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MEDICINE PILLDISPENSER AND SURVEILLANCE

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Abstract : Medication for the elderly must be administered on time. Automatic medication dispensers were developed for individuals who take prescription medications unsupervised by medical professionals. It frees the user from the risky duty of giving the incorrect drug at the incorrect time. Geriatrics rely on their medications to keep them healthy, but with their challenging medication regimens, they are more likely to make mistakes like forgetting to take a dose, taking too much, or taking it when it's not necessary. These mistakes could result in sickness, needless hospital or doctor visits, or even fatalities. Thus, a device for distributing medications must be developed to help elderly people take their medications on time. By doing this, prescription abuse-related unexpected hospital or medical visits would end.

Keywords—Bluetooth integration, Patient care Microcontroller, Medication control, Medication scheduling

I. INTRODUCTION

As people's schedules get busier, they are more likely to forget to take their medications on time. Geriatric patients are now being admitted to hospitals without necessity as a result. The pills must therefore be dispensed at a predetermined time by a system or equipment that has been designed to do so. Since the invention of the pill, there has been a demand for a machine that can precisely perform the function of a human being in the delivery of medication. There hasn't been a pill dispenser that can do these three crucial things yet—humans can choose who to give the pills to, when to give them, and how many to distribute—and until now, these decisions have to be made by humans. a large number other issues that beset home pill users include pill theft, forgetting to take them, and having access to too many pills. Using a straightforward microcontroller to handle the pill's dispensing and a proximity sensor to read and restrict access to only a valid key, we began with these fundamental requirements and developed a solution. With this, there are countless opportunities for this pill dispenser to serve and assist various types of individuals in their life, both locally and globally. With the addition of a buzzer, this pill dispenser can also serve as a reminder for you to take your medications and can alert others when you haven't. Here are a few of the fundamental tasks that an accessible, controlled pill dispenser could complete

II. LITERATURE SURVEY

Pill Dispenser with Smart Phone Notification (University Tun Hussein Onn Malaysia): In the end, this work suggests a pill dispenser that can make sure that the medication is taken safely and on time, especially among the elderly. This system's alarm function was included as a popup notification, which is an advantage.

Pill Reminder with Auto-Reminder for Simple Supervision (VIT University, Vellore, India) This study presents a low-cost, practical model for an autonomous pill reminder and dispensing box using basic electronics techniques. In order to ensure that the person in question takes his medication on time and in the proper quantity without individualized supervision, a buzzer and an LCD display have been installed for easy detection and alert.

An electronic pill dispenser with circular containers that is used weekly (Technical University of Cluj-Napoca, Romania) The study offers a novel design for a robotic pill dispenser. The author suggested using a tube with two apertures and seven circular containers. The tube has two openings: one on the bottom, which will discharge the pills onto a plate, and one on the top, which will fill the containers with pills. The seven sections of the dispenser were powered by a single stepper motor.

III. HARDWARE TOOLS AND EQUIPMENT

The following materials and programs were used in the construction of this device:

- Buzzer
- ESP CAM 32
- L293D (Motor Driver)
- DC motor
- 3pillcontainers
- GSM

IV.BLOCK DIAGRAM

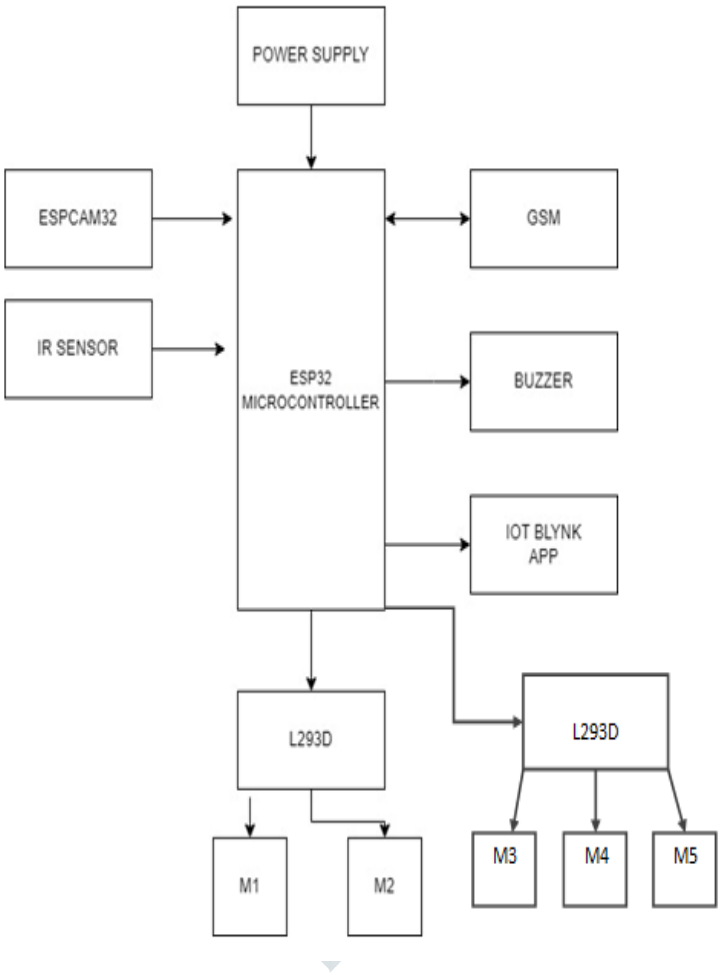

figure 1. block diagram

ELEMENTS OF BLOCK DIAGRAM

1. ESP CAM 32

The highly competitive small-size camera module that can function independently and is extensively used in many IoT applications is featured in the ESP32 CAM Wi-Fi Module Bluetooth with OV2640 Camera Module (2 MP) for Face Recognition. It is appropriate for wireless monitoring, industrial wireless control, smart home devices, and other IoT applications. To enable speedy product development, this module employs a DIP package and may be installed directly into the backplane. It provides customers with a high-reliability connection option that works well with a range of IoT hardware terminals. combines Wi-Fi, traditional Bluetooth, and BLE Beacon using two incredibly quick 32-bit LX6 CPUs and a seven-stage pipeline design. It includes an on-chip sensor, a Hall sensor, a temperature sensor, and others. The major frequency adjustment range is 80 MHz to 240 MHz's.

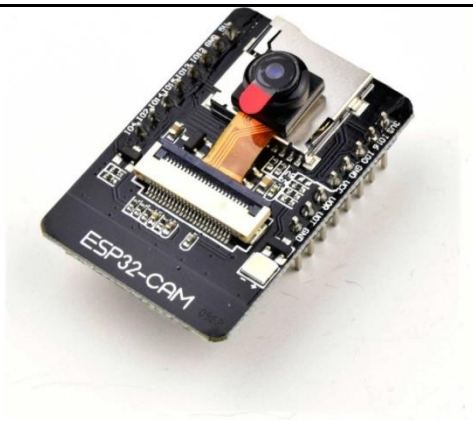

figure 2. .esp32 cam

2. Buzzer

• A beeper or buzzer is an example of an auditory signaling device that can be mechanical, electromechanical, or piezoelectric. In alarm systems, timers, trains, and to confirm user input like a mouse click or keystroke, buzzers and beepers are often employed.

figure 3..buzzer

3. L293D (Motor Driver) :

Typically, autonomous robot motors are controlled by an integrated circuit chip called a motor driver. Arduino and the motors are connected through motor drivers. The L293 series, including the L293D, L293NE, etc., has the motor driver ICs that are used the most frequently. These ICs are made to manage two DC motors at once. There are two H-bridges in L293D. For controlling a low-current rated motor H bridge is the simplest circuit . We'll refer to the motor driver IC as L293D. L293D is made of 16 pins.

figure 4.l293d (motor driver)

