Water Quality and Flood Detection Software
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The software system aims to detect and maintain water quality for supply management from natural water sources as well as overhead detection of floods. It's function is '*water purification and detection*' and '*monitoring the flood and forecasting*'. For this it will take data readings of certain key factors like dissolved oxygen level, temperature, pH, radiochemical and stable isotope analysis, conductivity, etc. from the water flow continuously across the state. These readings will be collected from multiple sensors and collected in a single <<Interface>> sensor. After validation, this data will stored in a database to ensure the users see accurate values. The system also tries to analyse the past weather data along with some critical factors like the temperature change in the surrounding terrain of the water body to predict the future water level and send out accurate flood warnings in advance.

The feature implemented in this scenario is the interaction between the system and public user and lab user. We are using 3 different API's for the second release: (1) Weather API for mock sensor input (2) API for GPS location and (3) Flood forecast details API to generate a report for the laboratory user. These APIs will be used to simulate a sensor network and display the data.

Scenario - Public User and Laboratory User Stories

1. For Public User

When the public user first opens the application, he/she will have a landing page. There, the user will input his/her desired location using a gps file. The Map API will be used for this.

The system fetches data from the database to be displayed to public user according to the input location.

The Weather API and Map API show additional data to the user for their selected location.

In accordance to the data retrieved from the database and the API's, the system will warn the user about flood warnings or the all-clear notification will be displayed.

2. For Laboratory User

When the laboratory user first opens the application, he/she will have a landing page. There, they will enter their location and will be directed to an edit form.

The system will show the edit form filled with latest sensor data. We will be using an API to simulate sensors by fetching water quality data and keeping a database of it, since we do not have the resources to set up a network of sensors as stated before.

The user can change the location name and timestamp to their desired values. The system will then fetch data to be displayed to laboratory user according to the input values.

The Laboratory user can then, if necessary, update the information and click submit. This information is validated. If validation successful, then data passes to the database. If validation fails, then data is not passed and a failure alert message is shown.

Next, the user can further generate report by clicking on the 'Generate Report' button. The system generates a report that has a graphical parameter comparison chart. The user then has the option to download the report.

Low Fidelity Diagram of System