# HydraCare

***Abstract— This app is designed to help busy working and studying people develop a healthy habit of drinking water regularly. Users can track their daily water intake, set regular water reminders, view clear water intake statistics and get healthy drink suggestions.***

## I. Project Background

*A. The purpose and rationale of developing this APP*

With the acceleration of life pace, many white-collar workers often forget to drink water or delay drinking time due to their busy work. Long-term dehydration can lead to physical dehydration and decreased normal body function. Therefore, it is of great significance to develop a water reminder APP. This APP can track users' daily water intake, set water reminders, and pop up reminders when reaching the set time to help users develop the habit of drinking water periodically. At the same time, the APP can also recommend some healthy drinks, such as various fruit teas, homemade drinks, etc., to enrich users' choices.

*B. User needs and expectations*

Through market research and user interviews, we learned that users' main needs include: being able to set daily water intake goals and reminder times independently; water data needs to be displayed clearly and intuitively for users to view; the APP needs to have the function of reminding users to drink water on time; it can recommend some healthy drink options. Users expect the APP to be simple to operate, with good reminder effects, and can help them develop good drinking habits.

## II. Function Design

*A. Main function modules of the APP*

The APP contains modules such as user registration, water settings, water reminders, water statistics, and healthy drink recommendations.

- User Registration Module: Implements user account registration and login functions.
- Water Setting Module: Users can set daily water intake goals and set timed reminders to drink water.
- Water Reminder Module: Pop up reminders to notify users to drink water when reaching the set time.
- Water Statistics Module: Statistics and display the user's daily total water intake data and provide data analysis functions.
- Healthy Drinks Module: Recommend healthy drink options based on user preferences, such as lemon water, honey water, chrysanthemum tea, etc.

*B. Detailed description of functions*

(1) Water Settings
In this module, users can set their daily water intake goal, such as 2000 ml. Users can also set timed water reminders based on their schedule, such as setting reminders to drink water at 10 am, 3 pm and 7 pm. Reminder methods include mobile notification reminders, alarm reminders, etc.

(2) Water Reminders
When the set reminder time is reached, the APP will pop up a reminder to remind users to drink water. Notification forms may include text reminders, sound effects reminders, etc. If the user is temporarily unable to drink water, they can click to postpone the reminder.

(3) Water Record
After each drink, users can record the amount of water drunk in the APP. An automatic recording mode can also be set to automatically record the amount of water drunk by connecting with smart water cups and other devices. The recorded drinking data will be updated in real time to the user's water statistics.

(4) Water Statistics
This module will statistics the user's total daily water intake and compare it with the set goal to form an intuitive chart display for the user to clearly see their water intake. Users can choose different time dimensions (day/week/month) to view statistics.

(5) Healthy Drink Recommendations
Recommend some healthy drinks based on user preferences, such as lemon water, honey grapefruit tea, green plum beer, etc., and provide recipes to enrich users' drink choices. Users can also evaluate the recommended drinks.

## III. Technical Implementation

*A. Database design plan*

The main purpose of the APP's database is to store user information, water settings, water records, and other data. The technical solution is to use the MySQL relational database and store the needed data through the database table structure. The main table design includes:

- User Information Table: Stores user's basic information, account, etc.
- Water Setting Table: Stores the user's daily water intake goal, reminder times, etc.
- Water Record Table: Stores the user's each water drinking record, including the amount of water, time, etc.

*B. System architecture design ideas*

Adopt C/S architecture, the client side is the web page, and the server side is the background service developed by Java+Spring Boot. The client submits and fetches data through HTTP requests, and the server handles requests and returns results.

*C. Selection of development tools and technologies*

The client side uses the Vue.js framework to develop the front-end page. The back-end server side uses Java language + Spring Boot framework. The database uses MySQL, and the object-relational mapping framework uses MyBatis. The interaction between the front and back ends uses RESTful API. Use Maven for project management and Git for code management.

## IV. Instructions for Use

*A. Website usage process*

1. Open the website, register a new account, and set username and password.
2. After logging in, enter the user homepage and set daily water intake goals.
3. Set reminder times on the water reminder setting page.
4. When the reminder time point is reached, the website will pop up a reminder notification.
5. After drinking each time, you can manually fill in the amount of water drank on the water record page.
6. You can view daily water intake statistics on the statistics page.

*B. Page and interaction design*

The website provides concise and intuitive pages and interactions:

The homepage intuitively displays water goals and statistics.

The user settings page uses a step-by-step settings process.

Reminder notifications use pop-up prompts for users.

Drinking water records provide input boxes for manual entry.

The statistics page visualizes data in charts.

# V. Customer Feedback and Future Plans

*A. Channels and methods to collect user feedback*

Add user feedback function in the APP settings. Users can score the APP and propose improvements.

Create official communication groups on social platforms to collect user feedback during use.

Collect user reviews and comments in app stores through third-party data platforms.

*B. Follow-up version iterations and new feature plans*

Subsequent versions will launch a richer healthy drink database to support recommendations based on taste and scenario.

Increase integration with more smart devices, such as supporting connections to more brands of smart water cups.

Develop social functions to support users to share water intake achievements.

Launch statistical report generation functions to support saving and sharing statistical reports.

*C. Continuous improvement plans*

Review user feedback monthly, select issues of concern for many users, and solve them as a priority.

Regularly check APP performance to ensure stability.

As the number of users grows, gradually expand the server capacity to ensure response speed.

Optimize functional modules in a timely manner according to market and technical developments to keep the APP up-to-date.