SMART PILL ASSISTANCE FOR PEOPLE LIVING WITH ALZHEIMER'S DISEASE

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Abstract— **Neurodegenerative diseases affect millions of people worldwide, and Alzheimer's disease is one of the most common types. Alzheimer's disease and other dementias have a deep impact not only to those who are diagnosed but also on the people who are close to them and society as a whole. Various researchers and companies have proposed products that aid towards relief for these people. We noticed that there are plenty of products, which are targeting to patients' safety, although there is a gap, there is no link between the products and the needs of caregivers, while at the same time most of the products do not protect sufficiently patient's personal data. The proposed system uses Arduino Microcontroller to perform following tasks such as it reminds the patient of the tasks they have to perform daily, the medication schedule, the medicines to be administered and a time display; monitoring the patient and, in case of emergency, the system detects if the patient falls, thus, the alarm is activated and the coordinates are sent automatically to the family by SMS. It is portable and easy to use even for an older patient.**

Index Terms— **Smart pill box, Emergency button, Medicine dispenser, Alarm.**

I. INTRODUCTION

Introduction to pill dispenser system pill dispensers are portable devices that allow you to organize your medication by day/time. these devices provide safety and reassurance by dispensing the correct pills on a set day/time via an alarm/reminder mechanism. most also lock when not in use, preventing the patient from taking the wrong pills, as well as preventing children from accessing the device. in addition to helping ensure that correct dosages are taken at the right time, automatic dispensers can help families avoid the high cost of having to pay a caregiver to take care of their loved one's medication needs. this is especially beneficial in situations where family members may live some distance away and are not able to visit on a daily or weekly basis. overall, automatic pill dispensers can help support your loved one's independence and allow them to stay in their home longer. the proteus design suite is a proprietary software tool suite used primarily for electronic design automation. the software is used mainly by electronic design engineers and technicians to create schematics and electronic prints for manufacturing printed circuit boards.

II. PROBLEM STATEMENT

The people who are affected by Alzheimer, cannot remember they need caretakers for their need, mainly for taking their medicines Alzheimer patients are the patients who are suffering from high memory loss, there exists a high vulnerability in taking daily tablets, and they may in take tablets over dosage by forgetting the already taken tablet. Which may lead to health issues or even lead to death. Additionally, there also exist a high probability of missing the intake tablet which is also high dangerous for heart patients.

III. OBJECTIVE OF THE STUDY

- In this project, we develop a device for Alzhimers patient
- The persons were not having the ability to remember all the thing
- Hence by using smart pill device for taking the medicine correctly
- Speaker and display are used for them to take medicine in correct time

IV. PROPOSED SYSTEM

The methodology of our project is based on the following block diagram consists of all components methods that we have followed
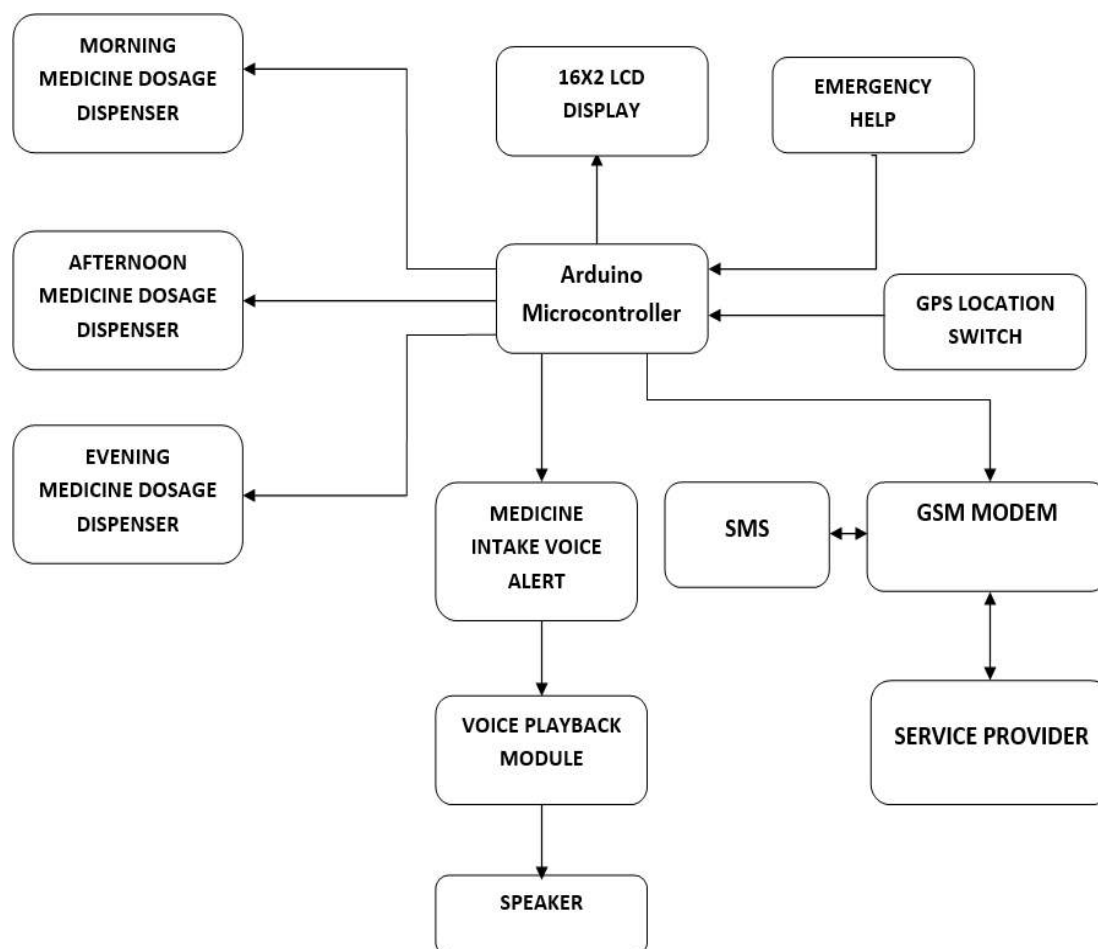

