

# **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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**Dr. M. HELDA MERCY , M.E.,PH.D.,**

**HEAD OF THE DEPARTMENT**

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**Mrs.P.PREMA,M.E.,(Ph.D)**

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Poonamallee, Chennai -600 123

Submitted for the project and viva voce examination held on \_\_\_\_\_

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Date:

Place: **Chennai**

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(**HARI PRASATH S**)

( **LALITH A** )

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Place: **Chennai**

**Mrs.P.PREMA**

(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

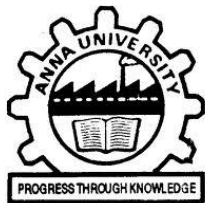
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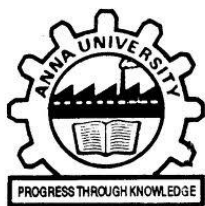


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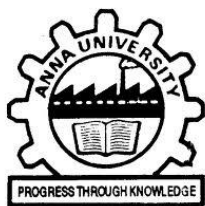
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**OCTOBER 2025**

## **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” **,LALITH A(211423205183,Module: Compliance and Alert)”** who carried out the project work under my supervision..

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## DECLARATION

I hereby declare that the project report entitled “**Next Generation Pharmaceutical Quality Monitoring**” which is being submitted in partial fulfilment of the requirement of the course leading to the award of the ‘Bachelor Of Technology in Information Technology’ in **Panimalar Engineering College, Affiliated to Anna University- Chennai** is the result of the project carried out by me under the guidance and supervision of **Mrs.P.PREMA,M.E.,(Ph.D)., Assistant Professor in the department of Information Technology**. I further declare that I or any other person has not previously submitted this project report to any other institution/university for any other degree/ diploma or any other person.

Date:

Place: **Chennai**

( **LALITH A** )

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

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Place: **Chennai**

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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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