Implementation of Visiting Counter

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Abstract: In new era the whole world is changing very fast and the use of electronics in everyday life became necessary. Many electronic and electrical devices are used to make easy life style.

The visit counter is a one of those instruments which help to count the exact number of visitors at occasion where ever it is necessary.

In this project we have used simple circuit, which is Consists of IR pair at input section and LCD at output section. With the help of this system we can count the visitors, at Banks, shops, temples, molls etc.

We require 5v DC power supply. IR pair is the input section of this circuit. As soon as the visitor enters the door, a high to low pulse goes to receiver Of IR pair. Then this output of receiver fed to the microcontroller 8051 .It does the job of counting and output provides to the input of LCD for displaying and finally we get the display of count on LCD.

In this way the circuit of visit counter can works on such simple principle.

Keywords: counter, 8051 microcontroller

I. INTRODUCTION

In new era the whole world is changing very fast and the use of electronics in everyday life became necessary. Many electronic and electrical devices are used to make easy life style.

There are many changes in human life due to the use of electronics, the tedious job become simple, the time required is also get shorted and many more advantages are observed. The visit counter is a one of those instruments which help to count the exact number of visitors at occasion where ever it is necessary.

If we count the numbers, some time manual errors are introduced in it and we are unable to get correct information. But this can overcome with the use of the small circuit of visit counter. Once we get the exact number of visitors then it is easy to provide them further facilities or data information.

from the central bottle neck, the flaw come from the architecture has not resolved essentially.

Thus the counter circuit is very necessary in our day to day life style.

Block diagram
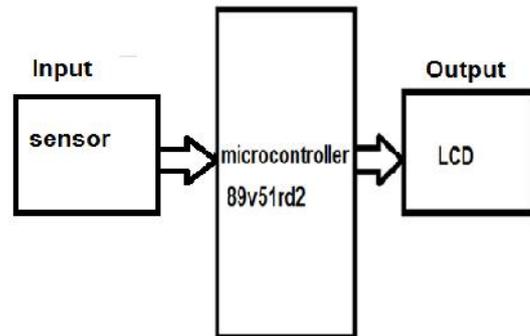
1. Input sensor using IR pairs:

This is the first stage of block diagram, it consist transmitter & receiver sections, transmitter transmits the light towards receiver which results into glowing LED. This H to L pulse is given to the I /P of to microcontroller.

2.Microcontroller:

This is the intermediate stage of circuit. We are having choice in selection of microcontroller. We are using 89v51RD2 microcontroller. Which is having 64KB flash & 1024 bytes of data RAM. It has 4,6-bit input-output ports which are more than sufficient for our application microcontroller. Is the heart of our project having minimum software & hardware even 8051 can be use for our purpose to make it independent system.

3. LCD:

LCD is interfaced to the port 1 of microcontroller. LCD is having 8 bit data lines & 3 control signals R/S, R/W & E.

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RS: The RS pin is used for their selection as follows. IF RS=0, the instruction command code register is selected and if RS=1 the data register is selected .

R/W: The R/W input allows the user to write information to the LCD or read information from it . R/W=1 when reading; R/W=0 when writing.

E: the enable pin is used by the LCD to latch information presented to its data pins .When data is supplied to data pins, an H to L pulse must be applied to this pin.

Hardware

IR Pair
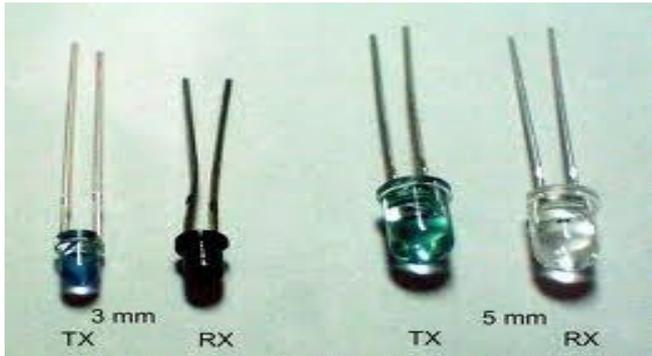
Infra red sensors are the most often used sensor by visit counter. Infra red sensors are in the form of diodes with 2 terminals. You can buy a pair of such diode (one transmitter and one receiver) at a very low cost of about 5 - 7 rupees only. Here onwards, we will use Tax to refer to a transmitter and Rx to refer to a receiver diode.
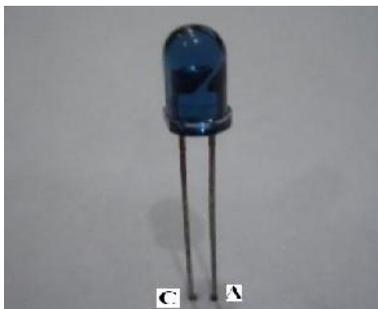
Upon careful observation, you will notice that amongst the two 'legs', one has a much wider base within the diode. That is normally the cathode (negative) whereas the leg having a smaller base would be the anode (positive terminal).

