
Concept Note: MediGenAI – AI-Powered Medical Report Generator for Rural Health

---

1. Project Title

MediGenAI – Automated Multidisciplinary Medical Reporting through AI and Workflow Automation

---

2. Sustainable Development Goal (SDG) Alignment

This project directly supports **SDG 3: Good Health and Well-being** by enhancing access to timely, specialist-level diagnostic reports in **rural and underserved communities** using artificial intelligence and workflow automation.

---

3. Problem Statement

In rural healthcare environments, general practitioners are often overwhelmed and lack access to specialist support. Patients rarely receive detailed, multidisciplinary assessments due to a scarcity of specialized professionals. Additionally, manual report creation is time-consuming, error-prone, and often inconsistent—leading to delays in diagnosis and treatment.

---

4. Objective

To develop an AI-powered medical agent that automatically generates a comprehensive, specialist-style diagnostic report from a brief input diagnosis. The report is delivered in real-time to doctors or patients via email or WhatsApp, helping streamline documentation and improve care delivery in remote regions.

---

5. Proposed Solution

MediGenAI is a smart medical agent that performs the following:

- Accepts a short diagnosis input from rural medical personnel.
- Uses **OpenAI's GPT model** and **Meta's LLaMA model** to simulate multiple medical specialist assessments.
- Generates a detailed PDF medical report that includes the following sections:

    1. Patient Summary
    2. Structured Medical Report
    3. Cardiologist Assessment
    4. Psychologist Assessment
    5. Pulmonologist Assessment

6. Final Multidisciplinary Summary

- Delivers the report to the user through automated channels such as **email or WhatsApp** using the **n8n workflow automation platform**.

---

6. Workflow Architecture (Using n8n)

The end-to-end process is fully orchestrated using **n8n**, a low-code/no-code automation platform, enabling real-time, serverless delivery of medical reports. The workflow includes:

- Diagnosis Input → AI Processing (OpenAI & LLaMA) → Content Structuring → PDF Generation → Report Delivery via Email/WhatsApp

This setup requires no manual steps after initiation, ensuring speed, scalability, and reliability.

---

7. Key Features and Innovations

- **Multimodal AI Integration**: Combines the natural language capabilities of GPT with the local inference power of LLaMA.
- **No-Code Automation**: n8n provides a streamlined, user-friendly automation layer.
- **Simulated Specialist Input**: The AI mimics reasoning patterns of cardiologists, pulmonologists, and psychologists in a single report.
- **PDF Delivery Engine**: Automated formatting into formal, clinical-grade documents ready for direct use.
- **Scalable and Modular**: Easily extendable to new medical domains or language support.

---

8. Target Beneficiaries

- Primary care physicians in rural or semi-urban areas
- NGOs and government healthcare delivery programs
- Public health initiatives and telemedicine platforms

---

9. Expected Outcomes

- Up to **70% reduction** in clinical documentation time for rural doctors
- Accelerated access to structured health data for patients
- Increased uniformity and quality of diagnostic documentation
- Empowerment of rural clinics with expert-grade decision support tools

---

10. Future Roadmap

- Expansion to additional medical specialties including Neurology and Oncology

- Local language and speech input/output for regional accessibility
- Alignment with government health records systems like **Ayushman Bharat Digital Mission (ABDM)**
