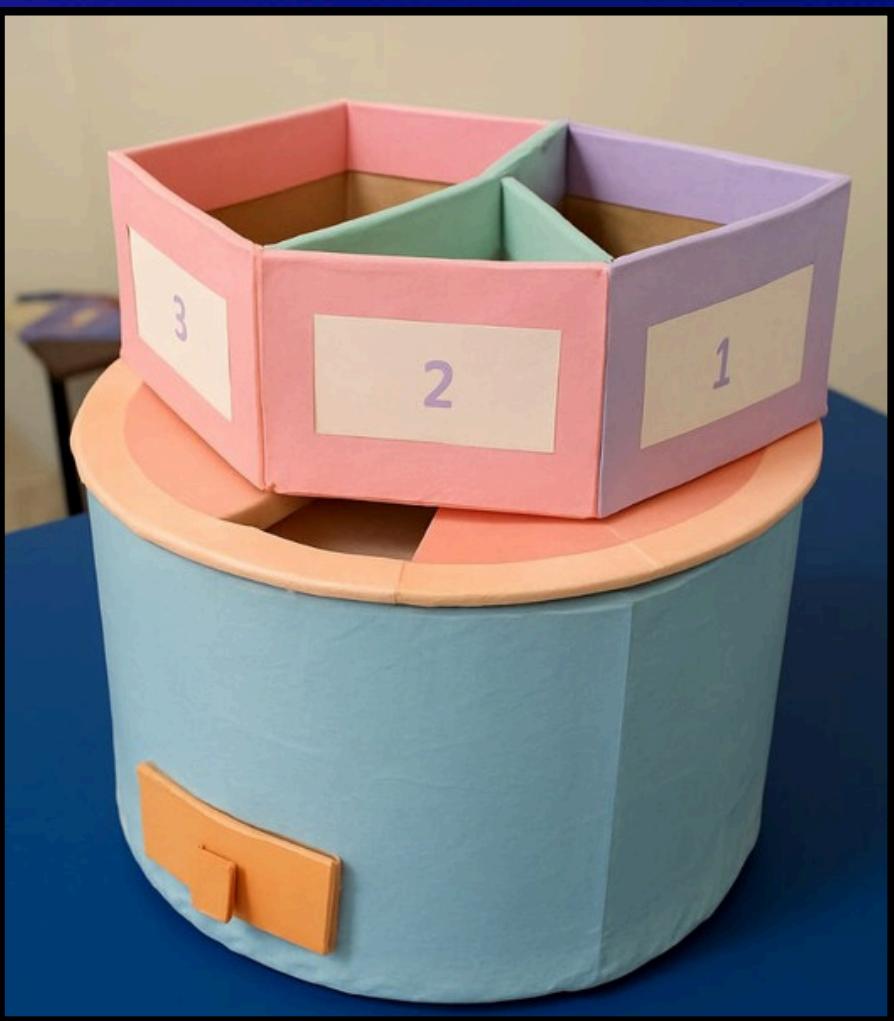


TIMELY DOSES, HEALTHIER LIVES!

SMART PILL DISPENSER

BY MEDI NOVA



OUR TEAM

2ND YEAR 3RD SEM

DEPARTMENT--CSE

Sankalan Pal (Leader & Presenter)

