

# Design and Develop Pill Assistance for Medical Applications

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## ABSTRACT

*A pill medication reminding system which will alert the user on the set time and indicate the user to take the medicine from the prescribed time allotted to a compartment. There are seven small chambers denoted with all the week days, each chamber is divided into three compartments as precisely for the three dosages in a day. The system focuses on improving the monitoring system in hospitals.*

**Keywords**—Pill, GSM, Transformer, ATMEGA 2560p, RTC

## I. INTRODUCTION

The hectic and busy schedules of people at today's time make people to forget to take their medicines at prescribed schedules. With the increase in age the ability of the brain memory utilization to keep reminded of the medicines intake also decreases which results in the improper medications and wrong doses leading people to face some health issues which further lead to the unnecessary hospital visits. Senior citizens are the main audience who faces these issues. Hence there is a need to design a medication reminding and controlled accessing device that will help Geriatrics to take medicines at preset time [1]

As a result of this most of the people are having unnecessary visits to the hospitals. To reduce such complications, a device is to be designed that could take care of the proper medication at preset time. Device is must to be user friendly, handy, safe to use, light in weight.

Alzheimers is a chronic neurodegenerative disease that usually starts slowly and gradually worsens overtime. Most common early symptom is difficulty in remembering recent events. With such effects of dementia there have been lot issues of people not remembering the scheduled time to take medicines.

Monitoring the patients is a critical task. Caretakers such as nurses and physicians have to monitor the patient's health continuously and also the prescribed medicines have to be given to them time to time [2,3]

## II. METHODOLOGY

The device's working is in stages, at first stage the system is focusing on setting of alarm according to the prescribed time by the doctor to the patient or individual's schedule. There are three alarm times which includes the reminder in the morning, afternoon and evening. There are three alarm times which includes the reminder in the morning, afternoon and evening. This is the very first important stage of this system which works predominantly.

RTC DS1307 and Atmega 2560 are playing a very important role of setting and storing the alarms and working into the continuous loop so as to match the stored time with the real time clock and give the prompts correctly. Signify them about the reminder to take his medication. The above two stages plays in the reminder environment. Now

comes how the person identify, When the alarm is arrived, the buzzer will start beeping, along with it the call is sent by the GSM 900-A module to the individual so as to signify them about the reminder to take his medication.

Now comes how the person identifies the correct medicine at the respective reminder. This will specially make it easier for the people who are suffering from any types of dementia. Each compartment of pill box is available with the indicating light that is individual LEDs so as to make person recognize the compartment from which they have to take medicine.