Fig 1. Block diagram of Proposed System

The proposed system contain Arduino based microcontroller (ATMega 328) as the brain of the system. The 12V power supply required for the system, and is given by the power supply unit. The power supply unit contain step-down transformer it converts 220V AC to 12V DC supply. And it contains full wave Bridge rectifier, it provides pure DC for the working of the system. The system contains three medicine dosage dispensers. It will active and deliver medicine according to the time which is already set. If the patient didn't take the medicine the emergency alert active and the SMS deliver to the care taker's phone simultaneously

V. METHODOLOGY

This flowchart shows the programing system of the Arduino in which when it is morning the morning

tray dispenser will open, when it is afternoon the second tray will open, when it is night the third tray will open. when the tray open there is sound system which will alert for taking medicine There also has a button which help the Alzheimers patient to send message in the case of emergency.
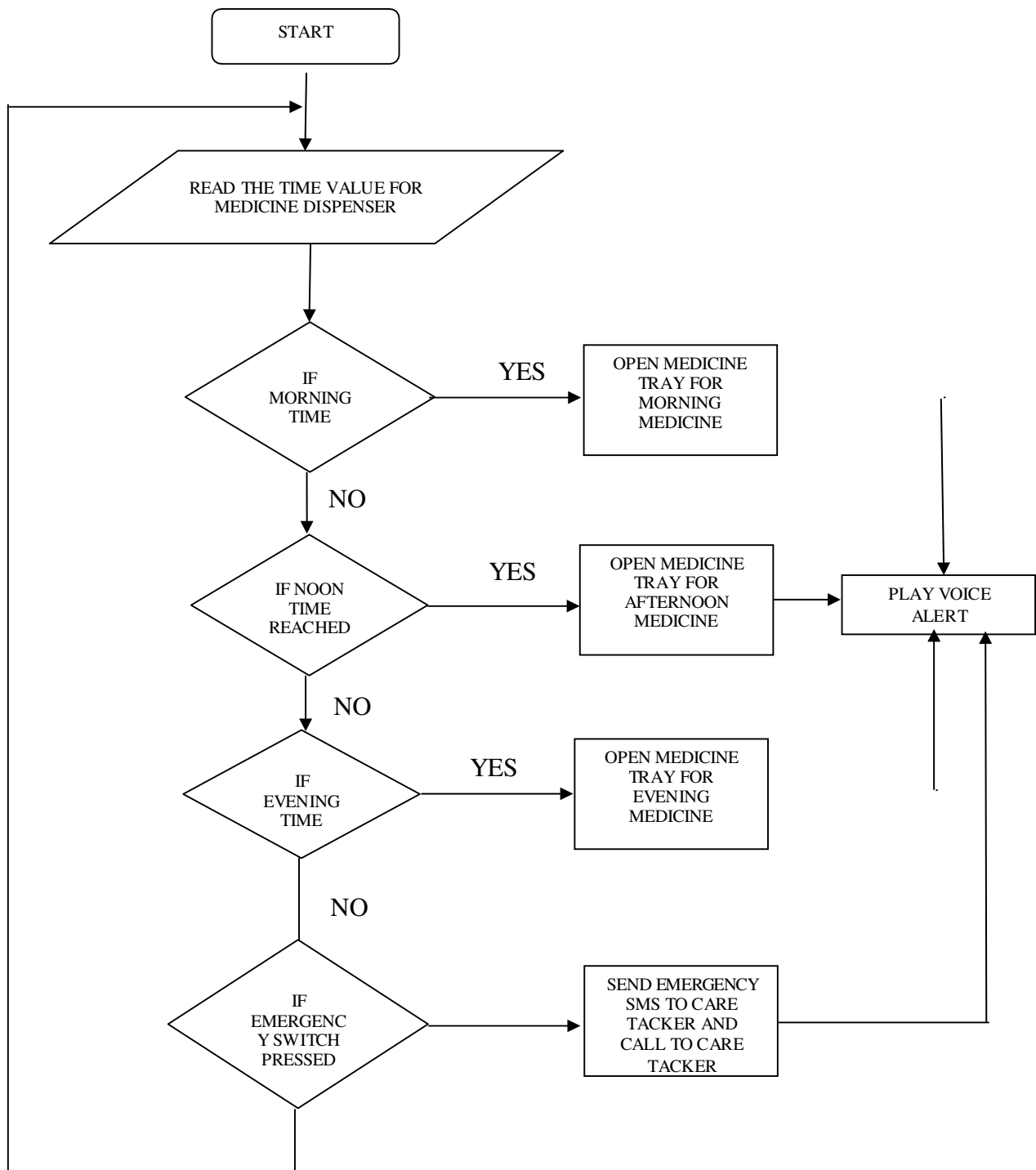