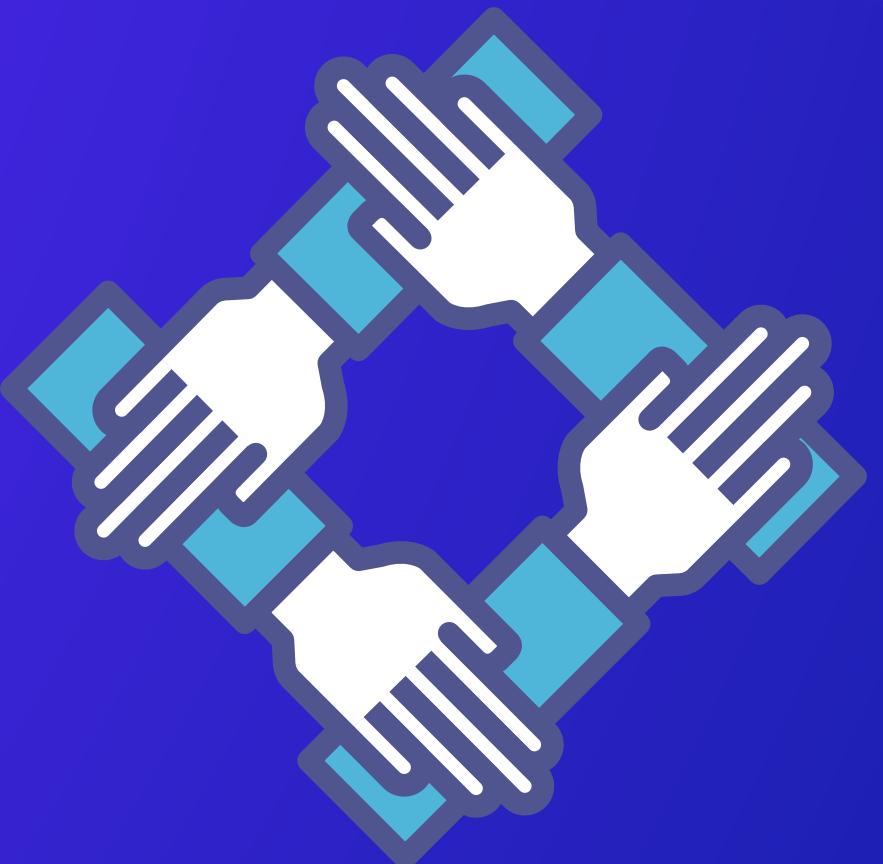
Puskar Nath (Researcher & Presenter)

Shayak Sarkar (Researcher)

Aniraj Saha (visualization)

Samadrita Datta (Designer)

Pameli Saha (Designer)





WHAT IS SMART PILL DISPENSER?

- 01 This device that automatically dispenses the right pill at the scheduled time.
- 02 Designed to help chronic patients, elderly, and caregivers.
- 03 Reduces missed doses and overuse.
- 04 It provides reminders, alerts to refill.

