

# AI-Powered Health Monitoring System

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## 1. Project Overview

The AI-Powered Health Monitoring System is a lightweight dashboard built with Streamlit that monitors vital health data including Heart Rate, SpO2 (oxygen saturation), and Temperature. It detects anomalies in health patterns and provides a real-time monitoring solution that can be expanded for telehealth or wearable integration.

## 2. Objectives

- To build a real-time dashboard to monitor patient vitals.
- To provide visual insights for anomaly detection in health data.
- To support health monitoring using AI and data visualization.

## 3. Methodology

We used a synthetic dataset simulating patient vitals. The dashboard was developed using Python, Streamlit, and Pandas. It visualizes trends, anomalies, and provides a clean interface. The solution is deployed freely using Streamlit Cloud.

## 4. Results

The deployed app is accessible publicly and showcases a functional health monitoring interface. It can be extended with machine learning models for predictive insights or connected to IoT devices.

## 5. Technologies Used

- Python 3.13
- Streamlit
- Pandas
- Matplotlib
- GitHub (version control and deployment)
- Streamlit Cloud (free hosting)

## 6. Screenshots

The top screenshot shows a web browser displaying the 'AI-Powered Health Monitoring Dashboard'. The dashboard title is 'AI-Powered Health Monitoring Dashboard' with a subtitle: 'This is a sample AI-powered health monitoring system that visualizes and detects anomalies in health data. Feel free to customize this with your own model or live data.' Below the title is a section 'Patient Health Data' which contains a table of patient health metrics.

	Time	Heart Rate (bpm)	SpO2 (%)	Temperature (°C)	
90	2025-01-04 18:00:00		72	95.107	36.3959
91	2025-01-04 19:00:00		81	97.7128	36.2535
92	2025-01-04 20:00:00		64	96.4282	36.2053
93	2025-01-04 21:00:00		68	93.5085	36.9248
94	2025-01-04 22:00:00		68	96.3464	36.6785
95	2025-01-04 23:00:00		57	96.7706	36.1535
96	2025-01-05 00:00:00		74	94.2323	36.9498
97	2025-01-05 01:00:00		74	96.3075	36.6536
98	2025-01-05 02:00:00		72	96.1164	36.9064
99	2025-01-05 03:00:00		69	93.7141	

The bottom screenshot shows a PowerPoint presentation titled 'AI-Health\_Monitoring\_Presentation'. The slide content includes a title 'Heart Rate, SpO2 levels, and Temperature. It provides an interface for tracking health metrics in real time. The dashboard detects anomalies and can be integrated with real-time data sources.' and a subtitle 'System Dashboard Screenshot'. The slide also features a small image of the dashboard and a red box highlighting the text: 'temperature. it provides an interface for tracking health metrics in real time. The dashboard detects anomalies and can be integrated with real-time data sources.'

## 7. Conclusion

The AI-Powered Health Monitoring System is a scalable and impactful project aligned with SDG 3 – Good Health and Well-being. Its real-time nature and accessibility on cloud platforms make it suitable for public health integration, especially in remote or underserved regions.