Patent Search

Invention Title	QR-Based IoT-Enabled Smart Medical Dispensing System
Publication Number	01/2026
Publication Date	02/01/2026
Publication Type	INA
Application Number	202541124384
Application Filing Date	10/12/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	BIO-MEDICAL ENGINEERING
Classification (IPC)	G16H 20/13, G16H 40/67, G16H 40/20, A61J 7/04, G16H 10/60

Inventor

Name	Address	Country	Nat
G Srilakshmi	Associate professor, Department of ECE Vishnu Institute of Technology, Vishnupur, Bhimavaram, Andhra Pradesh, India, Pin:534202.	India	Indi
Y Srinivas	Associate professor, Department of Mechanical Engineering, Vishnu Institute of Technology, Vishnupur, Bhimavaram, Andhra Pradesh, India, Pin:534202.	India	Indi
Valavala Venkata Narasimha	Student, Department of ECE Vishnu Institute of Technology, Vishnupur, Bhimavaram, Andhra Pradesh, India, Pin:534202.	India	Indi
Tsavatapalli Venkata Sivasankar Varaprasad	Student, Department of ECE Vishnu Institute of Technology, Vishnupur, Bhimavaram, Andhra Pradesh, India, Pin:534202.	India	Indi
Polupalli Gopi Chand	Student, Department of ECE Vishnu Institute of Technology, Vishnupur, Bhimavaram, Andhra Pradesh, India, Pin:534202.	India	Indi
Routhu Charan Sai	Student, Department of ECE Vishnu Institute of Technology, Vishnupur, Bhimavaram, Andhra Pradesh, India, Pin:534202.	India	Indi
Mohammed Lubna Tahseen	Student, Department of ECE Vishnu Institute of Technology, Vishnupur, Bhimavaram, Andhra Pradesh, India, Pin:534202.	India	Indi

Applicant

Name	Address	Country	Nation
Vishnu Institute of Technology	Sri Vishnu Education Society, Kovvada Rd, Vishnupur, Kovvada, Andhra Pradesh 534202	India	India

Abstract:

The invention relates to a QR-based smart medical dispensing system that automates prescription authentication and dosage delivery through IoT-enabled control and ste motor–driven mechanisms. A web application generates encrypted QR codes containing patient-specific medication data, which are scanned by a camera module connect Raspberry Pi microcontroller. The decoded information is validated and converted into motor-control signals that actuate one or more stepper motors to dispense precise quantities of medicine from designated compartments. The system includes remote monitoring, automated logging, and error-handling features, ensuring accuracy, trace and secure workflow integration with clinical or telemedicine environments. The invention significantly reduces manual dispensing errors and provides a scalable, low-cost solution for modern healthcare facilities.

Complete Specification

Description:FIELD OF THE INVENTION

[001] The present invention relates to the domain of healthcare automation, smart pharmaceutical dispensing, and IoT-enabled mechatronic control systems, and more particularly to a QR code–based medical dispensing system that integrates image processing, embedded microcontroller technologies, and stepper motor–driven dispensing mechanisms to automate the interpretation of digitally encoded prescriptions and the precise dispensing of corresponding medications. The invention encompasses an intelligent dispensing architecture that utilises QR-based prescription authentication, Raspberry Pi or equivalent microprocessor platforms, ULN2003-driven stepper motors, and IoT connectivity to ensure accurate dosage delivery, minimise human error, enhance traceability, and optimise workflow efficiency in hospita clinics, pharmacies, telemedicine kiosks, and other healthcare service environments.

BACKGROUND OF THE INVENTION

[002] Medication dispensing in hospitals, clinics, pharmacies, and telemedicine environments remains vulnerable to significant human error, inefficiencies, and inconsistencies in dosage administration. Traditional manual dispensing processes often rely on subjective interpretation of handwritten prescriptions, leading to risks su as incorrect dosage, misidentification of medicines, wrongful substitutions, and failure to comply with prescribed schedules. These risks are exacerbated during high pat volumes, emergency handling, or understaffed medical facilities, contributing to preventable adverse drug events. Existing digital prescription systems, although capable

View Application Status