SYNTH QUEST HACKATHON

- **Team Name (Registered on Unstop):** HackStreet Boys
- **Themes:**
  - **Theme-1:** Health
  - **Theme-2:** E-Commerce
- **Team Members Details:**

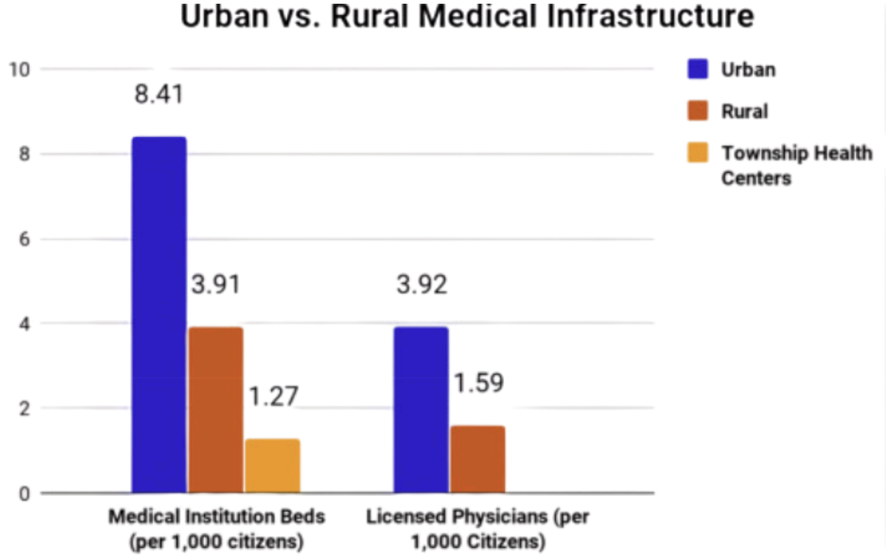
  Vaibhav Kanojia (TL),
  Vatsalya Soni
- **College:** Delhi Technological University