Fig 2. Proposed System Flow Diagram

VI EXPERIMENTAL RESULTS

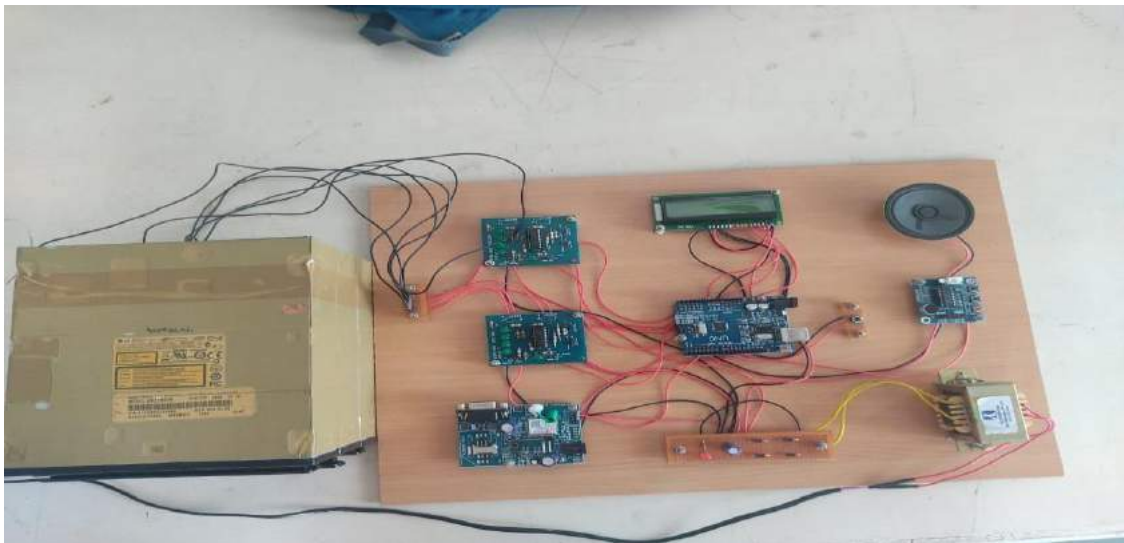The below figure shows the experimental setup of Pill Dispenser

Fig.3 Experimental Set up

These is the circuit board which consist of setup down transformer, LCD display, speaker, motor Arduino, Dispenser, GSM and Emergency button. The motor help to open the dispenser, the speaker helps to give the alert for taking medicine. The LCD Helps to show the time for taking medicine.

Fig 4.LCD display for taking morning medicine

These show the LCD display for taking morning medicine, like that it also displays afternoon medicine and night medicine.

VII CONCLUSION

By using this project, we can ensure the regular intake of tablet of Alzheimer patients at the right time. It automatically facilitates the dispensing of tablet through medicine dispenser which prevent the

Alzheimer patients from intaking the tablet twice by forgetting the already consuming tablets. And prevent them forgetting the tablet intake itself by alerting them to intake tablet through voice announcements. A pillbox is proposed and actualized in this project and processed using Microcontroller. It illuminates the elders to take medication. It productively controls the season of Alzheimer's patients to take medication. It additionally diminishes the proportion that patient misses and defers taking medication.

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