SMART WATER FOUNTAIN

PHASE 1: PROBLEM DEFINITION AND DESIGN THINKING:

Problem definition: The project aims to enhance public water fountains by implementing IoT sensors to control water flow and detect malfunctions. The primary objective is to provide real-time information about water fountain status to residents through a public platform. This project includes defining objectives, designing the IoT sensor system, developing the water fountain status platform, and integrating them using IoT technology and Python.

Here's a brief summary of the different aspects of the project:

1. Defining Objectives:

- Define the goals and objectives of the project clearly.

- Identify what problems you intend to solve with the implementation of IoT sensors in public water fountains.

- Define what success looks like for this project

2. Designing the IoT sensor system:

- Conduct a detailed analysis and understanding of the water

- Design the IoT sensor system based on identified factors

- Determine what types of sensors are required

- Decide on the type of microcontroller or single-board computer to be used

3. Developing the Water Fountain Status Platform:

- Develop the GUI system for the web portal

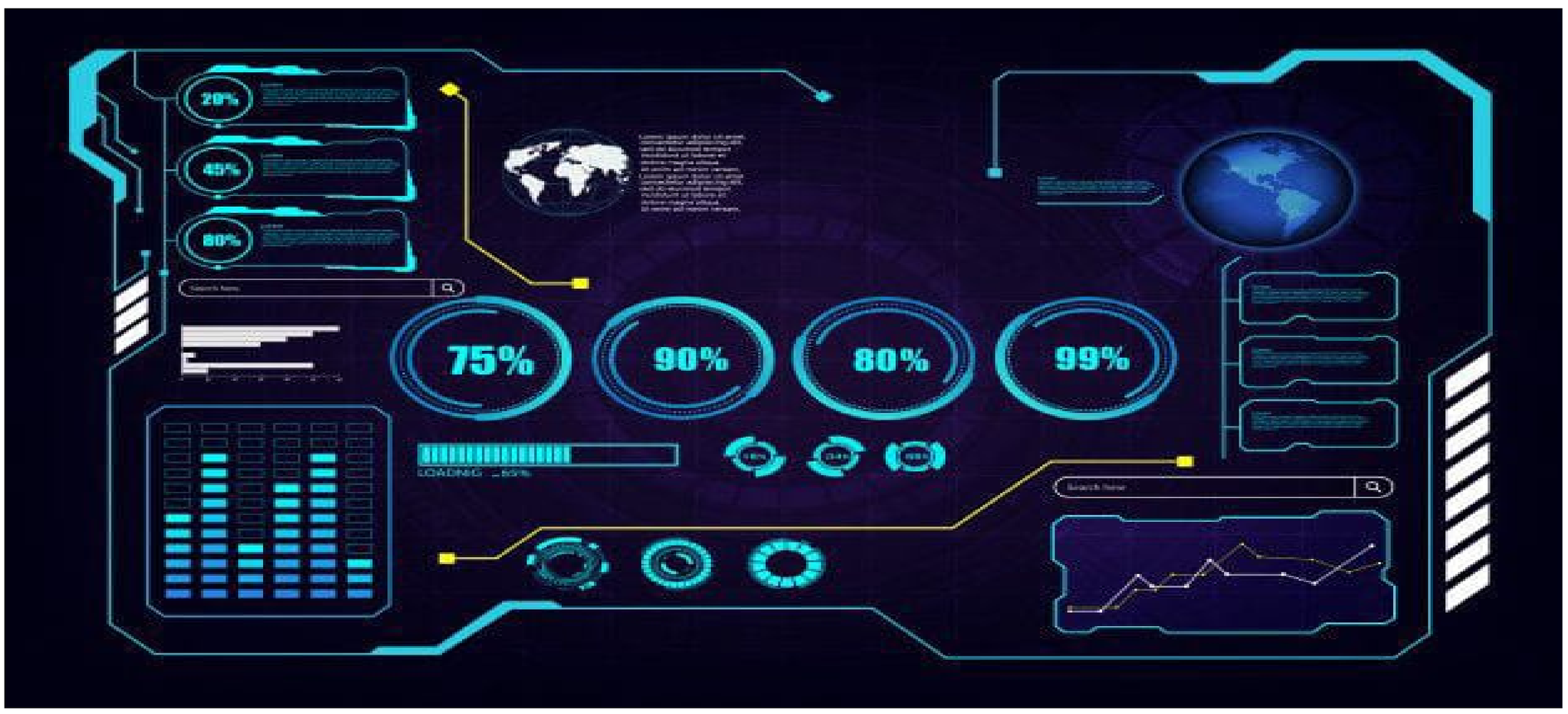
- Define and create the database for storing the data

- Define the API structure for communicating the data between the user and the system

4. Integrating Them Using IoT Technology and Python

- Develop the IoT code to control water flow based on sensor data

- Integrate the IoT code into the water fountain system



- Connect sensor data to the water fountain status platform using Python

Overall, the project aims to improve the quality of life for people by enhancing the public water fountain system through implementing technology. I believe this project is a perfect blend of technology and society, and it can have a significant impact on the community by enabling real-time updates about the water fountain status.

Design thinking:

Project Objectives: Define objectives such as real-time water fountain monitoring, efficient water usage, malfunction detection, and resident awareness.

IoT Sensor Design: Plan the deployment of IoT sensors (e.g., flow rate sensors, pressure sensors) in public water fountains.

Real-Time Transit Information Platform: Design a mobile app interface that displays real-time parking availability to users.

Integration Approach: Determine how IoT sensors will send data to the water fountain status platform.

Here's a design thinking process that can be used for the project objectives you've defined:

1. Empathize:

- Identify the stakeholders involved, such as the municipal council, maintenance staff, and residents.

- Conduct interviews, surveys, or observe their behaviours to understand their needs, motivations, and pain points related to water fountain usage.

2. Define:

- Define the project objectives that you've listed, and refine them based on stakeholder feedback.

- Create user personas that represent the different user types (e.g., residents, council members, staff), and develop a problem statement.

3. Ideate:

- Brainstorm potential solutions based on the personas, problem statement, and project objectives.

- Consider different technology options, such as flow rate sensors, pressure sensors, and communication protocols.

4. Prototype:

- Create a mock-up of the IoT sensor design, using tools such as Arduino, Raspberry Pi or other prototyping platforms, to test and refine its functionality.

- Develop a prototype of the mobile app interface for real-time parking availability that seamlessly integrates with the fountain monitoring system.

5. Test:

- Test the prototypes with stakeholders to gain feedback on what needs to be improved or refined.

- Conduct user testing to ensure the mobile app interface is user-friendly and responsive to user needs.

6. Implement:

- Based on the feedback from testing, tweak and refine the prototypes until they fulfil the project objectives and satisfy stakeholder needs.

- Develop a plan for the deployment and maintenance of the IoT sensors in public water fountains.

- Choose an efficient communication protocol to facilitate and integrate the data from IoT sensors to the water fountain status platform.

That's an example of the design thinking process that you can use to approach the project objectives you've defined. If you need any further assistance, feel free to let me know.