ARMMAN | High-risk Pregnancy Chatbot

About the Organization

ARMMAN is a non-profit working to reduce preventable maternal and child mortality by addressing delays in care-seeking, limited access to quality services, and gaps in frontline training. It provides timely health information to pregnant women and new mothers, and strengthens health workers' capacity to identify, manage, and refer high-risk cases early. Using a blended tech-plus-touch model integrated with government systems, ARMMAN delivers scalable mHealth programs while ensuring supportive human engagement. Since 2008, ARMMAN's programs have impacted over 70 million women and families, and trained more than 570,000 health workers across 28 states and Union Territories.

Problem Statement (use case specific)

High-risk pregnancies (HRPs) make up 20–30% of all pregnancies in India but account for **70–80% of maternal & neonatal deaths** – a key reason being the poor early identification and management of HRPs. India's frontline **health workers are overworked, undertrained, and lack access to ongoing, context-specific guidance** at the point of care. Classroom trainings are infrequent and generic, and health workers face digital fatigue from using multiple government apps daily.

AI can deliver **timely, personalized, and scalable decision-support** and learning, by meeting health workers where they are, in their language, without adding new operational burden.

AI Solution Description

Our solution is a **multilingual, multimodal AI learning assistant for Auxiliary Nurse-Midwives (ANMs)**, providing real-time doubt-solving, **protocol-aligned clinical guidance** and bite-sized lessons for continuous learning directly via WhatsApp—a platform ANMs already use. Responses are grounded in validated medical protocols, with a **human-in-the-loop** escalation pathway to ensure safe, accurate, and context-appropriate guidance.

Designed to integrate with government health systems, the assistant supports ANMs in applying recommended antenatal care practices, improving early identification and better management of HRPs.

Tools and techniques Used

The solution uses large language models (e.g., GPT-4o, Sarvam, etc) for natural language understanding and response generation, speech-to-text, and text-to-speech. We are also evaluating open-source alternatives. Out-of-scope and complex queries are escalated to medical trainers.

Key Features of tech solution

- WhatsApp-based access to instant, protocol-aligned guidance
- Multilingual and multimodal (supports text and audio)
- Human-in-the-loop escalation ensures safety and trust
- Bite-sized, continuous learning embedded in day-to-day work

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Impact (Qualitative and Quantitative)

- Current Reach: Rolled out to **~1000 ANMs** in Uttar Pradesh, pilot with 50 ANMs in Telangana (serving 2L+ pregnant women)

- Usage: 70% ANMs have asked at least one question, 85% of activated users have returned for a second conversation

- Engagement & Quality: **>12,000 real clinical queries** handled; **98% positive user feedback**; 97% of responses rated satisfactory by domain experts. Only 19% escalation to human in the loop

Plan for roll-out and sustainability

The chatbot is already **integrated into the public health system** in 2 states (UP & Telangana) through ARMMAN's high-risk pregnancy program, with planned scale-up and expansion to 2–3 additional states in the next 6–8 months, reaching **12,000+ ANMs**. The assistant resolves ~80% of queries without trainer intervention, reducing workload and enabling sustained, scalable on-job learning & support. Over time, this will decrease reliance on frequent classroom refresher trainings.

Additional documents

- ARMMAN- KF Tech Awards Application PPT

- ARMMAN AI Solution Video

- User Testimonials - 1. Priyanka Chaudhary - ANM testimonial

                         2. Sushma Prasad - ANM testimonial