

# Medicine Commemorative for Visually Impaired Persons accompanied by Vibration Sensors indicating Vital Parameters

B.Pradeepa, M.E, (AP)

*Department of Biomedical Engineering Erode Sengunthar Engineering College  
Perundurai, Erode.*

M.Gokilhashree

*Department of Biomedical Engineering Erode Sengunthar Engineering College  
Perundurai, Erode.*

T.Naveenkumar

*Department of Biomedical Engineering Erode Sengunthar Engineering College  
Perundurai, Erode.*

R.Pooranimadevi

*Department of Biomedical Engineering Erode Sengunthar Engineering College  
Perundurai, Erode.*

Pranav.C.Shaji

*Department of Biomedical Engineering Erode Sengunthar Engineering College  
Perundurai, Erode.*

**Abstract—**This paper presents the development of a novel Medicine Reminder System catering specifically to the needs of visually impaired individuals. The proposed system utilizes voice recognition and tactile feedback to deliver personalized medication reminders. A user-friendly mobile application is integrated, allowing users to easily input and manage their medication schedules. The system employs voice recognition to adapt and improve reminder accuracy over time, ensuring reliability in medication adherence. Through rigorous testing and user feedback, the results demonstrate the effectiveness and user acceptance of the developed solution in enhancing medication management for the visually impaired population.

**Keywords—**SMPS, IRF9540N, Pill box, Bp sensor, Temperature sensor.

## I. INTRODUCTION

The Medicine Reminder Kit for Visually Impaired Individuals is a revolutionary solution designed to address the unique challenges faced by those with visual impairments in managing their medication schedules. This comprehensive kit integrates cutting-edge technology with user-friendly features to empower individuals with visual disabilities, ensuring they can adhere to their prescribed medication regimens with ease. Visually impaired individuals encounter significant obstacles in accurately identifying and administering their medications. Traditional medication management tools often rely heavily on visual cues, such as pill bottles with small print labels or printed schedules. This reliance on visual information poses a considerable barrier for those with limited or no sight. The Medicine Reminder Kit recognizes the critical importance of mitigating this challenge and aims to enhance the independence and well-being of visually impaired individuals by providing them with a tailored solution. The kit seamlessly integrates with a dedicated smartphone application, creating a dynamic and user-friendly interface for medication management. The app allows users to input their medication schedules, receive timely reminders, and access detailed information about each prescribed drug. Additionally, it offers voice commands for hands-free

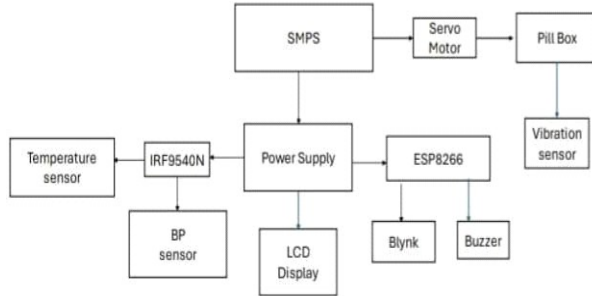
interaction, enhancing accessibility and usability. Safety is paramount, and the kit includes a robust emergency alert system. In the event of a missed dose or other critical issues, the user and designated contacts receive instant notifications. This proactive approach ensures that caregivers, family members, or healthcare professionals are promptly informed, allowing for timely intervention when necessary.

## II. RELATED WORKS

There are various medication systems which are in use currently. They depend on various stages and ideas. There is a medicine update framework, My MediHealth [2] which has been created for children. It is made available on mobile phones such as personnel digital assistance. It is a mobile application that gives Graphical User Interface to design drug schedules and alarm system to remind the patients, about time and other details. Zao et al. have created application - a smartphone application intended to help patients to avoid prescription organization mistakes [3]. Prasad B has proposed an Application, 'Medicine update expert'. This app has a limit of 15 updates. patient can select these updates while rehashing or Non-rehashing caution designs. Between the two caution designs at a time should be selected. The duration between two caution designs should be at least one hour. A reminder shall be delivered at the schedule time. This reminder could be caution vibration or LED sign [4]. Hamida et al. have recommended a secure and efficient in-Habitation Wearable insomnia monitoring and diagnosing system (2013)[5]. The sleeping data of patient at home could be received by Remote clinical background system with the help of recent technology like an experimental estimation of communication and security measures protocols in terms of security and overhead. According to Ray, (Home Health Hub Internet of Things 2014), health is one of the most important part of the life span. Making life easier is one of the most desired thing that humans want to achieve with the help of recent development of IoT [6]. The novel framework designed by Ray, helps to monitor the health of old people at their residence places through this H3IoT system. Again, according to Al Majeed et al. (Home Tele Health by IoT, 2013), IoT helps in real time monitoring of health condition. The related devices can sense, transfer data and do analysis in order to perform healthcare process. In this proposed system, they are using cost effective feasible algorithm to minimize the complexity in order to process huge data. These data are being generated by imaging devices, sensing devices and Human interaction [7]. Huang et al. [2014] proposed an intelligent Pillbox system for elderly people. The purpose of this work is to provide safe and secure medication on time [8]. Moga et al. [2015] recommended an internet based control, monitoring, low cost embedded system for a smart home. This work is using distributed sensing and control system to make this system user friendly and remotely accessible [9]. It provides a very user friendly touchscreen application to perform all events. The personal activities and independence can be well managed and improved by AT(Assistive Technology) to do better. But very few people know and access assistive Technology, because it is costly and there is lack of training, availability, and awareness. As per a survey, 2 billion people will require at least 1 assistive product by 2050. In the same time, the older people may need 2 or more assistive products. Jaun et al have proposed "The Intelligent Pill Box" [10]. Finally we have tried to develop the medicine commemorative at low cost with user friendly settings.

