# Capstone Project Technical Barriers Assessment

NOTE: DELETE THE HIGHLIGHTED TEXT

When estimating project hours, one of the most confounding issues can be the need to account for the unknown. Anticipating where you might need extra hours in advance can save many hours in the long run and help you set more accurate target dates – or set a more realistic project scope. Note your ideas for mitigating each concern, if there is one.

## Name of Project: Pawsera – Smart Pet Care Management

## Lead Developer: Ragini Shirwalkar

## Potential Project Barriers

### Content

(What are your concerns regarding the images and text for your project? This might be acquiring them from the client, or generating them yourself, or the volume of content required.)

* Pet profile images: Obtaining royalty-free or realistic pet images for demo content could be time-consuming.  
  **Mitigation:** Use placeholder images initially; plan to replace with user-uploaded images later. Use royalty-free images from Unsplash/Pexels for initial testing.
* Text content for reminders, vet care notes, and system messages must be concise and user-friendly.  
  **Mitigation:** Draft sample content in advance; create reusable text templates in JSON for consistency.
* User-generated documents (vaccination certificates, medical reports).  
  **Mitigation:** Implement file upload features with validations; test with dummy PDF/image files.

### Technology

(Unfamiliar frameworks, packages, or APIs can slow or stall a project. Where might you need to invest some research hours or extra debugging/deployment hours?)

#### Stack

* React (Frontend)  
  **Barrier:** Learning and managing state with hooks, conditional rendering for multiple user roles.  
  **Mitigation:** Allocate extra hours for prototyping components and testing user flows. Use Figma wireframes as a reference.
* Firebase Firestore (Database)  
  **Barrier:** Complex queries and structuring collections for scalable pet data.  
  **Mitigation:** Plan database schema carefully; use small sample datasets to test queries before full implementation.
* Firebase Authentication  
  **Barrier:** Integrating secure sessions and role-based access control.  
  **Mitigation:** Follow Firebase documentation; test login/logout flows for each role.

#### 3rd Party Libraries and/or Frameworks

* Google Maps React Component  
  **Barrier:** Implementing markers and dynamic map updates for nearby vets/pet stores.  
  **Mitigation:** Start with static markers; gradually integrate live data from Firestore.
* Date-fns (or Moment.js) for date handling  
  **Barrier:** Managing vaccination schedules, reminders, and appointments correctly.  
  **Mitigation:** Allocate testing hours for edge cases (leap years, timezone differences).

#### APIs

(For each API that you are investigating, list its name and URL, the data that you wish to use from it, its requirements, its cost and limitations. See example below after the template)

API NAME

API URL

Data

* Google Maps React Component (@react-google-maps/api)  
  **Barrier:** Implementing markers and dynamic map updates for nearby vets/pet stores.  
  **Mitigation:** Start with static markers; gradually integrate live data from Firestore.
* Date-fns (or Moment.js) for date handling  
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Requirements (API key, registration…)

**OpenWeather API**

* **API URL:** <https://openweathermap.org/api>
* **Data:** City weather, current temperature, humidity, forecast for reminders (walks, travel conditions).
* **Requirements:** Register with email, obtain an API key.
* **Cost/Limitations:** Free tier available; limited calls per minute (60/min), total calls/month 1,000,000.

**Google Maps API**

* **API URL:** https://developers.google.com/maps/documentation
* **Data:** Locations of nearby vet clinics and pet stores, geolocation for pet owner address.
* **Requirements:** Register, generate API key, enable billing.
* **Cost/Limitations:** Free tier limited to 28,000 map loads/month; paid usage beyond free tier.