

Programmable Timer For Repeated Work

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Abstract - This project is developed for the users to control the operation of any home appliances. In modern world, Man has no time to wait for a particular appliance to on for a particular period. The appliance can be on and off under this control. It mainly consists of a key pad, micro controller unit, drivers and relays and LCD display. The user can set any of the time given in the timer switch using key pad. The settings are stored in the micro controller. The details are displayed in the LCD display. The timer switch controls the appliance to run for the particular period. If the particular period is over, the timer switch automatically makes the appliance off. The program is written in Assembly language. Then it is converted in to Hex code. The Hex code is then written into a particular micro controller (PIC). The micro controller IC will control the entire circuit. The micro controller used is PIC18F877A. The micro controller program is written in assembly language.

Key Words: PIC18F877 Micro controller, Relay, Keypad, LCD, etc

1. INTRODUCTION

A timer is a specialized type of clock for measuring time intervals. By function timers can be categorized to two main types. A timer which counts upwards from zero for measuring elapsed time is often called a stopwatch; a device which counts down from a specified time interval is more usually called a timer or a countdown timer. By working method timers have two main groups: Hardware and Software timers. The Electronic Industrial Timers are used in the industries to control the process/operation with specified time interval of repetitive nature. They find applications in the control of sequential functions of industrial machinery at varying time intervals for plastic industries, pharmaceutical industries, petrochemical industries, steel industries, power plants etc. We have seen in our surroundings i.e in industries, home appliance, etc. there is problem of machine not have knowledge to stop on exact time or to turn on or off in given time interval.

2. LITERATURE SURVEY

- 1) Ozgur Serdar Altunogu designed a Programmable Timer using Microcontroller. It was publish on 2004 Year. This system was developed using 8051 microcontroller. This system was simple and easy to implement.
- 2) Santosh Laxman Kulangi, Dr.Mrs. P. Malathi designed a Smart Programmable Timer. In this paper, they implement a timer with cutomizeduse mode. This system was providing a freedom to build their own mode if needed. This will be used in small scale industries.

3)Yosif I.Al Mashhadany designed and implementation of Electronic Control Trainer with PIC Micro controller. The paper was published on April 26, 2012 and accepted in May 30; 2012.This designed can be used in laboratory for experiment purpose.

3. SYSTEM DEVELOPMENT

3.1 System Analysis and Hardware Design

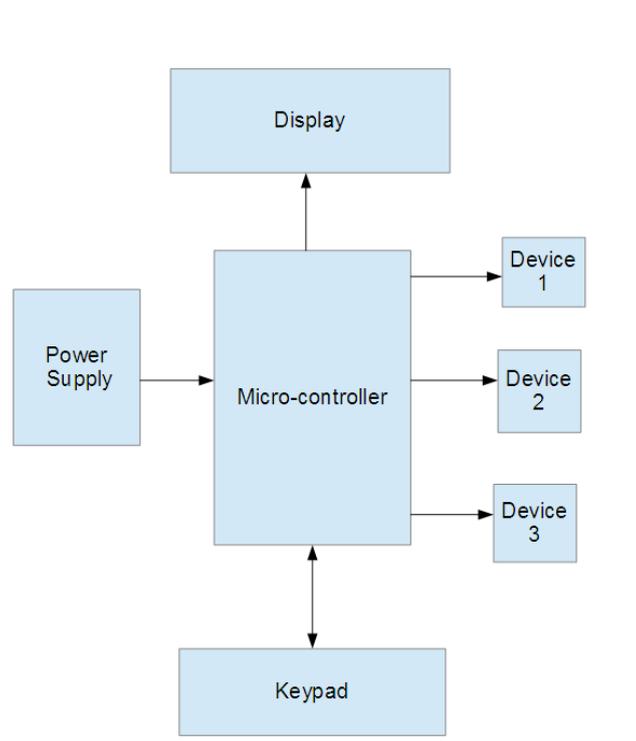


Fig. 1:Hardware Block Diagram of the System

Following points discusses set up procedure for the same which is shown in Fig. 1.