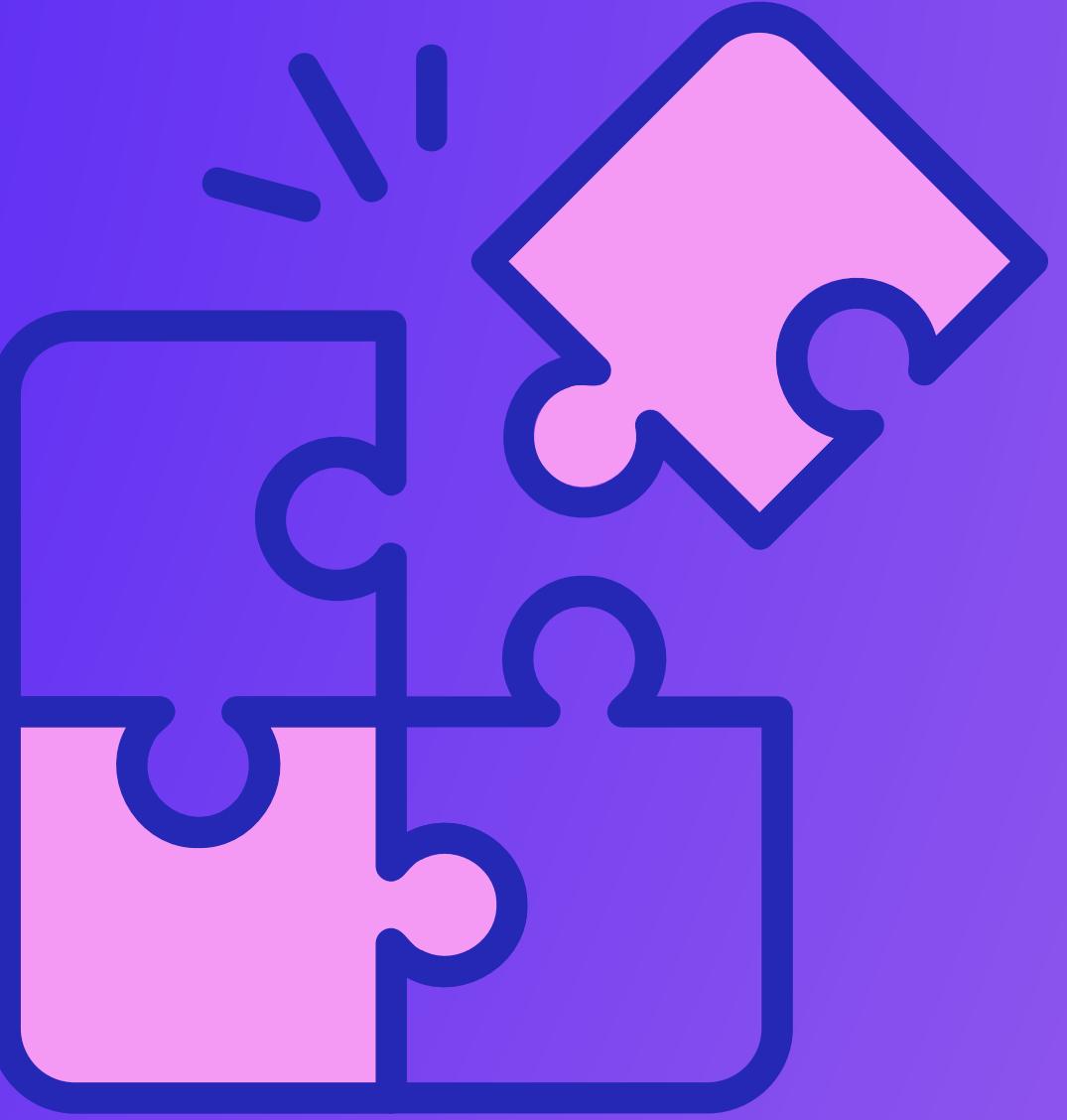


PROBLEM STATEMENT

- Many people forget to take their medicine on time.
- Missed or incorrect doses can lead to serious health problems.

Need for Smart Solution

- A smart system is required to ensure accurate and timely medicine intake.
- Especially useful for elderly people, patients with memory issues, and chronic disease management.
- Studies suggest that a 10% increase in medication adherence can lead to an 11% reduction in emergency room visits and a 6% decrease in avoidable hospitalizations.



