SMART INDIA HACKATHON 2025

AAROGYA SARTHI

(A Public Health Initiative for Rural and Semi-Urban Populations of Odisha)

- **Problem Statement ID-** SIH25049
- **Problem Statement Title-** AI-Driven Public Health Chat bot for Disease Awareness
- **Theme-** Med Tech / BioTech / Health Tech
- **PS Category-** Software
- **Team ID-**
- **Team Name-** Sarthi

Aarogya Sarthi

❖ Proposed Solution

- **Aarogya Sarthi** is an "AI-driven multilingual chat bot" designed to improve preventive healthcare awareness, disseminate disease-related information, and share vaccination schedules with rural and semi-urban communities.

- 🌍 **Multilingual Access** – Breaks language barriers by providing support in regional languages such as Odia, Kui, Santali, Hindi, and English, ensuring inclusivity and accessibility across diverse populations.

- 📱 **Universal Accessibility:** Available through WhatsApp and SMS, eliminating the need for smartphones or specialized mobile applications.

- 🩺 **Preventive Healthcare Awareness:** Delivers guidance on hygiene, disease prevention, and vaccination schedules to empower communities with essential health knowledge.

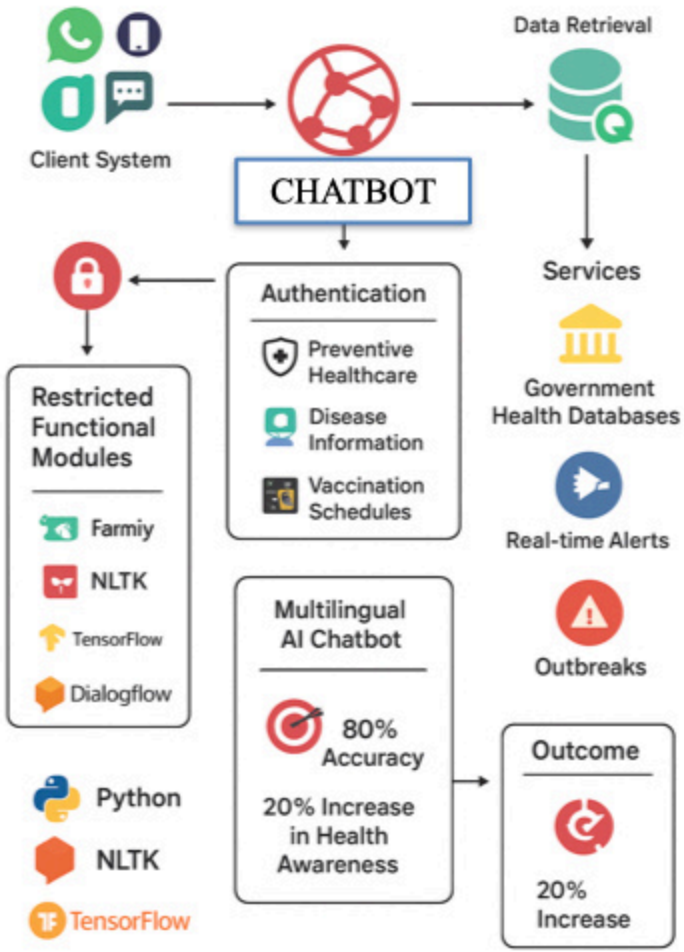
- 🤖 **AI-Powered Conversational Support:** Employs natural language processing (NLP) models to engage in contextual, conversational interactions, enhancing user trust and engagement.

- **User-Friendly Experience:** Utilizes simple language and icon-based instructions wherever feasible, making the platform accessible even to individuals with low literacy levels.

- 🚑 **Real-Time Public Health Alerts:** Shares verified, location-specific outbreak

- 🤝 **Bridge Between Citizens & Health Services** – Guides users to visit nearest vaccination centers, PHCs, and health camps time to time.