DR.BUDDY
CONNECTING CARE,
ANYTIME, ANYWHERE

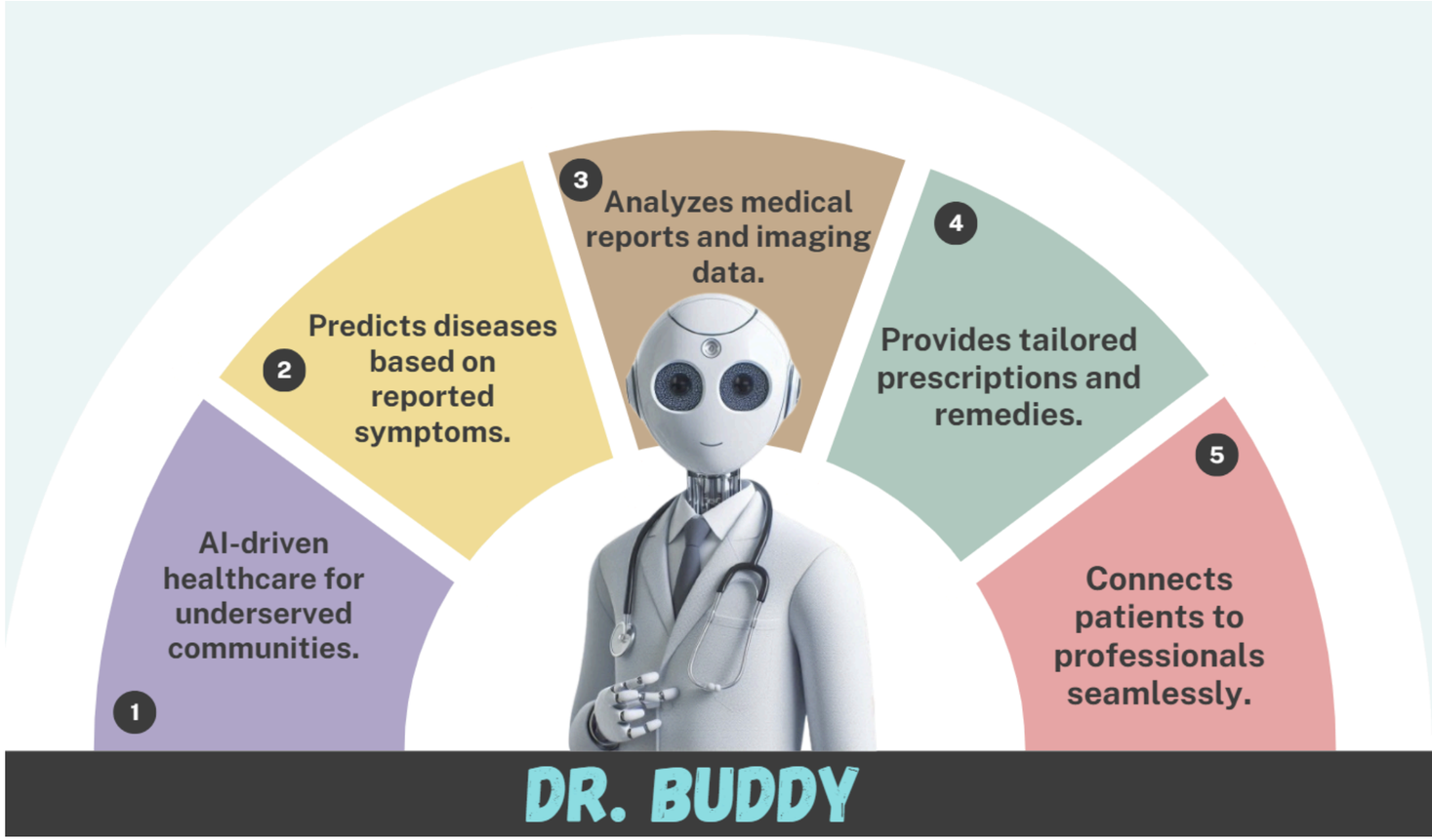
PROBLEM STATEMENT

PS 2 Low-Cost Diagnostics & Vernacular Bots Using AI

Create a proof-of-concept for a low-cost diagnostic solution that incorporates AI-powered vernacular bots for symptom triage and patient guidance. The solution should operate on minimal infrastructure, support multiple regional languages, and facilitate secure data management in rural environments.



