



Next-Generation Pharmaceutical Quality Monitoring

A PROJECT REPORT

Submitted by

KAVIYAN SS (211423205164)

HARI PRASATH S (211423205120)

LALITH A (211423205183)

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

PANIMALAR ENGINEERING COLLEGE, POONAMALEE

ANNA UNIVERSITY : CHENNAI 600 025

OCTOBER 2025

ANNAUNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report “SMART PHARMACEUTICAL QUALITY MONITORING LEVERAGING AI AND IOT FOR REAL TIME SAFETY, COMPLIANCE, AND INTEGRITY” is the bonafide work of “KAVIYAN SS(211423205167,Module: Real-Time Monitoring, HARI PRASATH S(211423205120,Module: AI-Powered Analytics) ,LALITH A(211423205183,Module: Compliance and Alert)” who carried out the project work under my supervision..

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HEAD OF THE DEPARTMENT

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SUPERVISOR

Assistant Professor

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INTERNAL EXAMINER

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ACKNOWLEDGEMENT

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Date:

Place: **Chennai**

(KAVIYAN SS)

(HARI PRASATH S)

(LALITH A)

It is certified that this project has been prepared and submitted under my guidance.

Date:

Mrs.P.PREMA

Place: **Chennai**

(Assistant Professor / IT)+

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ABSTRACT

It is essential to ensure the safety and quality of drugs both to protect patients and comply with the law. This paper proposes an intelligent drug quality monitoring system, which utilizes artificial intelligence (AI) and the Internet of Things (IoT). The system facilitates real-time monitoring and assessment of drug quality. By utilizing sensors and artificial intelligence algorithms, it constantly tracks storage conditions, detects problems, and predicts any risks that may jeopardize the effectiveness and safety of drugs. This approach ensures that patients take safe, quality drugs while helping manufacturers and healthcare providers comply with regulatory demands. The system is a powerful tool for increasing reliability and confidence in Medicine delivery network due to the implementation of AI and IoT. Specifically for pharmaceutical facilities, the research targets the creation and implementation of a platform that integrates AI and IoT. It emphasizes key characteristics such as smart data processing, real-time data gathering, and automated notifications that allow for immediate action. The proposed system reduces costs and human faults while enhancing the precision of quality analysis. Pharmaceutical organizations are able to manage environmental factors affecting drug stability, including temperature variations and humidity, by embracing this smart system. In the end, this approach ensures patients only receive safe and effective drugs, thereby making the entire health system safer

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Date:

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ABSTRACT

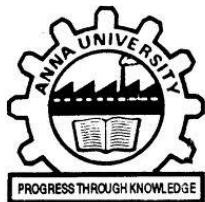
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ABSTRACT

It is essential to ensure the safety and quality of drugs both to protect patients and comply with the law. This paper proposes an intelligent drug quality monitoring system, which utilizes artificial intelligence (AI) and the Internet of Things (IoT). The system facilitates real-time monitoring and assessment of drug quality. By utilizing sensors and artificial intelligence algorithms, it constantly tracks storage conditions, detects problems, and predicts any risks that may jeopardize the effectiveness and safety of drugs. This approach ensures that patients take safe, quality drugs while helping manufacturers and healthcare providers comply with regulatory demands. The system is a powerful tool for increasing reliability and confidence in Medicine delivery network due to the implementation of AI and IoT. Specifically for pharmaceutical facilities, the research targets the creation and implementation of a platform that integrates AI and IoT. It emphasizes key characteristics such as smart data processing, real-time data gathering, and automated notifications that allow for immediate action. The proposed system reduces costs and human faults while enhancing the precision of quality analysis. Pharmaceutical organizations are able to manage environmental factors affecting drug stability, including temperature variations and humidity, by embracing this smart system. In the end, this approach ensures patients only receive safe and effective drugs, thereby making the entire health system safer

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