System Architecture



TECHNICAL APPROACH

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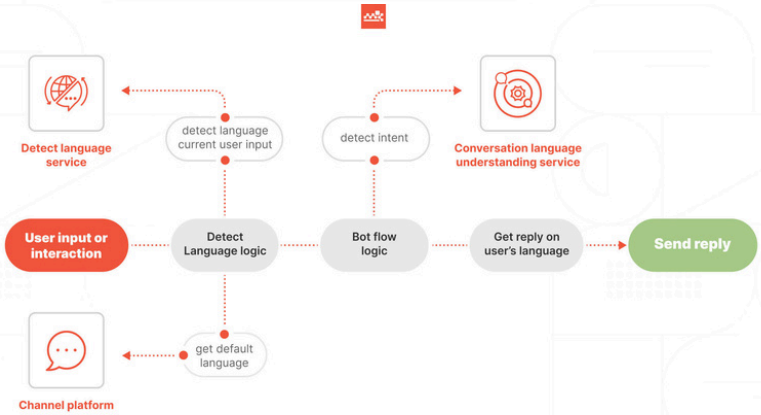
- **AI/ML Model:-**Python, TensorFlow, Fine tuned Pre- trained LLMs e.g., BERT, GPT-4.
- **Backend API:-**Node.js, Python, Java
- **Messaging:-**Twilio, WhatsApp Cloud API
- **Frontend:-**React, HTML, CSS
- **Database:-**SQL (PostgreSQL/MySQL), MongoDB
- **Integration:-**RESTful APIs, Ngrok
- **Translation:-**Google/Microsoft/Azure APIs
- **Cloud & Infra:-**AWS, Azure, E2E Cloud
- **Security:-**HIPAA, MeitY tools

Implementation of chat bot



Strengths of the Current Proposal

- It directly addresses a critical public health issue in India—the lack of accessible, localized, and timely health information in rural and semi-urban areas.
- It tackles the digital divide by using WhatsApp and SMS, which are widely accessible platforms.
- The emphasis on preventive healthcare, disease awareness, and vaccination schedules is crucial for a proactive public health strategy.
- The use of established technologies like Python, TensorFlow, and cloud services demonstrates a solid technical approach
- The potential outcomes, such as a 20% increase in health awareness and a stronger connection to health services, are quantifiable and significant.

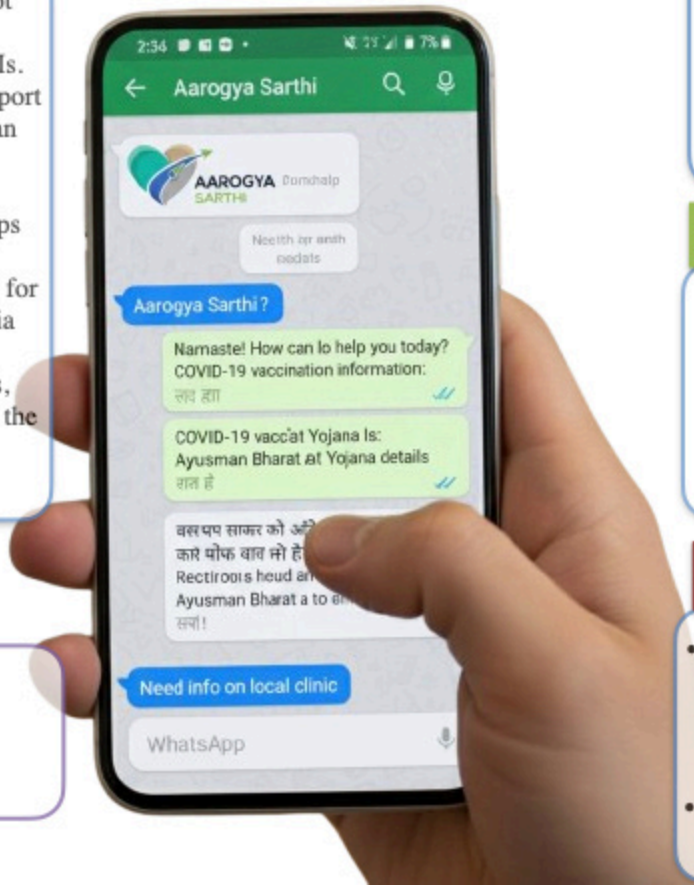
FEASIBILITY AND VIABILITY

FEASIBILITY

- **Technical Feasibility:** AI-powered chat bot works on WhatsApp, SMS, and Web platforms; easy to deploy with existing APIs.
- **Operational Feasibility:** Multilingual support ensures accessibility in rural and semi-urban areas.
- **Financial Viability:** Low-cost setup with cloud services; scalable through partnerships with government and NGOs.
- **User Adoption:** Simple interface designed for low digital literacy users; offline support via SMS/USSD.
- **Impact Potential:** Can improve awareness, early outbreak alert, and preventive care at the community level

