

# Automatic Medicine Dispensary

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## ABSTRACT

It is necessary to provide medication to the aged in time. Automatic medication dispenser is designed specifically for users who take medications without close professional supervision. It relieves the user of the error-prone tasks of administering wrong medicine at wrong time. The major components of this medication dispenser area AT mega16 interfaced with an alphanumeric keypad, an LED display, an IR sensor, a multiple pill container and dispenser. The overall operation is to facilitate the user to set the timings to dispense multiple pills at required timings. The major objective is to keep the device simple and cost efficient. The software used is reliable and stable. Elderly population can benefit from this device as it avoids expensive in-home medical care.

**Keywords:** Dispenser, ATmega16, actuators.

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## I. INTRODUCTION

Caring of the aged is of a serious concern in the developing countries. Family members are responsible for the care and management of the old. In the modern age it is difficult for family members to be available all the time to support the aged. Today, in our society most families are nuclear. Elderly would prefer to remain independent and their desire for independence in natural, but it is a worry for their children. Sometimes despite their best effort, the aged fail to remember to take their medication on time. Automatic Medication dispenser is one such approach to help them take their medicines efficiently. As the cost of in-home medical care rises, it has become more and more incumbent among individuals to opt for a device that effectively takes care of their medications. The automatic medicine dispenser serves the purpose.

## II. PROBLEM STATEMENT

Now a days, everything is being online so using automatic medicine dispensary we can brought medicines for needy people at railway station, bus stand, airports and rural area. so it can be easily available for needy people. We are using AT mega16 as a processor in this project. We are using other components like IR sensor, actuators, relays,

LCD displays and GSM modules. We are using IR sensor for detecting coin which is inserted in order to dispense corresponding medicine. The relays are used for switching operation and turn on and off actuators. Actuators are used for dispensing medicines.

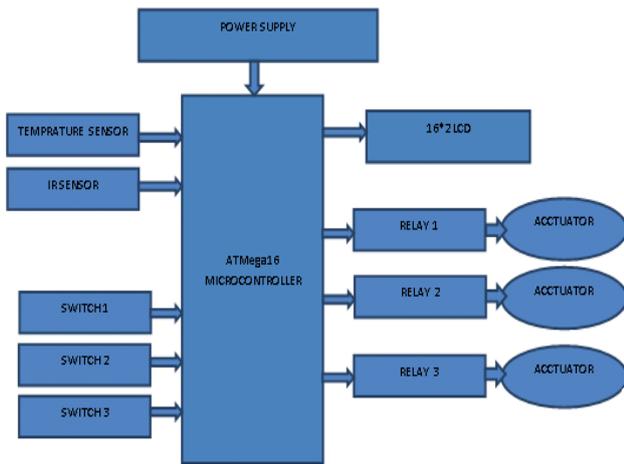
## III. DESIGN DEVELOPMENT

Development of the project is including following phases. We will include following applications in our Project:

1. Recognizing disease.
2. Classification of medicine.
3. Dispensing medicine.

## IV. PROPOSED SYSTEM

This system is designed using AT mega16 microcontroller. This is automatic medicine dispensary as the name indicates this dispensary is used in order to dispense medicine.



Proposed system is consist of many components they are AT mega16, temperature sensor, IR Sensor, relays, switches, LCD displays, actuators, power supply

#### A. Temperature Sensor

- It has an output voltage that is proportional to the Celsius temperature.
- The scale factor is  $.01V/^{\circ}C$
- The LM35 does not require any external calibration or trimming and maintains an accuracy of  $\pm 0.4^{\circ}C$  at room temperature and  $\pm 0.8^{\circ}C$  over a range of  $0^{\circ}C$  to  $+100^{\circ}C$ .
- Another important characteristic of the LM35DZ is that it draws only 60 micro amps from its supply and possesses a low self-heating capability. The sensor self-heating causes less than  $0.1^{\circ}C$  temperature rise in still air.

#### B. IR sensor

The basic concept of IR(infrared) obstacle detection is to transmit the IR signal(radiation) in a direction and a signal is received at the IR receiver when the IR radiation bounces back from a surface of an object.

#### Technical Specification:

1. IR Based Obstacle Detector
2. Adjustable Range with POT
3. Operating Voltage 5v
4. Sensitivity up to - 30cm-Adjustable
5. Logic output -1/0

#### C. Relay

Relays are basically switch which is used for making or breaking connection between two nodes. In this project we are using relays for connecting and disconnecting actuators with AT mega16.