NO WORRIES! PRESENTING TO YOU



DR. BUDDY

DISEASE PREDICTION

INPUT

Regional Voice detected and converted to text

OUTPUT

Voice enabled diseases predicted on the basis of symptoms

MEDICAL IMAGES & REPORT ANALYSER

IMAGES

X-Rays, ECG, MRI , CT

BLOOD REPORT

Out of Biomedical Range Detection

OUTPUT

Possible Tumors , breast cancer , out of bounds blood analysis

MEDICAL PRESCRIPTION AND EMERGENCY SERVICES

DISEASE PREDICTED

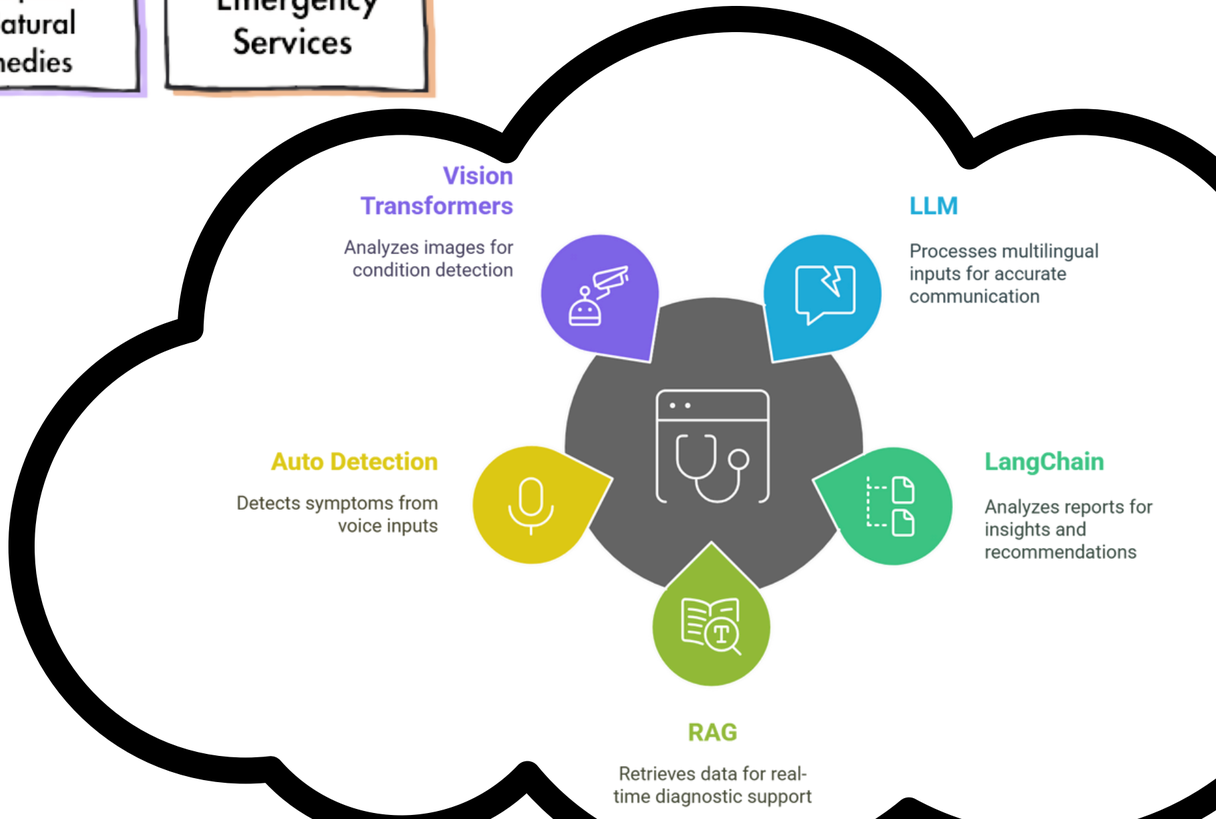
Medicine Prescription & Natural Remedies

HIGH RISK PREDICTED

Displaying of Emergency Services

node JS, HTML, JS, CSS, learn, OpenCV, Flask, PyTorch, React, Streamlit, Flutter, Tailwind CSS, Hugging Face, NumPy, Keras, Machine Learning, TensorFlow, SQL

TECHNICAL APPROACH



01

Multilingual ASR

Transcribes user symptoms in regional dialects

02

Fine-tuned NLP model

Maps symptoms to potential diagnoses

03

Severity Classification Module

Assesses condition urgency and severity

04

Contextualized Treatment Suggestions

Provides appropriate medical advice

05

Output Delivery in Vernacular

Ensures accessible communication

06

Error-handling Mechanisms

Addresses data inconsistencies and uncertainties

AI INTEGRATED HYBRID PIPELINE

DIRECT USERS TO PHARMACIES FOR PRESCRIBED MEDICATION.

ENABLE EASY MEDICINE ORDERS VIA AI DIAGNOSIS AND DOCTOR ESCALATION.

COLLABORATE WITH PHARMACIES FOR EFFICIENT MEDICATION DELIVERY.

AND TO THIS...

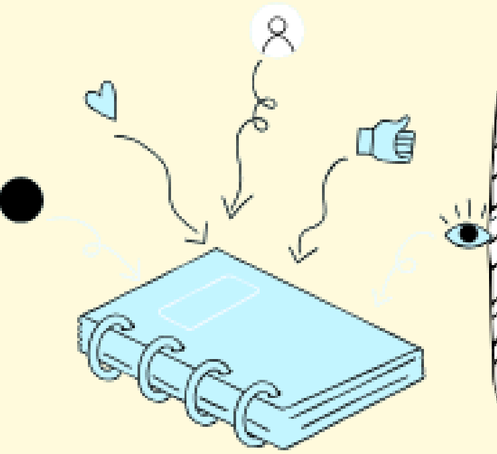
REPORT ANALYSIS BOT

- Automate medical image analysis & provide tailored recommendations
- AI Bot generates a simplified report & next steps.
- Diagnosis-based personalized recommendations (lifestyle, further tests).