4.DC motor:

Any rotary electric motor that produces mechanical energy using direct current (DC) power is referred to as a DC motor. The majority of them depend on the forces generated by magnetic fields. A almost universal internal system, either electromechanical or electronic, allows DC motors of various types to sporadically change the direction of current in a specific area of the motor.

figure 5.. dc motor

5.GSM Module

GSM module is a device that connects a network wirelessly using the GSM mobile telephone technology..Mobile phones and other devices that communicate with mobile telephone networks use GSM modems. A GSM module is used in a medicine dispenser to send messages to the doctor and a family member so they may monitor whether the medication is being administered from the device at the appropriate tim**e.**

figure 6. **gsm module**

V. FLOWCHART

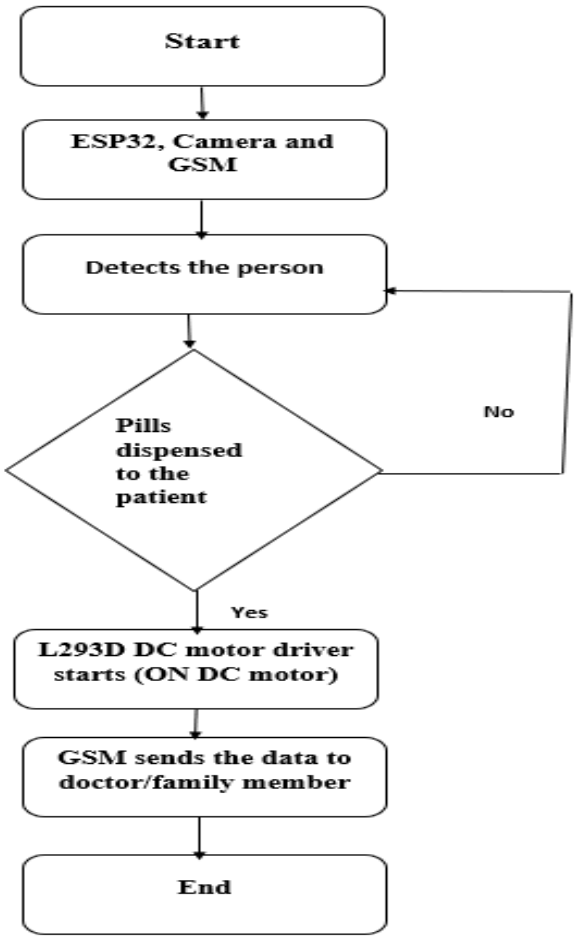

figure 7.Flowchart

VI. FUTURE SCOPE

- Pills and capsules of any size can be used with the automatic smart medication dispenser.
- It has been revealed that the dispenser can be set to dispensing a variety of pharmaceuticals for a month.
- Three alerts can be sent out by it each day.
- Moreover, the alarm's daily repetition frequency can be selected.
- The quantity of tablets to be chosen as well as how often they are chosen can be changed programmatically depending on the situation.
- The ultimate goal is not the development of any new technology related to dispensers that are now produced. Instead, it is intended to create a device that performs the same essential functions but costs a lot less.

VII. SUMMARY

- The document contains details on the automatic medication dispenser's design.. The needs for creating this device are first gathered, and only then are design considerations made. The design of an automatic medicine dispenser is recommended as the final step.
- A patient's meds can be safely administered by a caretaker without having to be there every time they are scheduled thanks to a specially developed programmable automatic medicine dispenser. In this project dc motor is used to deliver the medicine to patient. When a patient takes a medication, the GSM module sends a message to the doctors, nurses, or family member.
- A robot is a wireless robot that is used to collect medication and give it to patients when they want it.
- After gathering the criteria for this device's design, design considerations are given. The design of an automatic medicine dispenser is finally recommended.
- The caretaker can reliably deliver medications to a patient using the developed Programmable automatic medicine dispenser without having to be there each time the medication is scheduled.

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