Smart Bharat: AI-Powered Rural Assistant

A voice-enabled AI assistant for rural India, delivering real-time healthcare updates, govt. schemes, and weather info all in regional languages via Dialogflow CX and Google Translate API.

1. Basic Voice Greeting & Language Selection [Beginner Level]

Description: Users can say "Hello" or "नमस्ते" to start a conversation, and the assistant responds with a greeting in the same language.

Key Points:

Use Dialogflow ES (simpler than CX) to create a "Welcome Intent" with training phrases like "Hello" in 2–3 languages (e.g., Hindi, Tamil).

Preload static responses (e.g., "नमस्ते! मैं आपकी कैसे मदद कर सकता हूँ?") without dynamic translation.

Text-to-Speech converts the response to audio using Google's default voices for selected languages.

2. Simple Healthcare FAQ [Beginner Level]

Description: Answer basic health questions (e.g., "What to do for a cough?") using a prebuilt list of remedies.

Key Points:

Store FAQs in a Google Sheet (e.g., symptom = "cough", remedy = "drink ginger tea").

Use Dialogflow ES to map user queries (e.g., "खांसी का इलाज") to the Google Sheet via a simple webhook (Zapier/AppScript).

Responses are read aloud using Text-to-Speech.

3. Static Weather Information [Beginner Level]

Description: Provide weather updates for a fixed village (e.g., preconfigured location like "Mumbai").

Key Points:

Hardcode weather data (e.g., "Today's weather: 30°C, sunny") in a Google Sheet.

Use Dialogflow ES to trigger responses when users ask, "What's the weather?"

Add voice commands in regional languages (e.g., "मौसम कैसा है?")

Intermediate Functionality 4: Multi-Turn Symptom Assessment

Description: A conversational flow to evaluate symptoms and suggest preliminary care (e.g., diarrhea, burns).

Key Points:

Use Dialogflow CX to design a decision-tree flow (e.g., “How long have you had diarrhea?” → “Is there blood in stool?”).

Fetch medical advice from a Firebase collection curated by healthcare workers.

For emergencies (e.g., snakebite), trigger an SMS alert to nearby hospitals using Twilio API and share the user’s location via Maps API.

Example Flow:

User: “मेरे पेट में दर्द है” (Stomach pain).

Assistant asks: “क्या दर्द ऊपर है या नीचे?” (Is the pain upper or lower?).

Based on answers, suggest home remedies or escalate to emergency services.**Intermediate Functionality 5: Localized Education Resource Finder**

Description: Help users find nearby educational resources (e.g., schools, vocational training centers).

Key Points:

Use Maps Places API to search for schools/training centers within a 10km radius.

Filter results by language medium (e.g., Tamil-medium schools) using Firebase-stored metadata.

Provide directions via Maps Embed API and read them aloud with Text-to-Speech.

Workflow:

User: “मेरे इलाके में हिंदी स्कूल दिखाएं” (Show Hindi schools in my area).

Assistant fetches list, filters by language, and shares the nearest 3 options with contact details.

Advanced Functionality 3: Offline-First Voice Assistant for No-Internet Zones

Objective: Enable core features (FAQs, symptom checker) without internet using edge computing.

Key Tech:

TensorFlow Lite models deployed on low-cost Android devices for offline NLP (Intent detection in regional languages).

Firebase Realtime DB with periodic sync for offline data (e.g., cached weather, schemes).

Speech Recognition via device’s offline ASR engine (e.g., Android’s SpeechRecognizer API).

Workflow:

User asks, “बुखार का इलाज बताएं” (Tell me fever treatment) → device processes locally using cached FAQs.

New data (e.g., weather updates) syncs when connectivity resumes.