

Street Light Control Based On Sunlight Using Pressure Switch

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Abstract—As we all know that energy consumption has increased a lot and sources of energy are limited so in order to meet the increasing demand of energy use of renewable sources of energy is a must. Keeping this in mind in this paper we are discussing about Street Light Control Based On Sunlight Using Pressure Switch. The main aim of paper is that lights turn on when needed and light turn off when not needed. This street light can save a large amount of electricity compared to the tradition one.

Keywords— Illuminate, Urbanization, Gloses

I. INTRODUCTION

The main function of the streetlight is to illuminate the street at dark hours. Earlier, the street lighting was very simple and also accounted for less investment as the number of streets were less . But, with rapid urbanization the number of streets increased rapidly and this led to increase in number of street lights and investment associated with them. For designing a proper street light various factors are to be considered which includes its efficiency to provide proper lighting on the street, its harmful environmental effect, installation and running cost etc. so before designing a street light all these factors should be considered properly and efforts should be made to incorporate technologies which are more cost effective like the one we have discussed here “STREET LIGHT CONTROL BASED ON SUNLIGHT USING PRESSURE SWITCH”.LED can easily replace traditional street light lamps because they have higher efficiency and longer life apart from this they are compact, robust and requires comparatively less power. Street light is automatically switched ON when the sunlight goes down and is automatically switched OFF when there is sufficient sunlight. This function is done by a sensor called Light Dependant Resistor (LDR) which senses the light actually like our eyes. Street light. In addition to this, here we had provided the Patti

switches in between two adjacent LED's or street light so that when vehicle is passed from that patti switch then due to pressure or weight of vehicle the forward two LED's will turn ON and as the vehicle is pass away then due to release of pressure the backward LED's will turn OFF.

II. Project Description

The objective of this project is to developed and implement street light control based on sunlight using pressure switch which is use to improve saving capacity sof light or energy.

III. Hardware Specification

- μ C : PIC 18F4520
- Pressure switch:Micro switch
- LCD:16*2,100mA,Alphanumeric display
- Power supply:5v,750mA

IV. Block Diagram

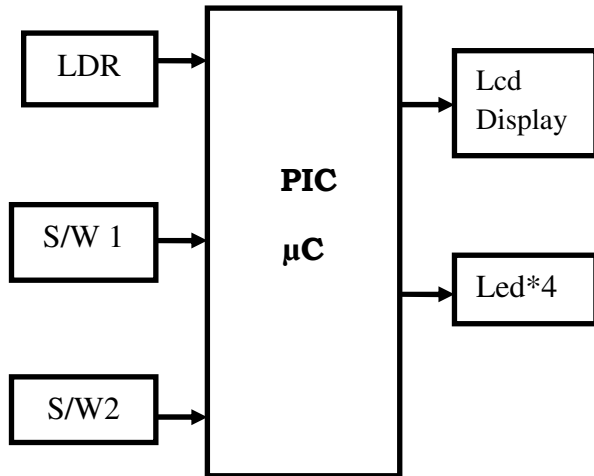


Fig.a

V. PIC18f4520

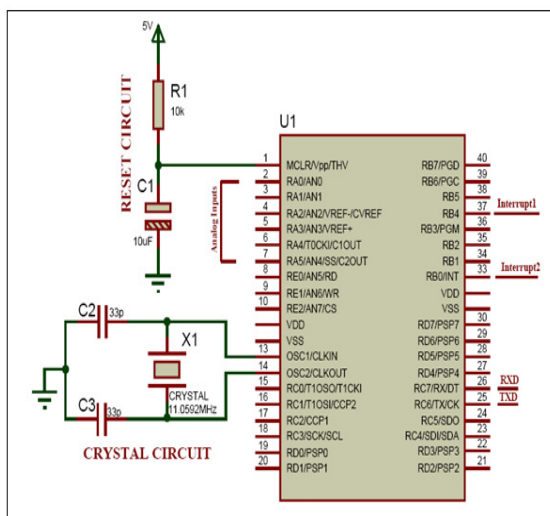


Fig.b

Features Of PIC 18f4520:

- Clock frequency as high as 40 Mhz

- Inbuilt ADC 10 bit 13 channel
- 1 Uart port pin 25 (Tx) pin 26(Rx)
- 33 I/O ports (Including ADC)
- Memory:
 - RAM: 1536 Bytes (1.5 KB)
 - ROM: 32KB
 - EEPROM: 256 Bytes
- External Interrupts (RB0 and RB3) (Pin 33 and Pin 36)
- I2C inbuilt
- SPI inbuilt
- Reset pin No.1(Active low)
- Crystal pins at 13-14pin
- Operating voltage range :2.0 to 5.5V

Reset Circuit:

Reset is used for putting the microcontroller into a 'Known' condition. That practically means that microcontroller can behaves rather inaccurately under certain conditions. In order to continue its proper functioning it has to be reset, meaning all registers would be placed in starting position. Reset is also used when trying out a device as an interrupt in program execution, or to get a microcontroller ready when loading a program.

Crystal Circuit:

Pins OSC1 & OSC2 are provided for connecting a resonant network to form oscillator. Typically a quartz crystal and capacitors are employed. The crystal frequency is the basic internal clock frequency of the microcontroller. The manufacturers make available PIC designs that can run at specified maximum & minimum frequencies, typically 1 MHz to 16 MHz.

As shown in fig .b we are connecting two ceramic capacitors which are basically used for filtering. That is to give a pure square wave to the μ C. The basic rule for placing the crystal on the board is in such a way that it should be as close to the μ C as possible to avoid any interference in the clock.

Light Dependent Resistor:

Photo resistors or *Light Dependent Resistors* (LDR) which change resistance according to light intensity. Normally the resistance of Photo resistor (LDR) we had used LDR to turn ON or OFF the street light depend on the sunlight intensity.

decreases with increasing intensity of light falling on it. The resistance in dark is very high that is in Mega ohm and in light the resistance is in few kilo ohm. Thus here

Pressure Switches:

A pressure switch is a form of switch that closes an electrical contact when a certain set pressure has been reached on its input. Thus here we are using pressure switches to turn ON the LED's when pressure of vehicle is applied to it.

VI. Advantages

- Reduced glore due to use of LED's.
- Low consumption of energy.
- Man power elimination.

VII. Disadvantages

- Initial cost is high.
- Non-availability of sunlight during rainy season.

VIII. Conclusion:

Solar energy is a non-conventional, on-polluting and reliable source of energy. This paper shows how effectively we can use this energy to drive the street lights. In addition to this we can save more energy due to the use of pressure switches and LDR.

IX. References:

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