Operation:
When the Tax is forward biased, it begins emitting infra red. Since it's not in visible spectrum, you will not be able to see it through naked eyes but you will be able to view it through an ordinary cell phone camera.
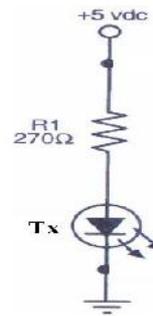
A typical transmitter circuit.

The resistance R1 in the above circuit can vary. It should not be a very high value (~ 1Kohm) as then the current flowing through the diode would be very less and hence the intensity of emitted IR would be lesser. By increasing the current flowing in the circuit, you can increase the effective distance of your IR sensor. However, there are drawbacks of reducing the resistance. Firstly, it would increase the current consumption of your circuit and hence drain the battery (one of the few 'precious' resources for any embedded system) faster. Secondly, increasing the current might destroy the Tax. So, the final choice should be a calculated trade-off between these various factors.

You can also modulate the IR to achieve better distance and immunity. The receiver diode has a very high resistance, typically of the order of mega Ohms when IR is not incident upon it. However, when IR is incident upon it, the resistance decreases sharply to the order of a few kilo Ohms or even lesser. This feature forms the basis of using IR as a sensor.

What is a DB9 Connector?
The term "DB9" refers to a common connector type, one of the D-Subminiature or D-Sub types of connectors. DB9 has the smallest "footprint" of the D-Subminiature connectors, and houses 9 pins (for the male connector) or 9 holes (for the female connector).

1) Where are DB9 Connectors used?
DB9 connectors were once very common on PCs and servers. DB9 connectors are designed to work with the EIA/TIA 232 serial interface standard, which determined the function of all nine pins as a standard, so that multiple companies could design them into their products.

DB9 connectors were commonly used for serial peripheral devices like keyboards, mice, joysticks, etc. Also they are used on DB9 cable assemblies for data connectivity. Today, the DB9 has mostly been replaced by more modern interfaces such as USB, PS/2, Fire wire, and others. However, there are still many legacy devices that use the DB9 interface for serial communication.

2) What does L-com carry for DB9 Connectors?

L-com has a huge variety of DB9 products, including DB9 connectors, DB9 adapters, and DB9 cables assemblies. See links below for types of products that use the DB9 interface.

RS-232 Maximum Cable Length

The maximum cable length for RS-232 is 50ft, but in practice depends on baud rate, cable specific capacitance and ambient noise. The table below contains some rules-of-thumb from experiments done by Texas Instruments years ago.

Baud rate	Maximum range / cable length
19200	50ft
9600	500ft
4800	1000ft
2400	3000ft

Microcontroller	MAX232	RS232
Tax	$T_{1/2}$ In	$T_{1/2}$ Out — Rx
Rx	$R_{1/2}$ Out	$R_{1/2}$ In — Tax

LCD initialization

The steps that have to be done for initializing the LCD display is given below and these steps are common for almost all applications.

- Send 38H to the 8 bit data line for initialization

- Send 0FH for making LCD ON, cursor ON and cursor blinking ON.

- Send 06H for incrementing cursor position.

- Send 01H for clearing the display and return the cursor.

Sending data to the LCD.

The steps for sending data to the LCD module are given below. I have already said that the LCD module has pins namely RS, R/W and E. It is the logic state of these pins that make the module to determine whether a given data input is a command or data to be displayed.
• Make R/W low.

• Make RS=0 if data byte is a command and make RS=1 if the data byte is a data to be displayed.
• Place data byte on the data register.
• Pulse E from high to low.
• Repeat above steps for sending another data.

Advantages

- Low cost

- Low power consumption. (+5v)

- Rugged construction &safely

- It is totally electronics system.

- There is no maintaince

Conclusion

The visit counter is a circuit used to count the persons enters via the gate. To get the exact count of visitors this circuit is very useful. With the help of visit counter we count how many people's have visited to banks, shops museums or an event.

REFERENCES

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