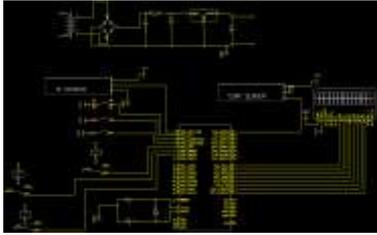
#### D. LCD

LCD is an electronic showcase module and find an extensive variety of uses. A 16x2 LCD presentation is extremely fundamental module and is generally utilized as a part of different gadgets and circuits. These modules are favored more than seven segments and other multi portion LEDs. The reasons being: LCDs are sparing; effortlessly programmable; have no impediment of showing uncommon even custom characters (dissimilar to in seven portions), movements etc. A 16x2 LCD implies it can show 16 characters for every line and there are 2 such lines. In this LCD every character is shown in 5x7 pixel network. This LCD has two registers, in particular, Command and Data. The charge register stores the summon guidelines given to the LCD. A charge is a direction given to LCD to do a predefined assignment like instating it, clearing its screen, setting the cursor position, controlling presentation and so on. The information register stores the information to be shown on the LCD. The information is the ASCII estimation of the character to be shown on the LCD.

#### E. AT mega16

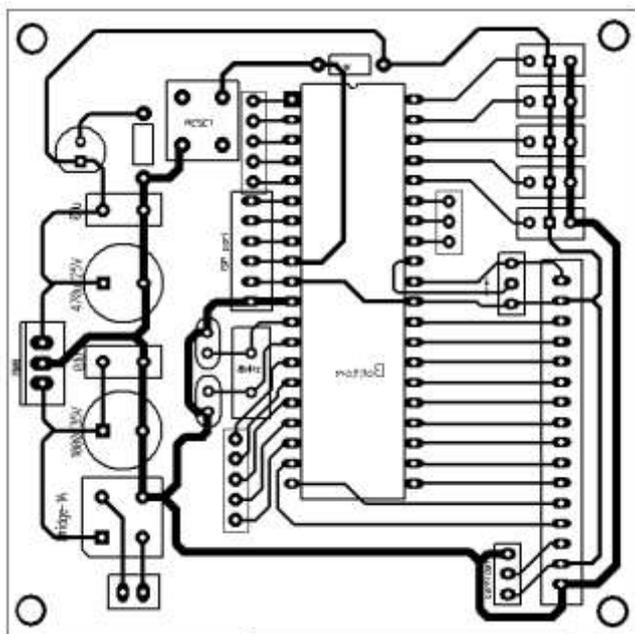
The AVR core combines a rich instruction set with 32 general purpose working registers. All the 32 registers are directly connected to the Arithmetic Logic Unit (ALU), allowing two independent registers to be accessed in one single instruction executed in one clock cycle. The resulting architecture is more code efficient while achieving throughputs up to ten times faster than conventional CISC microcontrollers. The ATmega16 provides the following features: 16K bytes of In-System Programmable Flash Program memory with Read-While-Write capabilities, 512 bytes EEPROM, 1K byte SRAM, 32 general purpose I/O lines, 32 general purpose working registers, a JTAG interface for Boundaryscan, On-chip Debugging support and programming, three flexible Timer/Counters with compare modes, Internal and External Interrupts, a serial programmable USART, a byte oriented Two-wire Serial Interface, an 8-channel, 10-bit ADC with optional differential input stage with programmable gain (TQFP package only), a programmable Watchdog Timer with Internal Oscillator, an SPI serial port, and six software selectable power saving modes. The Idle mode stops the CPU while allowing the USART, Two-wire interface, A/D Converter, SRAM, Timer/Counters, SPI port, and interrupt system to continue functioning. The Power-down mode saves the register contents but freezes the Oscillator, disabling all other chip functions until the next External Interrupt or Hardware Reset. In Power-save mode, the Asynchronous Timer continues to run, allowing the user to maintain a timer base while the rest of the device is sleeping. The ADC Noise Reduction mode stops the CPU and all I/O modules except Asynchronous Timer and ADC, to minimize switching noise during ADC conversions. In Standby mode, the crystal/resonator Oscillator is running while the rest of the device is sleeping. This allows very fast start-up combined with low-power consumption. In Extended Standby mode, both the main Oscillator and the Asynchronous Timer continue to run.

## V. CIRCUIT DIAGRAM



This is circuit diagram of proposed system. That circuit diagram consists up from so many components such components are ATmega16, temperature sensor, actuator, IR sensor, power supply, LCD.

## VI. PCB LAYOUT



## VII. CONCLUSION

This medicine dispensary is used for dispensing appropriate medicines for needy people at railway station, bus stand, airports and rural area.

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