Bill Board Wifi Based Bill Board Led Display

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Abstract:- In optoelectronics, the use of light emitting diodes (LEDs) has been of great importance. Now a day LED-based moving-message displays are becoming popular for transmitting information to large groups of people quickly. The control of LED matrix is based PIC18F4520 microcontrollers. This   micro controller was programmed using C language. The number of the microcontroller's pins used in controlling the LED matrix was strictly minimized to three by adopting the serial to parallel mode of signal transmission. The design of the project was done and simulated with Proteus software. The LED matrix was constructed on a vero board. The drive circuitry which consists of the microcontroller, two ULN2803s, nine 74HC595s and other peripherals was constructed on a printed circuit board.

I. INTRODUCTION

LED –Based moving-messages display are becoming popular for transmitting information to large group of people quickly. Its is used indoor or outdoor area like bank, station, office, hotel, institutes etc. we preferred to use 16 single digital alphanumeric display over the led dot- matrix type since the former is much cost effective and has less programming bueden compared to other. From the name or title given to this project, it can be explained that   the   project entails, firstly, the dimension, 64 x 8 which can be simply said as 64 columns by 8 rows arrangement. Secondly, scrolling is the movement of text or graphics up or down or across a display screen as if unrolling a scroll (Merriam Webster   dictionary).   Thirdly, LED is semiconductor diode that emits light when a voltage is applied to it and that is used especially in electronic devices (as indicator light) (Merriam Webster dictionary).. Thus it can be inferred that this the project consists of 64 coloums by row arrangement of LED (forming a rectangular arrangement) and exhibiting an group of required components interacts regularly forming a unified whole.

II. DESCRIPTION

We programmed to move the message from the rightmost display to the left and the message stayed stationary for a few second when the first character reaches the left most display then it continues to move . In optoelectronics, the use of light emitting diodes (LEDs) has been of great importance. They are widely used in our day-to-day act. A 4 pin dip switch connected to the microcontroller through a port is used to select the desired message stored in the memory of the microcontroller. The microcontroller provides the data signal to the 16 display units through other two ports.

III. COMPONENTS

A. LED
B. Microcontroller
C. Shift register
D. Voltage Regulators

We shall discuss these components in detail

A. LED.
Light Emitting Diode, in short LED is a semiconductor device based on the Electric Luminescence principle. So often designed into transparent body. The colour of light (corresponding to energy of the photons) is determined by the energy required for electrons of the cross band gap of the semiconductor.
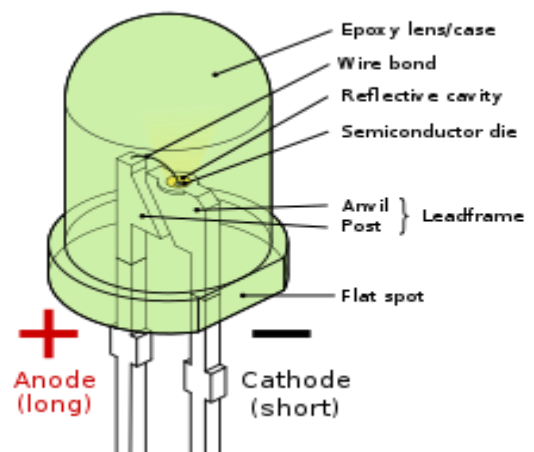

B. Microcontroller:
A microcontrollers ia small computer on single metal oxide semiconductor (MOS) integrated circuit (IC) chip. A microcontroller contains one or more CPUs (processor core) along with memory and programmable input/output pheripherals. Intel 8031 and 8051 are bits microcontrollers . microcontrollers contains a cpu memory i/o all integrated into one chip . the micro controller is designed task repeatedly. Once the program is embedded on a microcontroller chip, it cant be altered easily and you may need some special tools to reburn it.

