a holistic view of the problem, ensuring that the final system addresses the needs of both end-users (consumers) and technical requirements (as advised by water professionals). This dual approach helps ensure the effectiveness, adoption, and sustainability of the water quality monitoring system.