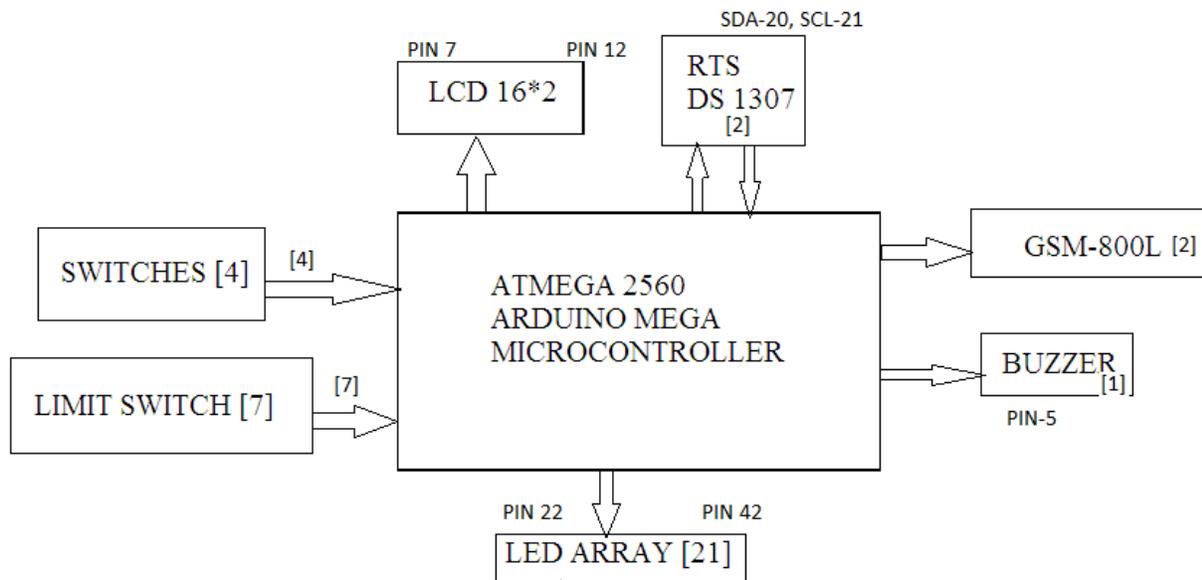


Figure 1A: Block diagram of proposed system

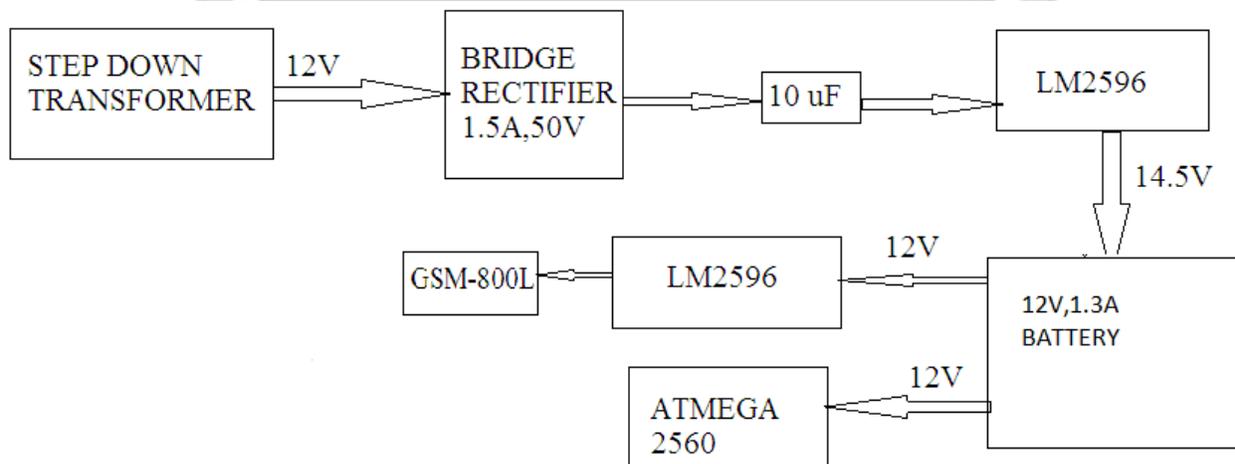


Figure 1B: Block diagram of proposed system

### III. IMPLEMENTATION

The device's working is in stages, at first stage the system is focusing on setting of alarm according to the prescribed time by the doctor to the patient or individual's schedule.



**Figure 2:** Alarm Setting for Pill Reminder

There are three alarm times which includes the reminder in the morning, afternoon and evening. Setting of alarm is shown below: After setting the appropriate alarm sequentially, the device will ask the user to choose the option of taking medicine before the meal or after the meal on each alarm time of the day. Setting of option:



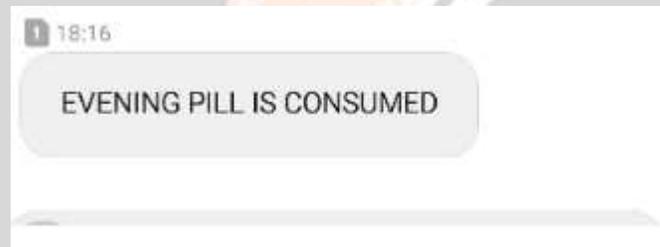
**Figure 3:** Alarm Setting for Before & After meal

RTC DS1307 and Atmega 2560 are playing a very important role of setting and storing the alarms and working into the continuous loop so as to match the stored time with the real time clock and give the prompts correctly. Now, In the second stage an independent user of this device or the nurse at the hospital will play their role by responding to the machine and according to their retaliation, the calls will be send. When the alarm is arrived, the buzzer will start beeping, along with it the call is sent by the GSM 900-A module to the individual so as to signify them about the reminder to take his medication.



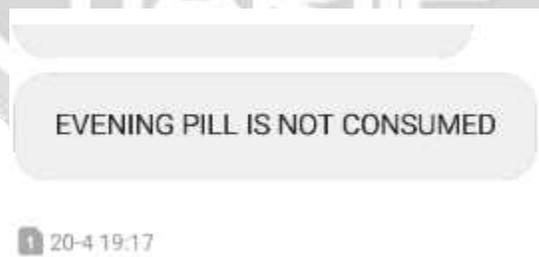
**Figure 4:** Call alert if pill is not consumed

Along with it if the person comes into less than a minute the buzzer will stop beeping on the movement of the actuator of limit switch and a message will be received on the patient’s mobile that the respective pill has been consumed this is how the consumption is being monitored properly.



**Figure 5:** Message alert if pill is consumed

But if a person does not comes within five minutes then an emergency call will be send. Along with this call the emergency person’s contact will receive a message that the patient has not consumed the medicine.



**Figure 6:** Message alert if pill is not consumed

The above two stages plays in the reminder environment. Now comes how the person identifies the correct medicine at the respective reminder. This will specially make it easier for the people who are suffering from any types of dementia. Each compartment of pill box is available with the indicating light that is individual LEDs so as to make person recognize the compartment from which they have to take medicine.



**Figure 7:** Working model depicting various sections

#### IV. CONCLUSION

Hospitals Monitoring patients in hospitals has always been a tedious task especially when it comes to give them medicines time to time. Evidently it is important for patients to consume medicines on the correct time for proper health check. The device will guide both the caretakers and patients to keep the medicine doses on right track of time. Domestics when it comes to the usage of device at the personal level, the system is totally capable of reminding the user through its alarm and GSM calling system. Elderly As compared to young people geriatrics has weak memory. They forget to take medications at proper time they have been prescribed. This can create some health issues as they have very sensitive body functions. Medicine Management The system is able to improve the quality of life of an individual who has multiple medications, remembering to take medicines at the right time and avoiding the side effects. It will help individuals to achieve their health care goals. Alzheimers and Dementia patients system may help to reduce the risks for people living with dementia. Telephone assistance feature of the system will help to remind them to take their medications.

#### V. REFERENCES

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