AI Powered Multilingual Care Taker Assistant

We have selected Symptom Management (Part-F) as our problem statement, contributed by IPWSO. Within this, we have chosen to build an accessible, multilingual platform for the care and management of the rare disease PWS.

The Prader-Willi Syndrome (PWS) is a complex genetic disorder that affects growth, metabolism, behavior, and cognitive development. Patients and caregivers face challenges in accessing reliable information, tracking health metrics, and connecting with medical professionals. Current resources are fragmented, making comprehensive care coordination difficult. PWS affects 1 in 10,000 to 1 in 30,000 people.

PWS occurs due to the lack of expression of paternal genes on chromosome 15q11.2-q13. These genes are normally active only on the paternal chromosome, while the maternal copies are silenced. The absence of these paternal genes leads to PWS symptoms.

The platform provides tailored information to patients based on their needs. Moreover, it is simple and straightforward to use and is available in multiple languages to enhance patient accessibility and understanding.

The platform which is one stop solution for the care and needs of the Prader Willi patient's caretaker.

The application provides four different services:

1. AI Powered Multilingual Care Taker Assistant: Assist the caretakers of PWS Patients in symptom management, needs, care, queries and assistance.

2. Educational page with the resources and organization which is actively involved in PWS Disease Space.

3. Doc Finder: Used to find Clinics, hospitals and doctors who actively treat PWS patients.

4. Community: Caretakers can post their story and their experiences which serves as the point of information sharing and creating a strong community.

Technical Architecture:

Tech Stacks Used: Angular 17, HTML, CSS, Python for Building RAG Model.
The AI assistant works on RAG Architecture which utilized LLM Models with PWS Knowledge base which actively responds to the user needs in multilingual languages.

The Knowledge base was prepared on preliminary dataset obtained from the site: https://rarediseases.info.nih.gov/diseases/5575/prader-willi-syndrome.

Results: Model response was validated with the general symptoms and found to be satisfactory, However, Evaluation of the model with a Structured amount of data set is to be validated.

Since, the model was trained on limited scraped data we couldn't proceed on advanced validation technique and would be in scope for the future validation of the same.

Future Scope: Validation on larger dataset to evaluate model performance.
We can also do fine tuning in the model for getting better response.
Also, there is future scope of enhancing the application to detect more rare diseases.