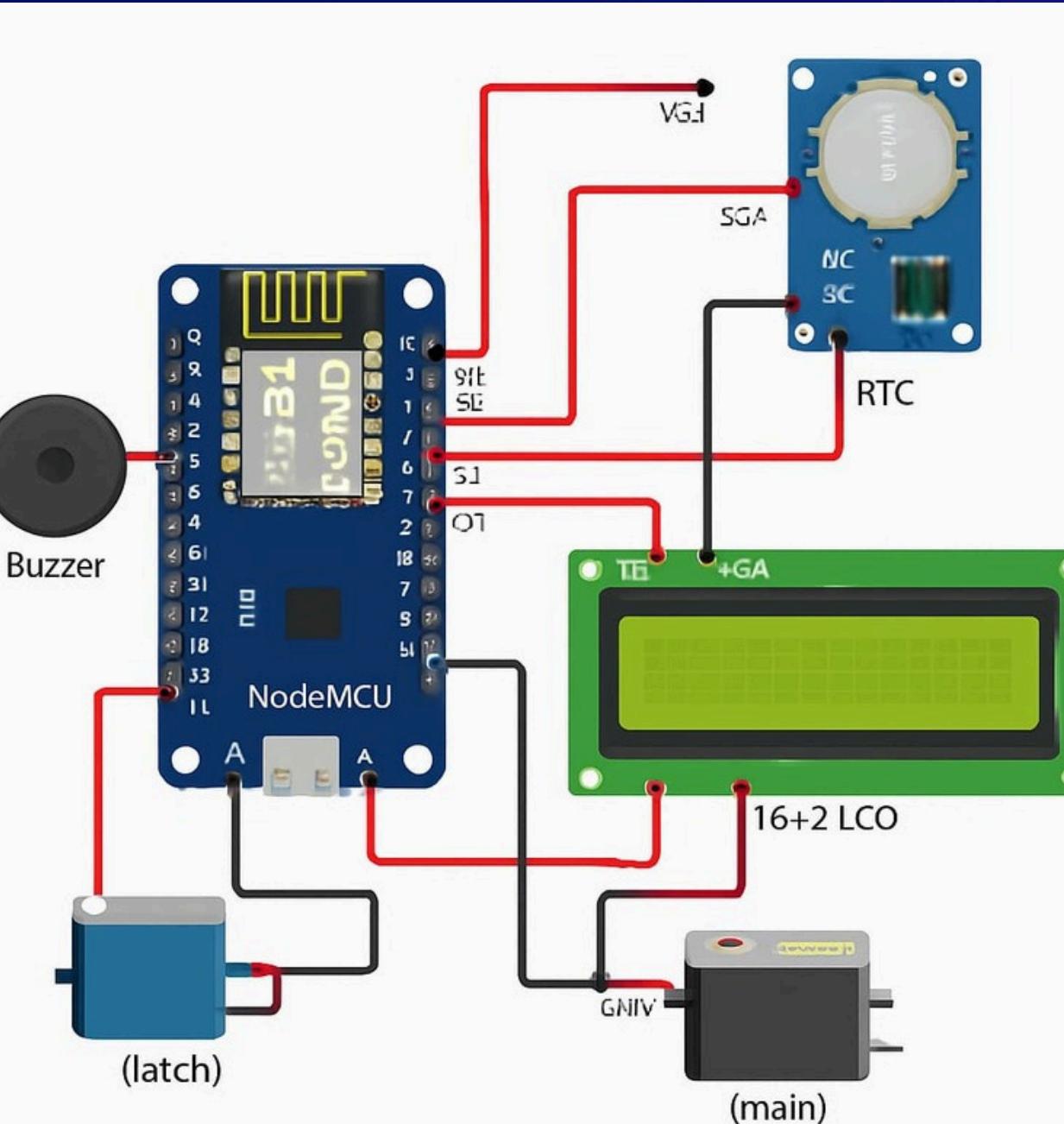
OBJECTIVES

AIM: To ensure timely, accurate, and automated medication management for improved patient compliance and safety.

