**Universal Design Principles**

H2Now is a smart hydration tracking system consisting of a physical water bottle with an integrated tilt sensor and a companion mobile application. The bottle records the user’s water intake, while the application provides detailed insights, statistics, and personalization options. To ensure accessibility, usability, and inclusivity for all users, H2Now has been designed in alignment with some principles of universal design.

**How Universal Design Principles align with H2Now application:**

1. **Equitable Use**

The H2Now application is designed to be useful and accessible to people with diverse abilities and backgrounds. Some of the key features are:

* Both light and dark themes improve visibility for users with visual sensitivities.
* Simple navigation ensures that users of all ages and technical skill levels can easily use the app.
* The app supports both metric (liters) and imperial (ounces) units, accommodating users from different regions.

1. **Flexibility in Use**

The system allows users to tailor their experience according to their individual needs and preferences.

* Users can manually adjust their daily water intake if the sensor misreads data.
* The settings tab allows customization of display modes, measurement units, and personal hydration goals.
* Multiple bottles can be connected to a single account, giving users flexibility to manage different bottles for different purposes (e.g. gym, work, travel).

1. **Simple and Intuitive Use**

The interface is clear and logically structured, minimizing the learning curve for new users.

* The main page lists all connected bottles in an organized manner.
* Tabs are consistently labeled and grouped by function: *My Bottle*, *Settings*, and *Statistics*
* Icons, colors, and short text descriptions guide user through each step, from adding a bottle to tracking daily goals

1. **Perceptible information**

The app effectively communicates essential information regardless of the user’s sensory abilities.

* Progress toward the daily goal is displayed both numerically (e.g., 1.3 L / 2 L) and visually via progress bars or graphs.
* Notifications and reminders can use sound, vibration, or visual pop-ups depending on user preferences.
* The use of high contrast colors and clear typography ensures readability under various lighting conditions.

1. **Tolerance of Error**

H2Now minimizes potential errors and their consequences.

* Before performing irreversible actions (e.g., deleting a bottle or resetting data), confirmation modals appear to prevent accidental changes.
* Manual intake adjustment allows users to correct sensor inaccuracies.
* Clear feedback messages confirm successful or failed actions, helping users understand system responses

1. **Low Physical Effort**

The application is optimized for ease of use with minimal physical and cognitive strain.

* Simple tap-based navigation allows quick access to all functions.
* The bottle’s tilt-based measurement reduces the need for manual input.
* The interface avoids unnecessary animations or clutter that could distract or fatigue users.

1. **Size and Space for Approach and Use**

The design ensures comfort and accessibility across different devices and usage contexts.

* Responsive design makes the app fully functional on phones and tablets.
* Buttons and input fields are large enough for users with limited dexterity or smaller screens.
* The layout is structured to ensure that key actions (like updating intake or switching bottles) are easy to reach.

By incorporating Universal Design Principles, H2Now ensures an inclusive, user-friendly, and adaptable hydration tracking experience. These design decisions not only enhance accessibility but also improve the overall usability and satisfaction for all users, regardless of ability, age, or context of use.