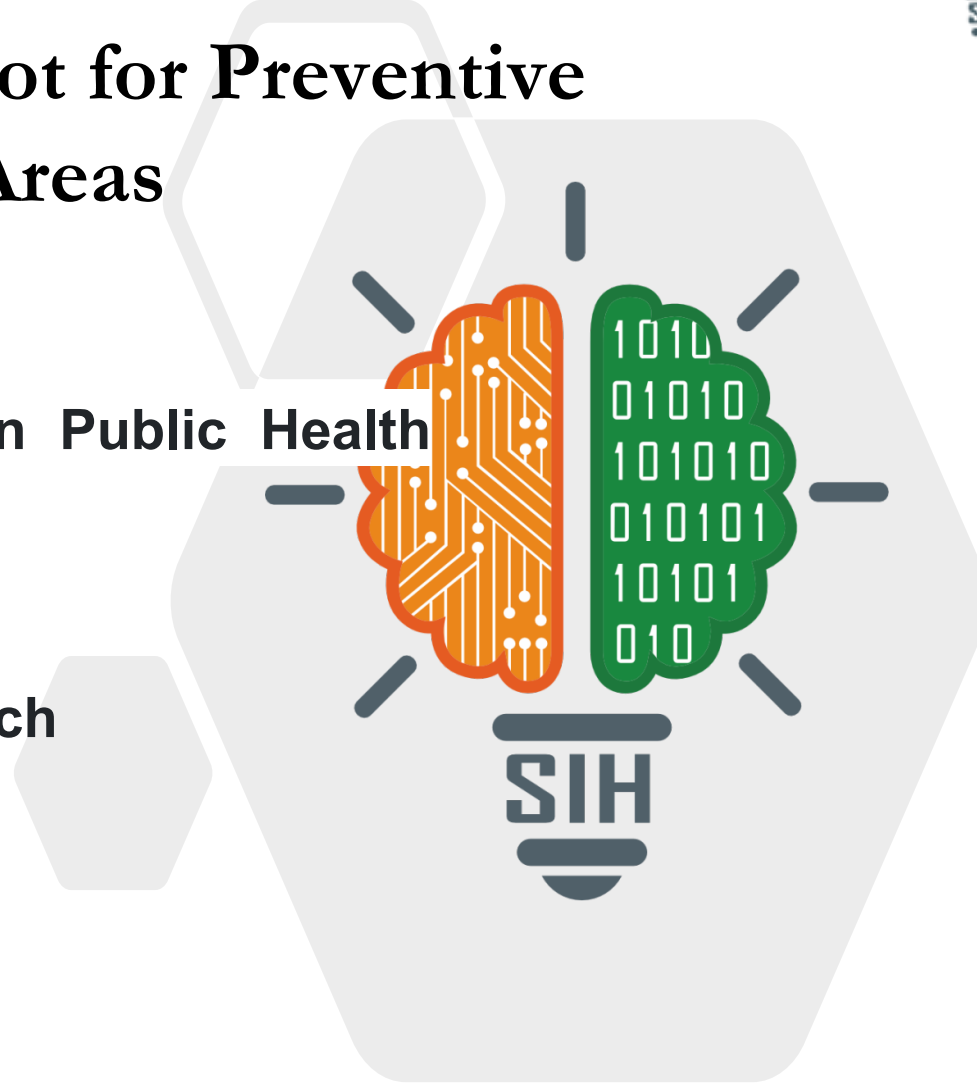


# SMART INDIA HACKATHON 2025



## A Multilingual Chatbot for Preventive Healthcare in Rural Areas

- **Problem Statement ID – 25049**
- **Problem Statement Title- AI-Driven Public Health Chatbot for Disease Awareness**
- **Theme- MedTech / BioTech / HealthTech**
- **PS Category- Software/Hardware**
- **Team ID-**
- **Team Name - Tech Knights**