## III. PROPOSED IDEA

The aim of a medicine reminder kit for visually impaired persons is to enhance medication adherence, promote independence, and improve overall health outcomes for individuals facing visual challenges. This innovative solution combines technology, accessibility, and user-centric design to address the unique needs of visually impaired individuals in managing their medication regimens. Visually impaired individuals often encounter difficulties in accurately identifying and managing their medications, leading to potential health risks and complications. The medicine reminder kit aims to bridge this gap by providing a comprehensive and accessible solution that empowers individuals to take control of their health. The kit incorporates advanced text-to-speech technology, converting written information on medication labels into audible instructions. The mobile application is designed with accessibility features such as large font sizes, high contrast interfaces, and voice-guided navigation. The kit significantly improves medication adherence by providing multiple channels for receiving reminders and instructions. Caregivers and healthcare providers can remotely monitor medication adherence through the mobile application, enabling timely intervention and support when needed. Visually impaired individuals often face challenges in maintaining independence. The medicine reminder kit empowers them to manage their medication independently, reducing reliance on caregivers.



- **SMPS**

Switched Mode Power Supply (SMPS) is an electronic device that efficiently converts electrical power using high-frequency switching techniques. Unlike traditional linear power supplies, SMPS rapidly switches a transistor on and off to regulate voltage, resulting in improved energy efficiency. It comprises a rectifier, filter, and switching transistor, which controls the energy flow. SMPS is widely used in electronic devices like computers and appliances due to its compact size, reduced heat generation, and higher efficiency.

- **IRF9540N**

The IRF9540N is a power MOSFET (Metal-Oxide-Semiconductor Field-Effect Transistor) designed for electronic applications requiring high-performance switching and amplification. With a voltage rating of 100V and a continuous drain current of 23A, it excels in power management tasks. This N-channel MOSFET features a low on-state resistance, enhancing efficiency in electronic circuits. Widely used in power supplies, motor control, and audio amplifiers, the IRF9540N offers reliable performance due to its rugged construction.

- **Servo motors**

A servo motor is a specialized rotary actuator that precisely controls the position, velocity, and acceleration of a mechanical system. It operates based on feedback from an integrated sensor, typically a potentiometer or an encoder, allowing for accurate and responsive movement. The motor's design incorporates a closed-loop control system, ensuring that it continuously adjusts its position to match the desired one.

- **ESP8266**

The ESP8266 is a compact Wi-Fi module developed by Espressif Systems. It integrates a microcontroller and TCP/IP stack, enabling easy and affordable Internet of Things (IoT) connectivity. With a low-cost, low-power consumption design, it facilitates wireless communication for various applications. The module supports multiple communication protocols, making it versatile for IoT projects.

- **Vibration sensor**

A vibration sensor is a device designed to detect and measure mechanical oscillations. It responds to variations in movement or acceleration, converting these into electrical signals for analysis or triggering alarms. Commonly used in industrial machinery, automotive systems, and consumer electronics, vibration sensors play a crucial role in monitoring equipment health, identifying potential faults, and ensuring operational safety. These sensors come in various types, such as accelerometers or piezoelectric sensors, each serving specific applications.

#### IV. RESULT

Creating a medicine reminder kit for visually impaired individuals with voice recognition, a blood pressure sensor, and a temperature sensor could greatly enhance healthcare accessibility. The voice recognizer would assist in setting reminders and providing information, while the sensors could monitor vital signs. This innovation aims to empower visually impaired individuals in managing their health more effectively.

## V. CONCLUSION

The project's outcome shows that a spine posture detection and alert system was successfully developed and put into use. This creative approach has proven successful in measuring posture in real time and giving consumers immediate feedback via vibration, buzzer sound, and mobile notifications. The technology has demonstrated potential in enhancing general health and well-being by addressing the crucial problem of poor spine posture in people who lead sedentary lifestyles.

## VI. FUTURE WORK

Users can find the project more discrete and comfortable if it concentrates on using little components. The creation of miniature sensors, actuators, and microcontrollers that may be easily incorporated into apparel and other wearable objects may be necessary to achieve this. Furthermore, investigating the application of lightweight, flexible materials can improve the usability and comfort even more.

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