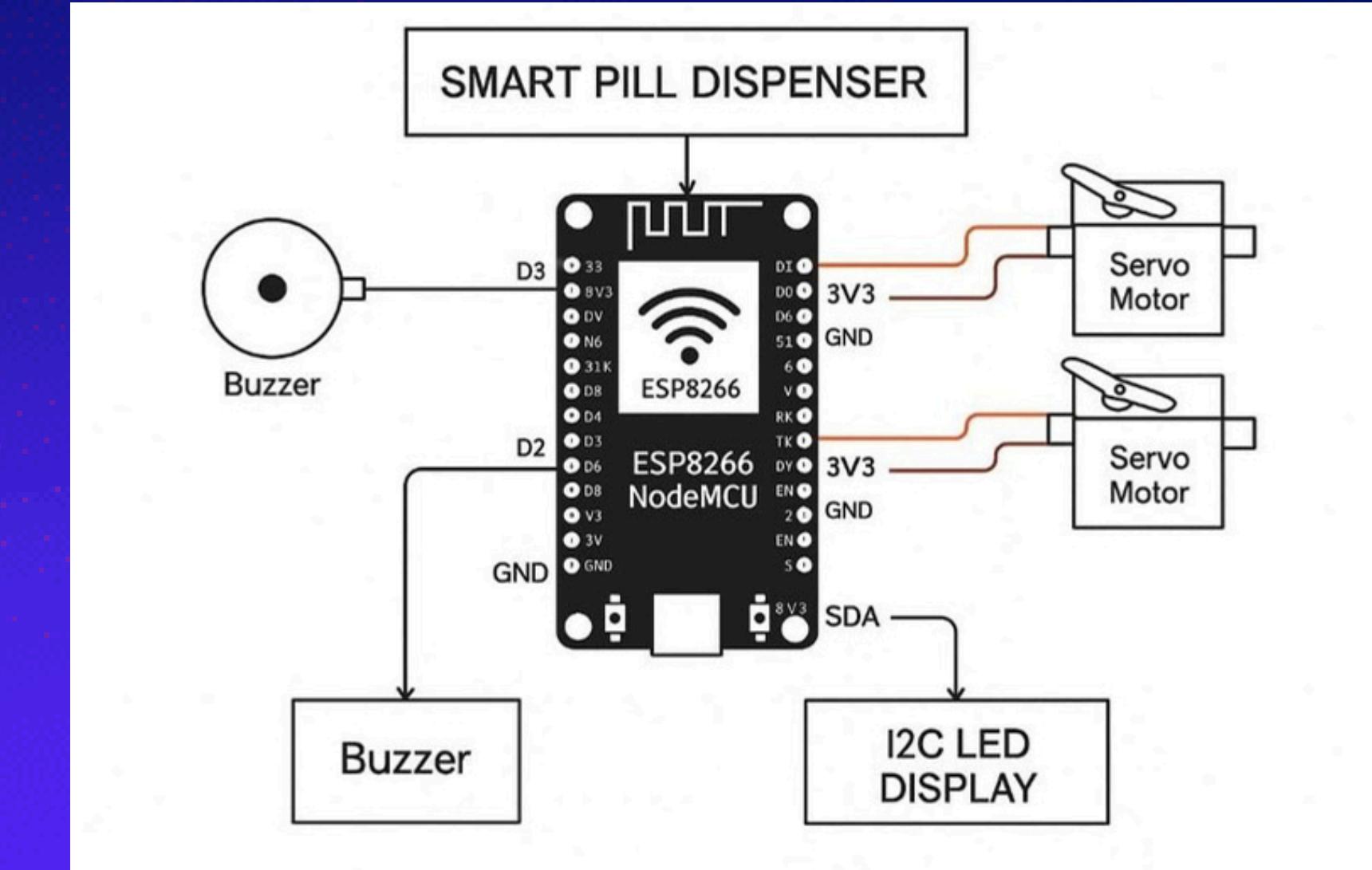


- **To improve medication adherence:** It helps patients take the right dose at the right time, reducing missed or incorrect doses.
- **To provide reminders and alerts:** It sends notifications to patients and/or caregivers when it's time for a dose or if a dose has been missed.
- **To track medication usage:** It records and logs medication intake, which can be shared with healthcare providers to monitor treatment effectiveness.
- **To prevent overdosing:** By dispensing only the scheduled dose at the scheduled time, it helps prevent accidental overdoses.

SYSTEM DESIGN



BLOCK DIAGRAM



PIN CONNECTION

WORKING PRINCIPLE



Time is Set:

- The user sets specific times for each medication dose using the mobile application.

Real-Time Tracking:

- A Real Time Clock (RTC) module continuously tracks the current time.

Dispensing Mechanism:

- At the scheduled time, a servo motor or rotating disk aligns the correct pill compartment.
- Pills are automatically dispensed into the output tray.

User Notification:

- A buzzer sounds or a display lights up to notify the user.

Missed Dose Handling:

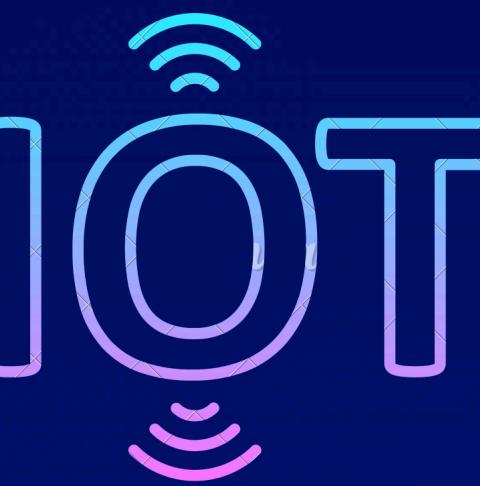
- If the pill is not taken within a fixed time, the device can issue a reminder or alert.



