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TIME BASED AUTOMATIC SPEED BREAKER

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Abstract **–** In this Project we provide the flexible speed breaker for rural area and school areas .Here the flexible speed breaker is available in the time of school opening and closing time.After school timing the breaker will flatten below the road.when in case of any emergency vehicle is goes to the particular road the breaker will goes to flat.In briefly, the absence of light during night hours,the speed breaker goes to the level of the road

Keywords : Flexible speed breaker,timer,relay,wiper motor

I. INTRODUCTION

In the modern world, control and maintenance of traffic is becoming a very difficult task and accidents are occur often in nearby specific areas like school ,hospital, mall because in the peak time crowd is more in that specific areas. The proposed system implements automatic elevation of the speed breaker at the peak hours. This system helps to avoid accidents in crowd areas.

In the proposed system,we have the adjustable speed breaker ,where it can be able to elevate or burried in the ground.It is necessary ,only if it needs otherwise it will be hidden under the ground but in the peak traffic time it is elevated above the ground level and act as the speed breaker ,it mostly avoid the aacidents.

II. REQUIREMENTS

*A.**Timer***-The timers of the PIC16F887 microcontroller can be briefly described in only one sentence. There are three completely independent timers/counters marked as TMR0, TMR1 and TMR2. But it's not as simple as that.The timer TMR0 has a wide range of applications in practice. Very few programs don't use it in some way. It is very convenient and easy to use for writing programs or subroutines for generating pulses of arbitrary duration, time measurement or counting external pulses (events) with almost no limitations.

B . ***Buzzer***-A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric. Typical use of buzzers and beepers is giving sound indication to the users Power is applied this mechanical device will energize and by doing so interrupt the power source and the cycle continue until the power is removed. the frequency of oscillation is strictly dependent on mechanical inertia.

*C. **Liquid crystal Display***- LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. A **16x2 LCD** means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data..

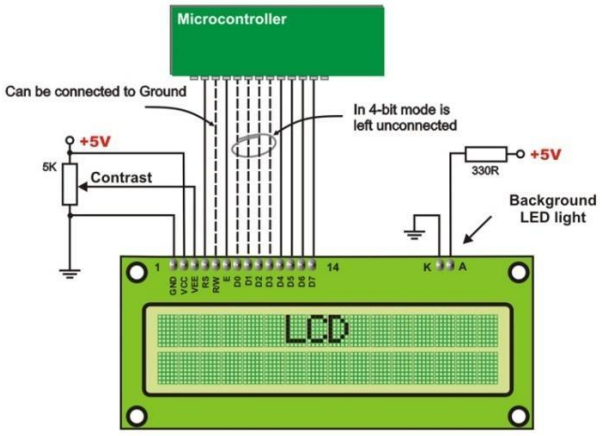

Fig.no:1.1

*D .**PIC16F877A Microcontroller Device***- PIC16F877 belongs to a class of 8-bit microcontrollers of RISC architecture..

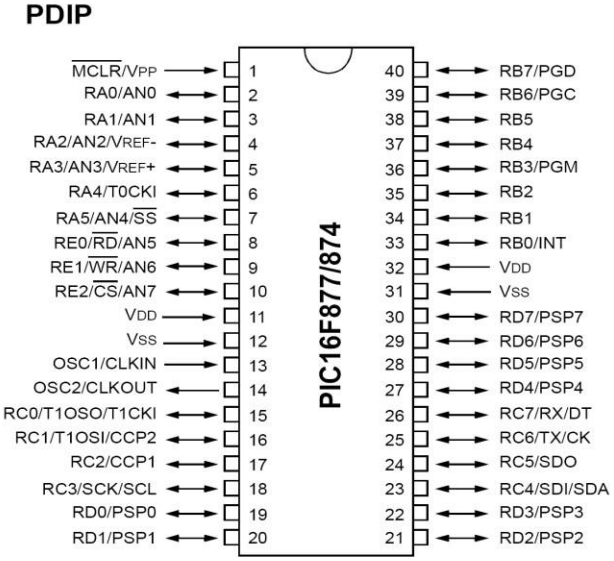

Fig.no:1.2

It has 8kb flash memory for storing a written program. Since memory made in FLASH technology can be programmed and cleared more than once, it makes this microcontroller suitable for device development. IT has data memory that needs to be saved when there is no supply. It is usually used for storing important data that must not be lost if power supply suddenly stops. For instance, one such data is an assigned temperature in temperature regulators. If during a loss of power supply this data was lost, we would have to make the adjustment once again upon return of supply

E . ***Power Supply***- The power supply circuits built using filters, rectifiers, and then voltage regulators. Starting with an ac voltage, a steady dc voltage is obtained by rectifying the ac voltage, then filtering to a dc level, and finally, regulating to obtain a desired fixed dc voltage. The regulation is usually obtained from an IC voltage regulator unit, which takes a dc voltage and provides a somewhat lower dc voltage, which remains the same even if the input dc voltage varies, or the output load connected to the dc voltage changes.