1. Power Supply

When working with electronics, we always needs one basic thing; power. This power supply is suitable for powering these kinds of electronic projects. The 7805 regulator produces a well filtered, variable +5VDC. It is simple to build and the parts are relatively easy to find such as 12V transformer, 2A bridge rectifier diode, 7805 voltage regulator, 1000uF ripple clipper capacitor and other coupling capacitors.

2. 16x2 LCD display

Liquid Crystal Display also called as LCD is very helpful in providing user interface as well as for debugging purpose. Some of the most common LCD connected to the PIC18F452 are 16x2 displays. This means 16 characters per line by 2 lines and 20 characters per line by 2 lines, respectively. The LCD standard requires 3 control lines as well as either 4 or 8 I/O lines for the data bus. The user may select whether the LCD is to operate with a 4-bit data bus or an 8-bit data bus.

3. 4x3 keypad

One of the most user friendly basic system components is keypad. The keypad is the primary input device. It is used for entering commands and data into the system. Here is a keypad that can be used with our micro controller. The keypad was designed 4x3 buttons

4. Relay

Relays are components that allow a low-power circuit to switch a relatively high current on and off, or to control signals that must be electrically isolated from the controlling circuit itself. Basic idea is to choose a relay with a coil designed to operate from the supply voltage using for the control circuit (and with contacts capable of switching the currents to control), and then provide a suitable relay driver circuit so that your low-power circuitry can control the current through the relays coil.

5. PIC 18F877A

The hardware capabilities of PIC devices range from 8-pin DIP chips up to 100-pin SMD chips, with discrete I/O pins, ADC and DAC modules, and communications ports such as UART, I2C, CAN, and even USB. Low-power and high-speed variations exist for many types. The manufacturer supplies computer software for development known as MPLAB, assemblers and C/C++ compilers, and programmer/debugger hardware under the MPLAB and PIC Kit series. Third party and some open-source tools are also available. Some parts have in-circuit programming capability; low-cost development programmers are available as well as high-production programmers.

3.2 Flowchart

- [1] First all the system is initialized.
- [2] Then Display will show us Welcome message
- [3] Menu will display on LCD screen.

- [4] When we connect our load as output that time display will shows us which task should executed.
- [5] It will ask how much time repeat it itself.
- [6] User can also give time as per need.
- [7] Start the execution of task.

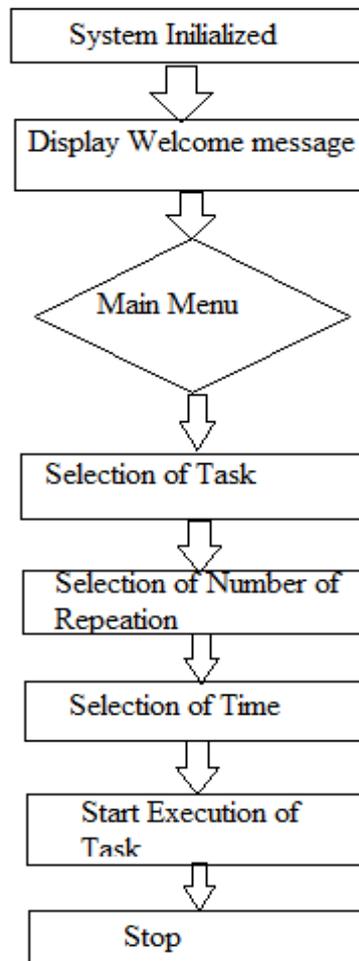


Fig.-2: Flow Chart of the System

3.3 Social Impact

Earlier timer devices for made in such way that they work solely on the program programmed by the programmer. The user had compromise his/her need and requirement. What we intent to do is to design a timer in such way that it is user programmable. The user will be able to select the amount of time he/she need the timer to run. The user would also be able to select the number of times he or she wants to task be repeated. We will do this using combination of a keypad and LCD screen. This is so because so that the user must be able to configure the device and see it itself.

4. CONCLUSION

In this project, we are going to make programmable Timer for repeated sequence. Real time clock is designed. We are used four relay to drive output Load. To make system user friendly, we are used 4x3 keypad and LCD screen through keypad user can give appropriate time as per his/her wish Whatever we can press into keypad that will reflect On LCD. In market, there are some readymade timer is available. It will be provide fixed time for user. We cannot change it. We can remove this disadvantage, thus we will make programmable timer.

5. REFERENCES

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