CHALLENGES

- **Digital literacy gap:** Awareness
- **Data privacy & security:** Protection
- **Low network access:** Connectivity
- **Building trust in AI:** Reliability



USE CASES

- Symptom analyser
- Automated Vaccination reminders
- Real-time Outbreak alerts
- Preventive health education

BUSINESS POTENTIAL

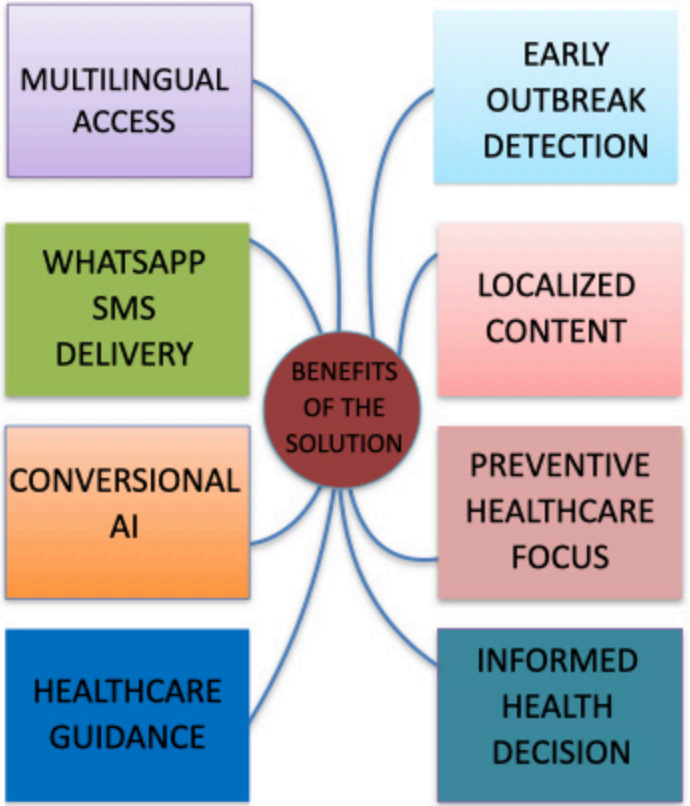
- Partnerships with Govt. health programs & NGOs
- Subscription model for private clinics & hospitals
- CSR adoption by corporates for rural health outreach
- Scalable across India & developing countries

KEY OUTCOMES

- Aarogya Sarthi - empowers communities with verified health information, early disease detection, and timely vaccination reminders.
- It reduces misinformation while providing accessible healthcare guidance in local languages.

Potential Impact on the Target Audience

1. **Increased Health Awareness**
   - Rural & semi-urban populations gain reliable knowledge on hygiene, vaccination, and preventive practices.
2. **Bridging the Digital Divide**
   - Even people without smartphones or apps can access health guidance through SMS and WhatsApp.
3. **Reduced Language Barriers**
   - Communities understand health information in their **own language/dialect**, leading to better comprehension and adoption.
4. **Early Detection of Illness**
   - Awareness of disease symptoms helps people seek medical care earlier, preventing complications.
5. **Improved Vaccination Coverage**
   - Timely reminders and schedules increase immunization rates, protecting children and adults from preventable diseases.
6. **Community-Level Protection**
   - Real-time outbreak alerts in local languages help communities take immediate precautions, reducing spread.
7. **Stronger Connection to Health Services**
   - Guidance to the nearest PHC, health camp, or vaccination center ensures better access to care.



RESEARCH AND REFERENCES

LINKS OF RESEARCH WORK AND REFERENCES

- AI-powered chat bots can promote health awareness and deliver preventive healthcare, as shown in systematic reviews https://pmc.ncbi.nlm.nih.gov/articles/PMC10007007/

- Chat bots ensure accessible medical consultation and health awareness for rural communities https://ijrpr.com/uploads/V6ISSUE5/IJRPR44962.pdf

- WhatsApp is an effective channel for spreading health information, including vaccination schedules, in low-tech settings https://pmc.ncbi.nlm.nih.gov/articles/PMC8173666/

- Multilingual healthcare chat bots bridge language barriers for preventive medicine https://www.moin.ai/en/chatbot-wiki/multilingual-chatbots

- WhatsApp and SMS-based interactive health messaging boost vaccination and disease awareness https://pubmed.ncbi.nlm.nih.gov/39412842/

- Designing for local language and culture increases chat bot engagement and health education impact https://masterofcode.com/blog/engaging-your-customer-with-a-multilingual-chatbot