1. Load Regulation

The load regulation or load effect is the change in regulated output voltage when the load current changes from minimum to maximum value.

Load regulation = V no-load – V full-load
V no-load – Load Voltage at no load
V full-load – Load voltage at full load .

From the above equation we can understand that when Vno-load occurs the load resistance is infinite, that is, the out terminals are open circuited. Vfull-load occurs when the load resistance is of the minimum value where voltage regulation is lost.

% Load Regulation = [(V no-load – V full-load)/V full-load] * 100

2. Minimum Load Resistance

The load resistance at which a power supply delivers its full-load rated current at rated voltage is referred to as minimum load resistance.

Minimum Load Resistance = V full-load/I full-load

The value of I full-load, full load current should never increase than that mentioned in the data sheet of the power supply.

3. Source/Line Regulation

In the block diagram, the input line voltage has a nominal value of 230 Volts but in practice, here are considerable variations in ac supply mains voltage. Since this ac supply mains voltage is the input to the ordinary power supply, the filtered output of the bridge rectifier is almost directly proportional to the ac mains voltage. The source regulation is defined as the change in regulated output voltage for a specified rage of lie voltage.

4. Output Impedance

A regulated power supply is a very stiff dc voltage source. This means that the output resistance is very small. Even though the external load resistance is varied, almost no change is seen in the load voltage. An ideal voltage source has an output impedance of zero.

5. Ripple Rejection

Voltage regulators stabilize the output voltage against variations in input voltage. Ripple is equivalent to a periodic variation in the input voltage. Thus, a voltage regulator attenuates the ripple that comes in with the unregulated input voltage. Since a voltage regulator uses negative feedback, the distortion is reduced by the same factor as the gain. Here each pixel has a particular colour; that colour being described by the amount of red, green and blue in it. If each of these components has a range 0-255, this gives a total of 255^3=16,777,216 different possible colours in the image.
This is enough colours for any image. Since the total number of bits required for each pixel is 24 such images are also called 24-bit colour images. Such an image may be considered as consisting of a ‘stack’ of three matrices; representing the red, green and blue values for each pixel. This means that for every pixel there correspond three values.

F . ***Relay***-Relays are simple switches which are operated both electrically and mechanically. Relays consist of a n electromagnet and also a set of contacts. The switching mechanism is carried out with the help of the electromagnet. There are also other operating principles for its working. But they differ according to their applications.

*G.**Wiper Motor***-Wiper Motor, the power source of the wiper blade, is the core of the whole wiper system. Therefore, the quality of the wiper motor must be guaranteed to ensure its performance. The wiper motor is a permanent-magnet direct current (DC) one. It is equipped on the front windscreen glass with the mechanical parts of the worm gear. The worm gear functions to slow down and increase torque. Its output shafts spur four-bar linkage, by which the movement is changed from rotary to swinging.

Fig.no:1.3

III. DESIGN

we provide the flexible speed breaker for rural area and school areas .Here the flexible speed breaker is available in the time of school opening and closing time.After school timing the breaker will flatten below the road..The Road is buried to certain level for construction then the suspension rod is placed inbetween the buried places .

Fig.no:1.4

The flat metal is placed at the surface of the ground that metal should withstand the heavy loads of vehicles .The construction should be strong enough to held the heavy load and sudden loads of vehicles.In case of any faults ,the accident may happen or chance of damage to the vehicle. we have the adjustable speed breaker ,where it can be able to elevate or burried in the ground.It is necessary ,only if it needs otherwise it will be hidden under the ground but in the peak traffic time it is elevated above the ground level and act as the speed breaker ,it mostly avoid the aacidents . It is connected with the timer ,at the particular time when the clock pulse is sensed it tend to elevate the speed breaker to top level.Buzzer is connected to give sound sign to the riders.Relay is necessary in our proposed system ,by help of relay only the timer gets start to operate.Here the wiper Motor is used , the power source of the wiper blade, is the core of the whole wiper system. Therefore, the quality of the wiper motor must be guaranteed to ensure its performance. The wiper motor is a permanent-magnet direct current (DC) one. It is equipped on the front windscreen glass with the mechanical parts of the worm gear.LCD is fiited for displaying the output

