Capstone Project Technical Barriers Assessment

Name of Project: AutoFix Scheduler
Lead Developer: Sarath Saji

Potential Project Barriers

Content

Concerns:
- Acquiring high-quality, royalty-free images (workshop interiors, vehicle service icons) with proper attribution.
- Generating consistent and professional service descriptions (e.g., "Oil Change," "Brake Inspection").
- Populating the site with sufficient dummy content (appointments, customer profiles) for testing.

Mitigation:
- Use **Unsplash** and **Pexels** for pre-approved, attribution-friendly images.
- Create reusable templates for service descriptions and user instructions.
- Use **FakerPress** (WordPress plugin) to generate dummy customer/appointment data.

Technology

Stack

Concerns:
- Limited experience with advanced WordPress PHP customization (e.g., theme functions, custom post types).
- Plugin conflicts between Booking Calendar, Contact Form 7, and User Role Editor.

Mitigation:
- Follow **WordPress Codex** tutorials for PHP customization.
- Test plugins in a **staging environment** before deployment.

3rd Party Libraries and/or Frameworks

Concerns:
- **Booking Calendar (Free Version):** Limited features (e.g., no SMS reminders, basic staff assignments).
- **Contact Form 7:** Requires add-ons for file uploads or conditional logic.
- **Elementor Free:** Restricted design flexibility for complex layouts.

Mitigation:
- Use free alternatives (e.g., **Flamingo** for form submissions).
- Simplify workflows (e.g., replace file uploads with text fields).

APIs

API NAME : **Google Maps API**
API URL : https://developers.google.com/maps

Data

- Workshop location coordinates, embedded map for directions.

Requirements (API key, registration…)

- API key (free via Google Cloud account).
- Enable billing account (no charges unless usage exceeds $200/month).

Cost/Limitations (subscription or per-use fee? # of calls per ?)

- Free tier: 28,500 map loads/month.
- Excess usage: $7 per 1,000 additional requests.

Additional Barriers

1. **User Role Management:** Configuring granular permissions for "Mechanic" roles.
   - *Mitigation:* Test early with **User Role Editor** and iterate.
2. **Security Risks:** Protecting customer data (emails, appointment details).
   - *Mitigation:* Install **Wordfence** (free), enforce SSL via hosting.
3. **Accessibility Compliance:** Meeting WCAG 2.1 standards for responsive design.
   - *Mitigation:* Use **Lighthouse** (Chrome DevTools) for accessibility audits.
4. **Hosting Limitations:** Free hosting (InfinityFree) may lack reliability.
   - *Mitigation:* Optimize images and use caching plugins (e.g., **WP Super Cache**).