PERSONALIZED DIET BOT

- Provide AI-driven health & wellness plans.
- User enters health data & AI suggests diet/lifestyle changes.
- Tailored meal plans, exercise routines, & habits & Integration with disease risk assessment.

MARKET ANALYSIS



OPEN-SOURCE FRAMEWORK

No Expensive Infrastructure: Dr.Buddy leverages open-source tech to minimize costs, ensuring scalability without hefty investment.

AI-POWERED VERNACULAR BOTS

Universal Access: Supports all regional languages, enabling easy access through smartphones with minimal hardware requirements.

SUSTAINABLE REVENUE STREAMS

Expanding Reach: Scalable in rural and remote areas, providing affordable healthcare with minimal infrastructure requirements.

SCALABLE AND ACCESSIBLE

Expanding Reach: Scalable in rural and remote areas, providing affordable healthcare with minimal infrastructure requirements.

FEASIBILITY VIABILITY

TECHNICAL INNOVATION

- State-of-the-art NLP for precise symptom recognition.
- Machine learning algorithms for adaptive learning and improvement.

SCALABILITY POTENTIAL

- Modular architecture designed for rapid deployment across regions.
- Support for multi-language and dialect expansion as user base grows.

USER-CENTRIC DESIGN

- Intuitive interface tailored for diverse user demographics.
- Voice interaction capabilities for improved accessibility and ease of use.

INTEROPERABILITY

- Seamless integration with existing health systems and platforms.
- Standardized protocols for data exchange and collaboration with providers.

DATA-DRIVEN INSIGHTS

- Real-time analytics for monitoring health trends and outcomes.
- Predictive modeling to identify emerging health issues in communities.

OPERATIONAL EFFICIENCY

- Automated workflows to minimize response times and resource usage.
- AI-driven prioritization for urgent cases to enhance patient care.

IMPACT AND BENEFITS

ACCESSIBILITY

- Provides healthcare access in remote regions, breaking geographical barriers.
- Translates dialects, ensuring communication for diverse populations.
- Easy and interactive interface using audio assistant.

EMPOWERMENT

- Enables users to understand their health through preliminary diagnoses and guidance.
- Fosters health literacy by providing information on common ailments and treatments.
- Encourages proactive health management with easy-to-use AI tools.

TRANSFORMING HEALTHCARE HORIZONS

- Transforms healthcare delivery by reaching underserved populations, ensuring that no one is left behind.
- Equips individuals with essential health tools, fostering a culture of self-care
- Pioneering Innovation: Sets a new standard in medical technology, integrating AI

TECHNOLOGICAL INNOVATION

- Utilizes AI to accurately analyze medical reports and images, improving diagnostic capabilities.
- Integrates voice and visual input for a comprehensive understanding of patient health.
- Adapts to evolving medical knowledge through continuous learning algorithms.

EFFICIENCY

- Reduces wait times for diagnosis with an interactive voice assistant.
- Automates emergency referrals, ensuring timely connections to healthcare professionals.
- Streamlines data processing from medical reports, enhancing workflow for users.

RESEARCH AND REFERENCES

- Park, D. J., Park, M. W., Lee, H., Kim, Y.-J., & Kim, Y. (Development of machine learning model for diagnostic disease prediction based on laboratory tests).
- Byeon, H., GC, P., Hannan, S. A., Alghayadh, F. Y., Soomar, A. M., Soni, M., & Bhatt, M. W. (2024). Deep neural network model for enhancing disease prediction using auto encoder based broad learning.
- Gaurav, K., Kumar, A., Singh, P., Kumari, A., Kasar, M., & Suryawanshi, T. (Human disease prediction using machine learning techniques and real-life parameters).
- Singh, P. (Disease prediction using symptoms based on machine learning algorithms). Publisher: IEEE.
- (Symptom-based disease prediction: A machine learning approach).