RESOURCES

- ESP32 NODE MCU (8266)
- Servo Motor
- RTC Module (DS3231)
- LCD Display (I2C)
- Buzzer
- Breadboard
- Connectors





INNOVATION

- **CREATIVE APPROACH:** UNLIKE CONVENTIONAL PILL BOXES, OUR DESIGN INTEGRATES ESP8266 NODEMCU WITH IOT CAPABILITIES, ENABLING REMOTE MONITORING AND TIMELY NOTIFICATIONS.
- **DESIGN INNOVATION:** THE USE OF SERVO MOTORS FOR PRECISION DISPENSING, AN I2C LED DISPLAY FOR USER-FRIENDLY INTERACTION, AND A BUZZER ALERT SYSTEM ENSURES ACCESSIBILITY FOR ALL AGE GROUPS, ESPECIALLY ELDERLY PATIENTS
- **IMPROVEMENT OVER EXISTING MODELS:** TRADITIONAL DISPENSERS ONLY RELY ON MANUAL REMINDERS, WHILE OUR MODEL PROVIDES AUTOMATED SCHEDULING, ALERTS, AND REDUCED HUMAN ERROR..



FUTURE ENHANCEMENTS



MOBILE APP INTEGRATION:

MONITOR THE DEVICE VIA SMARTPHONE APPS FOR REMOTE SCHEDULING AND TRACKING.



VOICE ASSISTANCE:

USE VOICE COMMANDS TO OPERATE THE DISPENSER OR RECEIVE SPOKEN MEDICATION REMINDERS.



REGULAR CHECK-UP ALERTS:

THE DEVICE CAN REMIND USERS TO SCHEDULE OR ATTEND REGULAR DOCTOR VISITS.



IN-BUILT ALARM FOR LIQUID MEDICINES/VACCINES:

SET REMINDERS FOR NON-PILL MEDICATIONS LIKE SYRUPS, DROPS, OR VACCINES.

EMERGENCY SUPPORT:

SOS BUTTON INTEGRATED IN THE DEVICE TO NOTIFY CAREGIVER/DOCTOR IN EMERGENCIES.



AUTOMATIC ALERT SYSTEM:

ALERT USER/CAREGIVER IF MULTIPLE CONSECUTIVE DOSES ARE MISSED



BIOMETRIC AUTHENTICATION USE FINGERPRINT/FACE RECOGNITION :

TO ENSURE ONLY THE RIGHT PERSON ACCESSES THE PILLS.
PREVENTS MISUSE OR OVERDOSE.



ADVANTAGES

01

Timely Medication:

Ensures pills are taken at the correct time, reducing the risk of missed or double doses.

02

Helpful for Elderly & Patients:

Especially useful for seniors or those with memory loss, Alzheimer's, or chronic conditions.

03

Reduces Caretaker Dependence:

Patients can manage their medication more independently with automated reminders.

04

Improves Health Outcomes:

Better medication adherence leads to more effective treatment and faster recovery.

DISADVANTAGES

01

Contamination of the medicine:

Keeping the medicines out of the protective film may harm the hygiene and quality control

02

Wastage of medicine :

If in case there is a change in course , the tablets once taken out of the film may result in wastage.

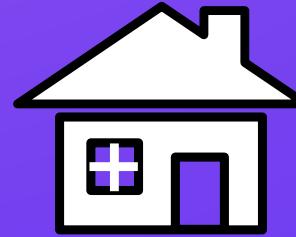


APPLICATIONS



Hospitals & Clinics:

- Used to manage multiple patients' medication schedules.
- Reduces human error and saves nursing time.



Home Use:

- Perfect for elderly people, chronic patients, or busy individuals.
- Offers independence and ensures correct dosing.



Old Age Homes:

- Caregivers can automate pill delivery for multiple residents.
- Ensures regular and accurate medicine intake.

CONCLUSION

- Smart Pill Dispenser **ensure timely and accurate medication**, reducing the risk of missed or incorrect doses, especially for elderly or chronically ill patients.
- It is a **reliable, user-friendly, and efficient healthcare solution** that promotes independence and improves treatment outcomes.

THANK YOU!