Fig.no:1.5

IV. OPERATION

In the proposed system,the speed of vehicle is limit at certain places in peak times where traffic is heavy in the roadways.This will hugely reduce the accident at the peak time traffic areas.When the traffic is low ,the speed breaker will hidden or buried inside automatically ,or in case of emergency it will settle down to the ground . It can be operated both manually and automatically by with help of timer circuit ,At a particular peak traffic time only it will rise up ,in rest of time it will be buried inside the ground.It is more advantages in the modern world**.**

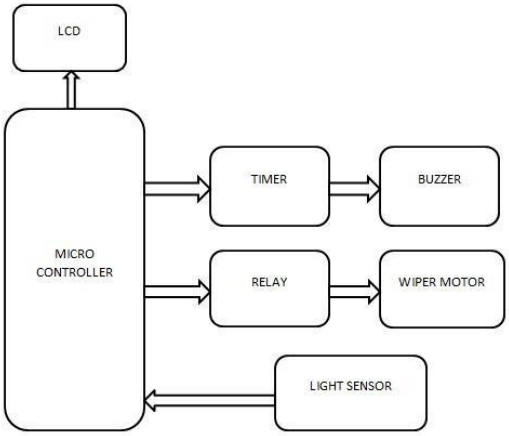

Fig.no:1.6

VIII. FUTURE ENHANCEMENT

The project shows a great hope for future full Sensored speed Breaker. It will greatly reduce the accident ,increases the safety and makes safer zone . It is notable that Time based Automatic speed Breaker is more efficient and cheap

Working process of wiper motor:

It takes a lot of force to accelerate the wiper blades back and forth across the windshield so quickly. In order to generate this type of force, a worm gear is used on the output of a small electric motor. The worm gear reduction can multiply the torque of the motor by about 50 times, while slowing the output speed of the electric motor by 50 times as well. The output of the gear reduction operates a linkage that moves the wipers back and forth.

Inside the motor/gear assembly is an **electronic circuit** that senses when the wipers are in their down position. The circuit maintains power to the wipers until they are parked at the bottom of the windshield, then cuts the power to the motor. This circuit also parks the wipers between wipes when they are on their intermittent setting.

The wipers combine two mechanical technologies to perform their task:

- A Combination electric motor and worm gear reduction provides power to the wipers.

- A neat linkage converts the rotational output of the motor into the back-and-forth motion of the wipers.

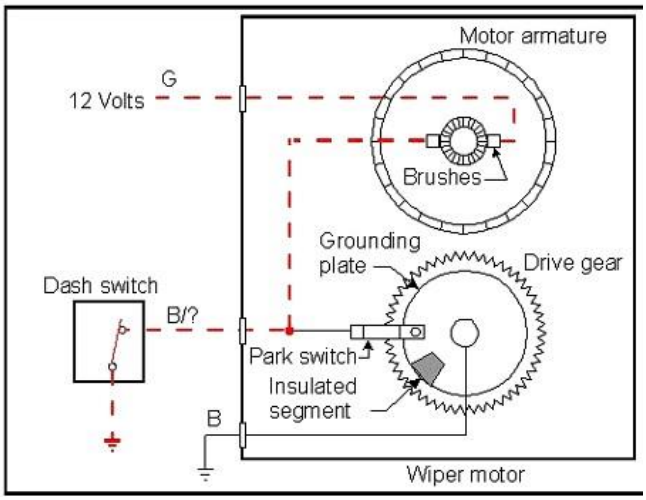

Fig.no:1.7

IX. CONCLUSION

The proposed system, "Time Based Automatic Speed breaker " overcomes the limitations of the earlier techniques used for controlling the traffic. Earlier in ordinary speed breaker ,there is need to slow down our vehicle when in low traffic condition. But this technique avoids such type of problem. Upon comparison of various speed breakers, it was self automated using timer . The project demonstrates that Time based Automated is a far more efficient method of traffic control as compared to traditional techniques such as ordinary speed breaker. The use of proposed technique avoids the accident at peak traffic areas and thus make a safer zone.This technique is more advantages in our modern world .At the time of heavy traffic only the speed breaker elevate outside by using the Timer circuit. The proposed system generates safer zone in urban areas and other main areas.The traffic became convenient after using this technique. In case of any emergency the speed will be flattened to normal so that vehicle can ride without any disturbance

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