# Idea & Proposed Solution

## Proposed Solution

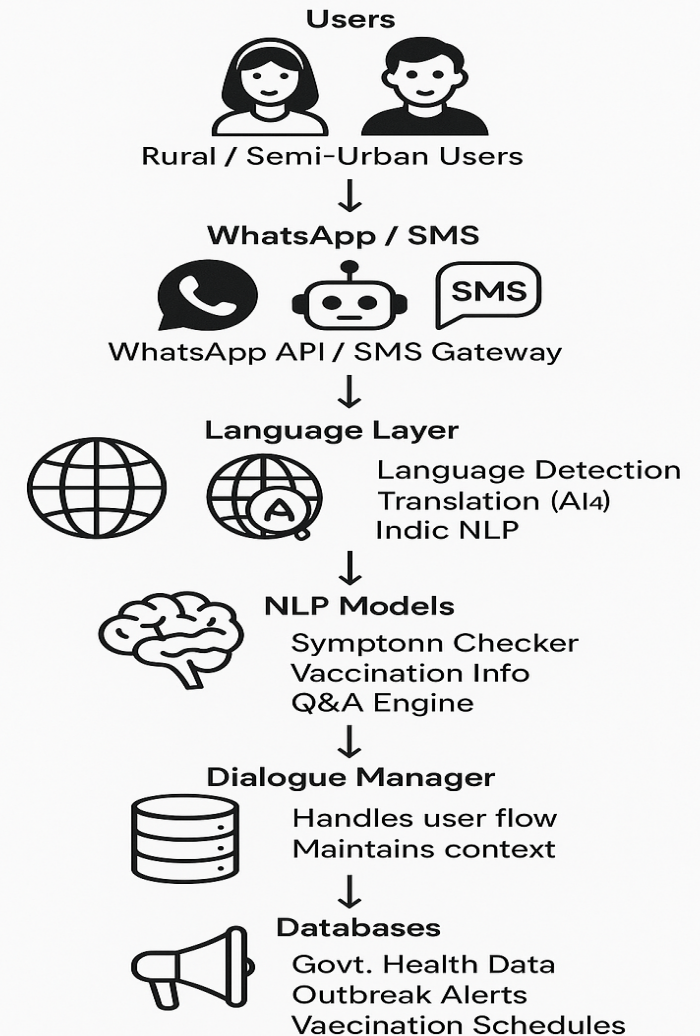
- Develop a **multilingual AI-powered chatbot** that provides **preventive healthcare awareness**.
- Supports **regional languages (Hindi, Tamil, Bengali, Marathi, etc.)** to reach diverse communities.
- Provides information on **disease symptoms, vaccination schedules, nutrition tips, and outbreak alerts**.
- **Integrates with government health databases** for trusted & real-time information.
- **Unique feature:** Accessible through **WhatsApp, SMS, and voice interface** for areas with low literacy and poor internet.

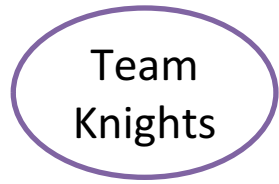
## Technologies to be Used-

- **NLP & AI:** Multilingual Transformer Models (mBERT, IndicBERT, Whisper for speech)
- **Backend:** Python, FastAPI, Flask
- **Database:** PostgreSQL / SQLite
- **Communication:** Twilio / WhatsApp Business API, SMS Gateway
- **Cloud:** AWS/GCP for scalability

## Methodology & Process-

1. **User Query** → Captured via WhatsApp/SMS/Voice
2. **Language Detection** → Identify and translate into English for uniform processing
3. **NLP Model** → Classify intent & generate response in user's language
4. **Knowledge Integration** → Government health DB + curated dataset
5. **Response Delivery** → Text or voice in the same local language
6. **Feedback Loop** → Store queries for continuous improvement





# FEASIBILITY AND VIABILITY



## Feasibility

- Pre-trained multilingual models (HuggingFace, Indic NLP) available
- WhatsApp/SMS APIs widely adopted
- Government databases provide reliable structured health data

## Challenges & Risks

- Variations in dialects & rural vocabulary
- Handling misinformation & unverified health queries
- Limited smartphone/internet penetration in rural areas

## Strategies to Overcome

- **Dialect Adaptation:** Use fine-tuning with regional datasets
- **Fact-Checking Layer:** All responses cross-verified with govt. health sources
- **Offline Mode:** SMS-based chatbot for low-internet regions

# IMPACT AND BENEFITS



## Impact

- Reaches **millions in rural & semi-urban areas** across India
- Creates **early awareness of symptoms & preventive measures**
- Promotes **vaccination adherence** and **reduces misinformation**

## Benefits

- **Social:** Empowers rural communities with health knowledge in their own language
- **Economic:** Reduces burden on healthcare infrastructure by promoting prevention
- **Technological:** First-of-its-kind **multilingual, multimodal healthcare chatbot** integrated with govt. databases
- **Scalable:** Can be expanded to cover mental health, women & child health, and nutrition awareness

## Research

- WHO & Govt. health portals (vaccination & awareness data)
- Indic NLP & AI4Bharat (multilingual support)
- Studies on healthcare chatbots & Aarogya Setu app
- User accessibility (WhatsApp/SMS in rural areas)

## References

- WHO – <https://www.who.int>
- MoHFW India – <https://www.mohfw.gov.in>
- AI4Bharat – <https://ai4bharat.org>
- Hugging Face – <https://huggingface.co>