Smart Public Restroom

**Phase 4: Development Part 2**

Restroom Information Platform:

* Use HTML, CSS and JavaScript to create a website that displays a map with pins for each smart public restroom location.
* Have each pin link to a page with details on that restroom including:

1. Current occupancy level (number of stalls in use)
2. Cleanliness rating
3. Amenities like baby changing stations, etc.

* Pull this real-time data from a database that is being updated by the sensors in each restroom.
* Allow users to filter the map to only show restrooms that meet certain criteria (e.g. max occupancy, minimum cleanliness rating).

Mobile Apps:

* Create native iOS and Android apps that connect to the same real-time restroom database.
* Allow users to see nearby restrooms on a map with occupancy and cleanliness data.
* Add features like turn-by-turn navigation, saving favorite locations, leaving reviews, reporting issues, etc.
* Send push notifications to users when they are near a restroom that meets their saved criteria (low occupancy, high cleanliness, etc.).
* Use geolocation to show their current location on the map.

# **HTML:**

<!-- Map to display restroom locations -->

<div id="map"></div>

<!-- List of restrooms -->

<ul id="restrooms"></ul>

<!-- Restroom details modal -->

<div id="restroom-details-modal" class="modal">

<div class="modal-content">

<span class="close">&times;</span>

<h2 id="restroom-name"></h2>

<div id="restroom-details"></div>

</div>

</div>

# **CSS code:**

/\* Map styling \*/

#map {

height: 400px;

width: 100%;

}

/\* Restroom list styling \*/

#restrooms {

list-style: none;

padding: 0;

}

#restrooms li {

background: #fff;

padding: 10px;

border-radius: 4px;

margin-bottom: 10px;

box-shadow: 0 1px 3px rgba(0,0,0,0.12);

}

/\* Modal styling \*/

.modal {

display: none;

position: fixed;

z-index: 1;

left: 0;

top: 0;

width: 100%;

height: 100%;

overflow: auto;

background-color: rgba(0,0,0,0.4);

}

.modal-content {

background-color: #fefefe;

margin: 15% auto;

padding: 20px;

border: 1px solid #888;

width: 80%;

}

.close {

color: #aaa;

float: right;

font-size: 28px;

font-weight: bold;

}

.close:hover,

.close:focus {

color: black;

text-decoration: none;

cursor: pointer;

}

# **JavaScript:**

// Fetch restroom data from API

async function getRestrooms()

{

const response = await fetch('/api/restrooms');

const restrooms = await response.json();

displayRestrooms(restrooms);

}

// Display restrooms on map and list

function displayRestrooms(restrooms) {

// Loop through restrooms and add markers to map

restrooms.forEach(restroom => {

// Add marker to map

const marker = new google.maps.Marker({

position: {lat: restroom.lat, lng: restroom.lon},

map: map

});

// Add click listener to open details

marker.addListener('click', () => {

openDetails(restroom);

});

});

// Loop through and add restroom info to list

let listHTML = '';

restrooms.forEach(restroom => {

listHTML += `

<li>

<h3>${restroom.name}</h3>

<p>${restroom.numStalls} stalls</p>

<p>Cleanliness: ${restroom.cleanliness}/5</p>

</li>

`;

});

document.getElementById('restrooms').innerHTML = listHTML;

}

// Open restroom details modal

function openDetails(restroom)

{

document.getElementById('restroom-name').textContent = restroom.name;

document.getElementById('restroom-details').innerHTML = `

<p>${restroom.numStalls} stalls</p>

<p>Cleanliness: ${restroom.cleanliness}/5</p>

`;

// Open modal

let modal = document.getElementById('restroom-details-modal');

modal.style.display = 'block';

}

# **Conclusion:**

This project created a real-time restroom availability platform with a website displaying restroom locations and mobile apps providing access to occupancy and cleanliness data to efficiently guide people to clean, uncrowded public restrooms nearby.