# Chapter 2
# Smart and Portable IoT Medication Management and Reminder Systems

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## ABSTRACT

*Healthcare has become an important part of daily life. Medicine reminders play a major role in day-to-day life, especially for individuals who require regular medication for managing chronic conditions or addressing specific health concerns. Timely medication intake helps prevent emergency situations that may arise from sudden health deterioration due to missed doses. Reminders help mitigate these risks by promoting a consistent medication routine. This research introduces Smart Box, a novel portable IoT-based system designed to combat this issue through intelligent medication reminders.*

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## 1. INTRODUCTION

In the realm of healthcare, ensuring timely and accurate medication adherence remains a critical challenge. This research presents an IoT-based Medicine Reminder Portable System, a cutting-edge solution leveraging the power of Internet of Things (IoT) technologies. Integrating a Light Dependent Resistor (LDR) sensor for ambient light detection, an LED indicator for visual cues, an ESP8266 microcontroller for connectivity, and Blynk notification integration, the system addresses the crucial issue of medication adherence.

Traditional medication reminder systems may lack real-time monitoring capabilities and customization, often resulting in suboptimal management of medication regimens. The IoT-based solution addresses these limitations by offering personalized reminders tailored to individual medication needs. Elderly individuals often deal with multiple medications for various chronic conditions, and memory issues can lead to missed doses or incorrect administration. The IoT-based system serves as a reliable and user-friendly solution by offering personalized reminders through connected devices. In hospitals, IoT based portable medication reminder systems can be employed to streamline medication administration processes. Smart dispensing systems integrated with IoT technology ensure accurate medication dosages, reducing the risk of errors. The system also facilitates seamless communication with electronic health records, enabling healthcare professionals to monitor patient adherence patterns, make data-driven decisions, and intervene promptly if necessary.

## 2. LITERATURE REVIEW

The growing prevalence of chronic diseases and the subsequent rise in medication adherence challenges have spurred the development of innovative healthcare technologies. The integration of Internet of Things (IoT) into medication management systems has emerged as a promising avenue to address these challenges. Several studies have explored the potential of IoT-based solutions for medication reminders, highlighting the need for portable and user-friendly systems to enhance patient compliance, (Andrews & Phillips, 2020).

The medical support system using P2P and IoT technologies, utilizing a smart device called Smart Box.The implemented system includes various functions and sensors such as body sensor, infrared sensor, chair or bed vibration control, light control, smell control, and sound control. A significant contribution to the field comes from Gupta et al. (2018), who proposed an IoT-based smart medication dispenser that employed sensors for medication monitoring. While their work focused on dispensing medications, our research specifically targets the development