Beyond Baby Blues

AI-powered system for post partum depression

Our Team

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The Challenge

Maternal Mental Health Crisis

Up to 20% of pregnant women experience prenatal depression and anxiety, yet many lack immediate access to specialized mental health support. Traditional healthcare systems struggle to provide 24/7 emotional guidance and timely specialist appointments.

Expectant mothers need compassionate, always-available support support that understands their unique emotional journey while while seamlessly connecting them with professional care when when needed.

Understanding Prenatal Mental Health

Pregnancy brings profound emotional changes. Beyond physical transformations, expectant expectant mothers navigate complex feelings including anxiety about the future, mood mood fluctuations, sleep disturbances, and sometimes overwhelming sadness.

Common Challenges

- Persistent worry and anxiety about baby's health
- Sleep disruptions and fatigue
- Loss of interest in previously enjoyed activities
- Feelings of isolation or inadequacy

Why It Matters

Early intervention and consistent emotional support significantly improve outcomes for outcomes for both mother and baby. Professional mental health care during pregnancy pregnancy reduces risks and promotes healthy bonding.

Our Solution

Beyond Baby Blues is an intelligent Flask-based REST API that delivers compassionate, 24/7 mental health support through advanced AI advanced AI technology paired with human expertise.

AI-Powered Conversations

LangChain ReAct Agent with Mistral AI provides empathetic, context-aware responses to emotional wellness queries

Automated Booking

Seamless Google Calendar integration instantly schedules appointments with specialized mental health providers

Crisis Intervention

Immediate safety pathways and emergency resources for severe distress with direct specialist connections

Technology Stack

Core Infrastructure

Flask REST API

Python-based backend with CORS support and Swagger documentation

LangChain Framework

ReAct Agent architecture enabling reasoning, action planning, and tool integration

Mistral AI

mistral-large-latest for generation, mistral-embed for semantic search

Specialized Components

FAISS Vector Store

Efficient similarity search across mental health knowledge base with 512-character character chunking

Google Calendar API

OAuth2 authentication for automated appointment scheduling with healthcare healthcare providers

Security Layer

HIPAA-compliant architecture with environment variable protection and token token authentication

AI Intelligence: The Heart of Compassionate Care

RAG System

Retrieval-Augmented Generation combines document search with AI generation for generation for accurate, source-backed responses

ReAct Agent

Advanced reasoning engine that thinks, acts, and observes to determine optimal optimal support pathways

Multi-Tool Integration

Knowledge search, specialist matching, and appointment booking tools work in work in concert

Temperature Setting: 0.1 - Configured for consistent, empathetic responses that prioritize safety and compassion over creativity

Human-Centered Support Network

8+ Specialized Providers

Our AI connects expectant mothers with licensed professionals who understand prenatal mental health:

- **Crisis Support**

  988 Suicide & Crisis Lifeline and emergency services for immediate danger

- **Licensed Therapists**

  Counseling specialists trained in prenatal depression and anxiety disorders

- **Support Communities**

  Peer groups facilitated by professionals for shared experiences and coping strategies
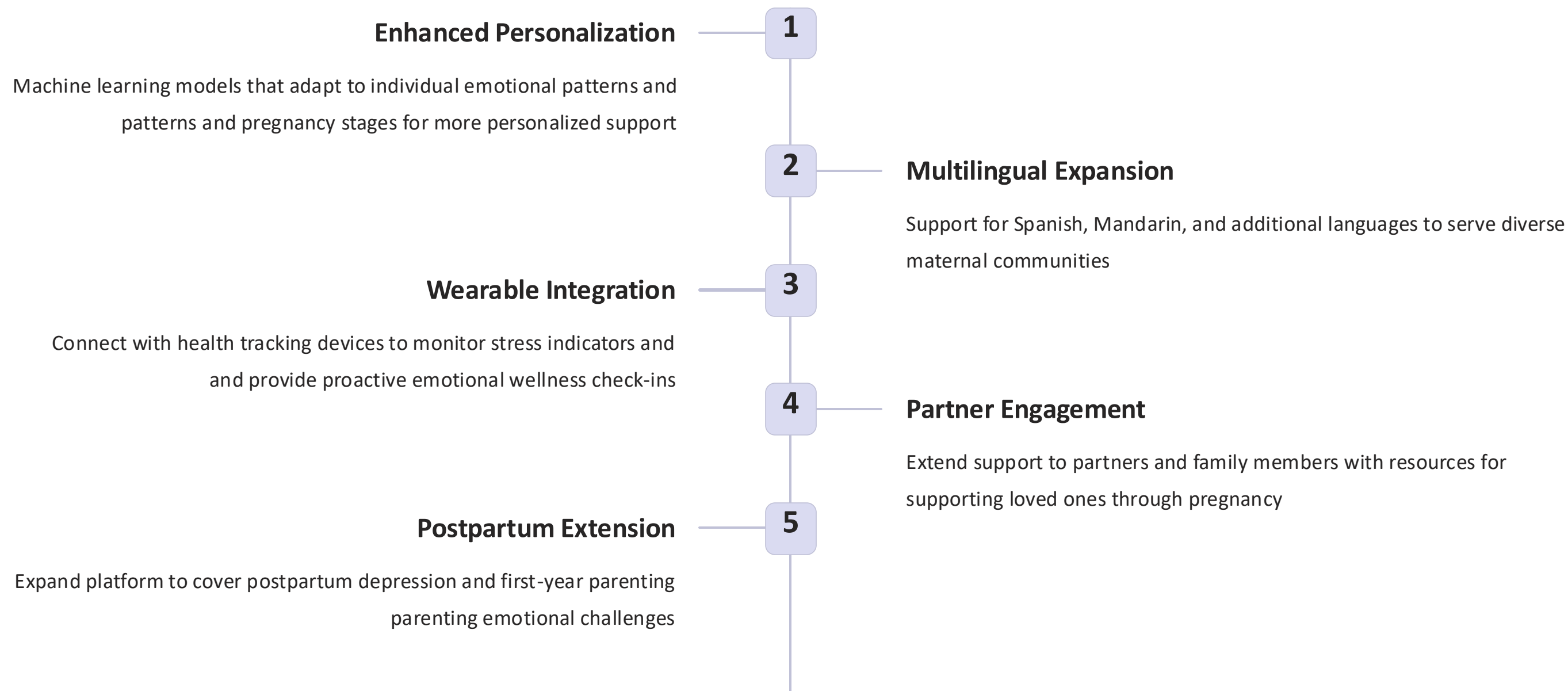
- **Medical Coordination**

  Integration with obstetric care teams for holistic pregnancy support

System Architecture

Future Roadmap

Enhanced Personalization — **1**

Machine learning models that adapt to individual emotional patterns and patterns and pregnancy stages for more personalized support

2 — **Multilingual Expansion**

Support for Spanish, Mandarin, and additional languages to serve diverse maternal communities

Wearable Integration — **3**

Connect with health tracking devices to monitor stress indicators and and provide proactive emotional wellness check-ins

4 — **Partner Engagement**

Extend support to partners and family members with resources for supporting loved ones through pregnancy

Postpartum Extension — **5**

Expand platform to cover postpartum depression and first-year parenting parenting emotional challenges

Our vision: Every expectant mother deserves compassionate, immediate access to mental health support—anytime, anywhere.