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Advanced Patient Monitoring and Alert System using Auto-Medicated Suggestion System

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ABSTRACT: The increasing demand for efficient and real-time healthcare solutions has led to the adoption of Internet of Things (IoT), Artificial Intelligence (AI), and Cloud m Computing in patient monitoring. This paper presents an Advanced Patient Monitoring and Alert System (APMAS) that integrates an Auto-Medicated Suggestion System (AMSS) to provide continuous health monitoring, anomaly detection, automated medication recommendations, and emergency alerting. The system collects real-time health parameters such as heart rate, blood pressure, oxygen saturation, and temperature using wearable IoT sensors. AI-driven algorithms analyze patient data to detect abnormalities and provide immediate medical suggestions based on symptom patterns. If critical conditions are identified, the system automatically triggers alerts to caregivers, doctors, or emergency services for timely intervention. The proposed system is designed for chronic disease management, post-operative care, elderly healthcare, and remote patient monitoring, ensuring improved healthcare accessibility and efficiency.

KEYWORDS: IoT in Healthcare, AI-driven Patient Monitoring, Smart Healthcare, Auto-Medicated Suggestion, Machine Learning in Medicine, Remote Patient Management

I. INTRODUCTION

In recent years, the integration of Internet of Things (IoT) and Artificial Intelligence (AI) in healthcare has transformed traditional patient monitoring and care delivery systems. Continuous monitoring of patient vitals and timely medication are crucial for improving treatment outcomes, especially in remote or resource-constrained environments. This project proposes a smart healthcare system that leverages IoT sensors to collect real-time health data such as temperature, heart rate, and oxygen levels. The collected data is transmitted wirelessly to a centralized platform, where it is analyzed using the K-Nearest Neighbors (KNN) algorithm to identify abnormal patterns and recommend appropriate medications based on prior medical knowledge.

To enhance patient care, the system also includes an automated medicine delivery bot, which follows a predefined path to deliver the prescribed medication efficiently. The bot is equipped with a servo motor-powered medicine box to ensure accurate and secure delivery. In the event of any detected anomaly, the system automatically sends alerts to caregivers along with suggested treatments, enabling rapid response and intervention.

By combining real-time monitoring, intelligent analysis, and autonomous medicine delivery, this project aims to create a comprehensive solution that supports timely medical decision-making, reduces human error, and improves patient outcomes.

II. LITERATURE SURVEY

The development of smart healthcare systems has gained significant attention due to the increasing need for efficient,real-time monitoring and medication management,especially in remote or resource-containerized environments. The integration of the Internet of Things (IoT) and artificial intelligence(AI) has enabled continuous patient monitoring,data driven decision making and automated responses. Future work may focus on enhancing real-time processing capabilities, integrating predictive analytics for proactive care and improving patient data privacy through blockchain technology.



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III. METHODOLOGY

The proposed system follows a structured methodology that integrates real-time monitoring, intelligent data analysis, and autonomous action. First, IoT sensors are deployed to continuously collect vital health parameters such as heart rate, temperature, and SpO₂ levels from the patient. These sensor readings are transmitted wirelessly via Wi-Fi to a centralized platform for processing and storage. A K-Nearest Neighbors (KNN) algorithm is applied to analyze the incoming data, detect anomalies by comparing with historical health records, and recommend suitable medications accordingly. Upon detection of any abnormal condition, alerts are automatically generated and sent to caregivers or medical staff through the platform. Simultaneously, a servo motor-powered medicine delivery bot is activated to follow a predefined path and deliver the appropriate medication to the patient. This integrated approach ensures timely detection, informed decision-making, and efficient delivery of treatment without human intervention.

IV. EXPERIMENTAL RESULTS

The system successfully monitored patient vitals in real-time with minimal transmission delay (2–3 seconds). The KNN algorithm achieved 94% classification accuracy for patient conditions. Emergency alerts and auto-medication suggestions were effectively triggered with a response time under 10 seconds. Battery testing confirmed approximately 6 hours of continuous operation. Overall, the system proved efficient for real-time healthcare monitoring and intervention.



figure (iv.i)



figure(iv.ii)



figure(iv.iii)

V. CONCLUSION

The proposed system effectively integrates IoT, machine learning, and automation to revolutionize patient care by enabling real-time health monitoring and automated medicine delivery. By leveraging sensors such as the pulse sensor, DHT11, and MAX30100, the system accurately captures vital parameters and transmits them to the cloud for intelligent



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analysis using the KNN algorithm. This ensures timely detection of anomalies and the recommendation of suitable medications. The inclusion of a servo-motor powered medicine delivery bot enhances patient assistance by ensuring precise and prompt delivery of medicines without human intervention. Overall, the system improves healthcare accessibility, reduces response time in critical situations, and offers a scalable, efficient solution for both hospitals and home-based patient care.

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