C. *Shift register:*

A shift register is a type of digital circuit using a cascade of flip- flop where the output one flip flop where the output of one flip-flop is connected to the input of the next. As discussed earlier in this primer that the basic of controlling the 64 by 8 LED matrix is on the good application of the principle behind the spt input and output transfer technique . In achieving this for project, shift register were used . the kind of shift register used are know as SIPO (serial input parallel output) devices.

D. *Voltage Regulators: -*

A voltage regulator is an electronics device. Voltage regulators take variable and unstable input voltages and convert them to higher or lower constant output that matches the voltage and current needs of an electronic circuit. It may used an electromechanical mechanism , or electronic components. It may used to regulate one or more AC and DC.
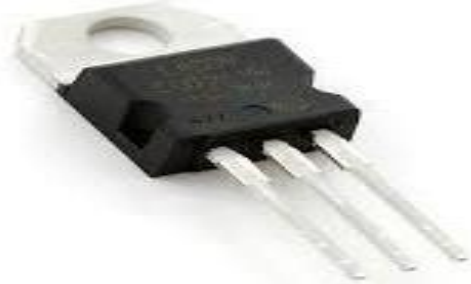
IV. SOFTWAREUSED

We used software named Keil µVision 3 for building the target software and debugging it. We could analyze each and every data bit in the ROM and RAM throughout the program execution along with the states of all the 4 ports of the microcontroller. We could also analyze the working of the timers according to the written program. Some screen shots of the program is included here.

V. CIRCUIT DAIGRAM
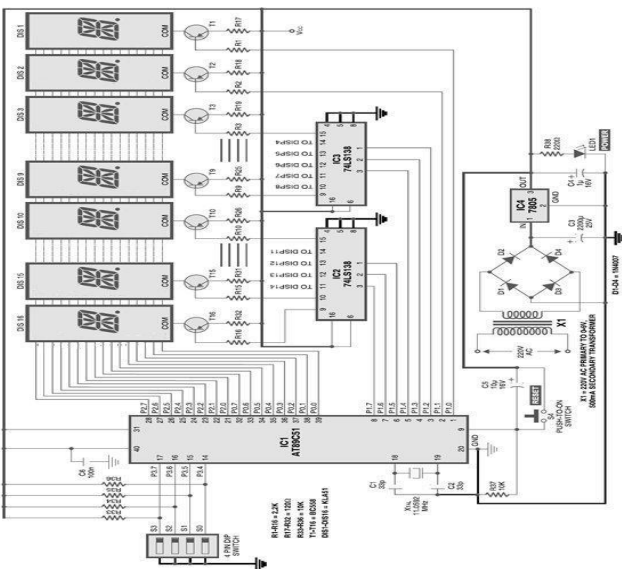
VI. FUTURE ENHANCEMENT

- Bill boards
- Store sign
- Public transport
- School/ college notice

VII. CONCLUSION

It may be concluded that the mini project has helped us to develop a deep practical knowledge of the at89c51 microcontroller. We have dealt with the timer programming and the interrupt programming of the microcontroller. The LED displays proved to very cost effective and simple to program compared to others. We could also use the software like Proteus 7 and Keil µVision 3 that are very indispensible in embedded software development. Manufacturing of the PCB was done using the toner transfer method. This document details the process used in creating the design, detailing how it functions and suggest future improvements and a basis for which a viable device of this kind can be develop in the future.

MOTIVATION

This project was motivated by the proliferation of unprofessional matrix display seen around the campus of GNIOT. This signals a need for the design of a cheap but efficient matrix display with capabilities captured in high technology matrix systems.

RECOMMENDATION

Due to the complications posed by the arrangement of the LED matrix on a vero board, I recommend or suggest that the LED matrix be done on a rubber sheet or using of ready-made LED dot matrix. This dot matrix can be mounted on a PCB

The aim of this project was not to be able to alter the display from a keypad or Graphical User Interface (GUI). Thus, with a little addition of the required components and a little alteration/addition to the firmware, this can be achieved.

Getting of the electronic components used for this project was stressful. Thus, to all university applying electronics in one way or the other, investment should be made on the situation of electronic shops where varieties of electronic components can be obtained within the school premises.

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