

Electronic Letter Box Using 8051 Microcontroller

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ABSTRACT:

Lower power consumption is a godsend in this increasingly energy conscious world. Thus, a visitor counter is designed to save the usage of electrical energy and to avoid wastage. This project takes over the task of controlling the room light as well as counting the persons in the room precisely. When a person enters the room, the counter is incremented by one and when a person leaves the room, the counter is decremented by one. IR sensors are placed at the doors and used to detect the presence of human. The numbers of people are displayed using a seven segment display. In this report, the project is introduced with a system block diagram followed by literature review that investigates the previous work done regarding the project. The methodology covers the technical explanations about the sensor circuits, main board and the significant components of the project. Programming related software, flow chart and source codes are also elaborated for better understanding. The report continues with the results that show the completed circuit boards that are able to function as designed. The project achieved its aim and can be implemented in any classroom, office or other institution to save energy and to provide an automated lifestyle.

Keywords: AT89S52, monostable multivibrator, infrared sensor

INTRODUCTION:

The objective-based model to count the number of persons visiting a particular room. In today's world, there is a need here we can use sensors and can know the present number of persons. Continuous need for automatic appliances. With the increase in standard of living; there is a sense of urgency for developing circuits that would ease the complexity of life. Also if at all one wants to know the number of people present in a room so as not to have congestion, this circuit proves to be helpful.

This Project "A visitor counter using Microcontroller" is a reliable circuit that takes over the task of counting the number of persons/visitors in the room very accurately. When somebody enters into the room then the counter is incremented by one. Light in and of this project is to make a controller when any one leaves the room then the counter is decremented by one. The total number of persons inside the room is also displayed on the seven segment displays.

the microcontroller does the above job. It receives the signals from the sensors, and this signal is operated under the control of software which is stored in ROM. Microcontroller AT89S52.

Literature Review:

In 1849 the royal mail first encouraged people to install letter box to facilitate the delivery of letter. A letter box an established opening element of an entrance door in the United Kingdom for undisrupted letter delivers.

A new design letter box was established 1915 in British country. This style is almost universal in British homes and office. The new types of letter box are as follows;

- Traditional letter box
- Electronic letter box
- Intelligent letter box

Methodology:

CIRCUIT DIAConclusion:GRAM :

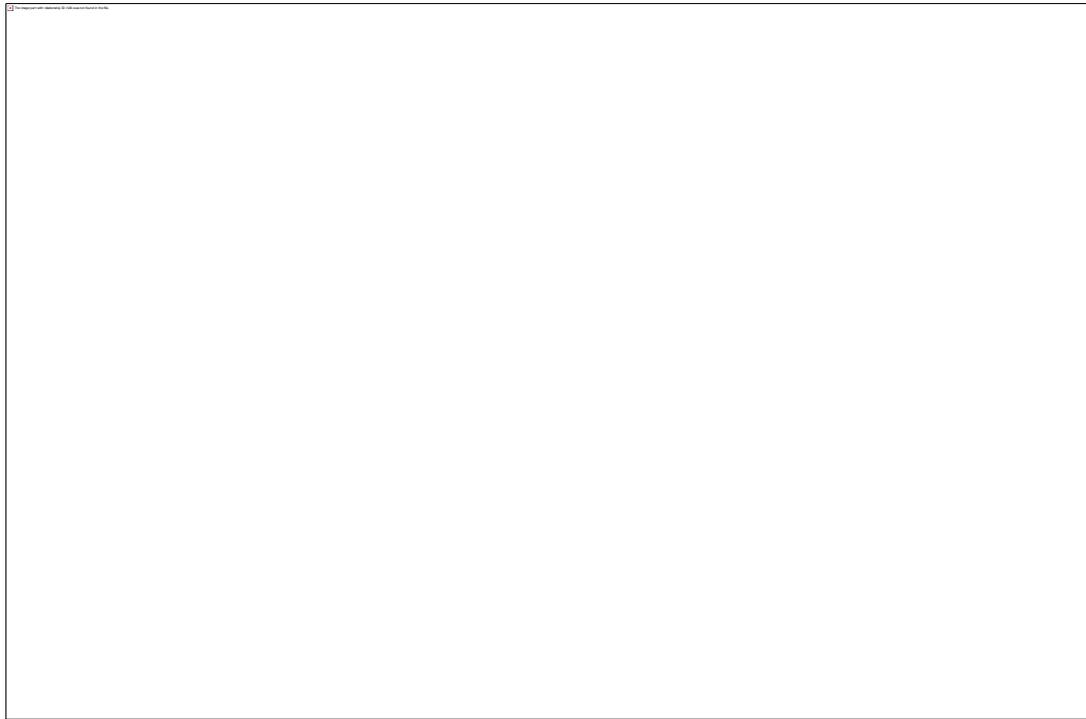


Fig: Electronic Letter Box Using 8051 Microcontroller

CIRCUIT DISCRIPTION:

This circuit diagram shows how a 555 timer IC is configured to function as a basic monostable multivibrator. A monostable multivibrator is a timing circuit that changes state once triggered, but returns to its original state after a certain time delay. It got its name from the fact that only one of its output states is stable. It is also known as a 'one-shot'. In this circuit, a negative pulse applied at pin 2 triggers an internal flip-flop that turns off pin 7's discharge transistor, allowing C1 to charge up through R1. At the same time, the flip-flop brings the output (pin 3) level to 'high'.

When capacitor C1 is charged up to about $\frac{2}{3} V_{cc}$, the flip-flop is triggered once again, this time making the pin 3 output 'low' and turning on pin 7's discharge transistor, which discharges C1 to ground. This circuit, in effect, produces a pulse at pin 3 whose width t is just the product of R1 and C1, i.e., $t=R1C1$.

IR Transmission circuit is used to generate the modulated 36 kHz IR signal. The IC555 in the transmitter side is used to generate 36 kHz square wave. Adjust the preset in the transmitter to get a 38 kHz signal at the o/p. around 1.4K

we get a 38 kHz signal. Then you point it over the sensor and its o/p will go low when it senses the IR signal of 38 kHz.

Conclusion:

Anyone drops the , letter light falling on the LDR is obstructed and its resistance goes high.

The project achieved its aim and can be implemented in any classroom, office or other institution to save energy and to provide a automated lifestyle.