

Visitor Counter

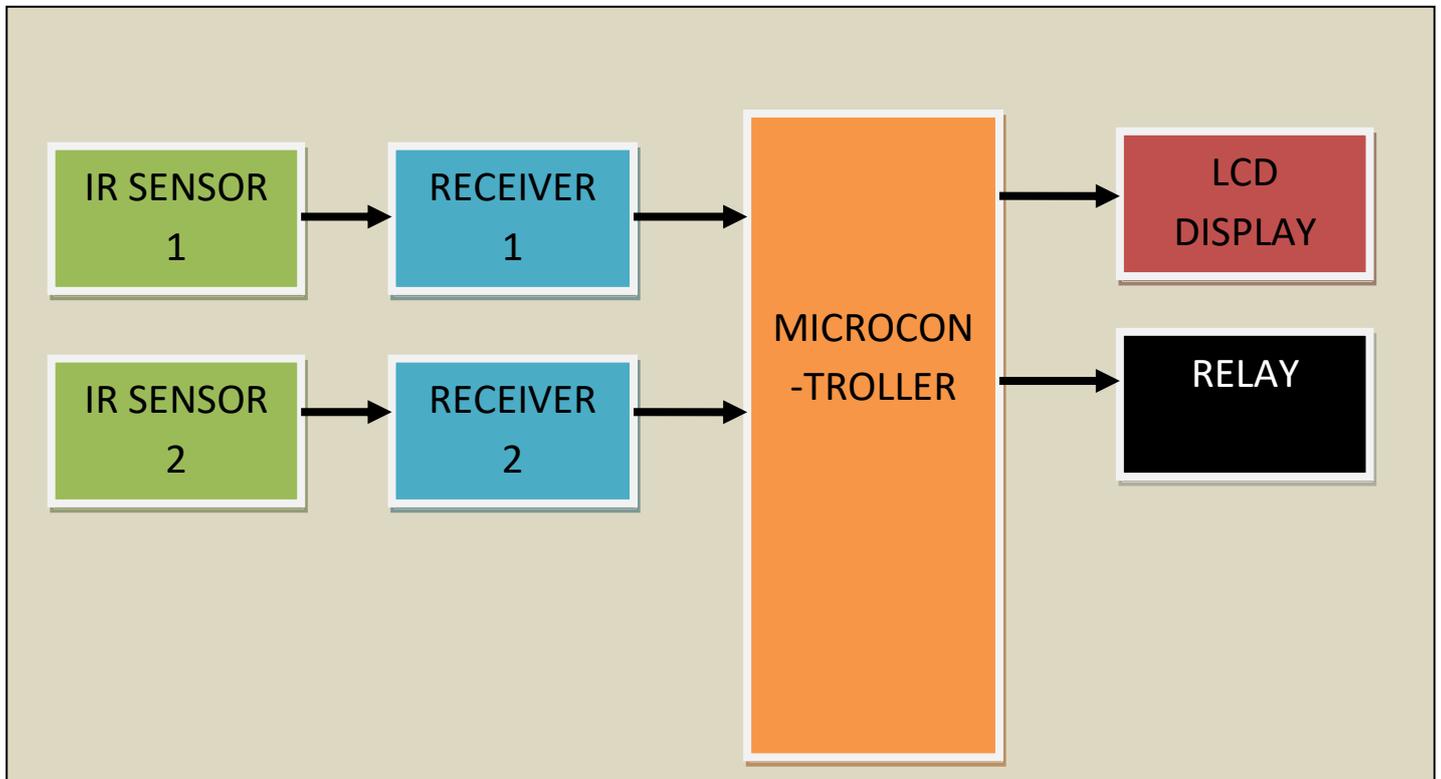
Abstract

In this project we are counting number of persons/ visitors in the room very accurately. When somebody enters into the room then the counter is incremented by one and the light in the room will be switched ON and 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 continuously monitor the Infrared Receivers, When any object pass through the IR Receiver's then the IR Rays falling on the receivers are obstructed this obstruction is sensed by the Microcontroller.

Introduction

This project known as “Digital Visitor counter” . The main concept behind this project is known as “Visitor counter” which measures the number of persons entering any room like seminar hall, conference room, classroom. This function is implemented using a pair of Infrared sensors. LCD display placed outside the room displays this value of person count. This person count will be incremented if somebody enters the room And in a reverse way, person count will be decremented if somebody leaves the room. Since this project uses 2 infrared sensors, it can be used as a Bidirectional person counter as well.

Block Diagram



Component

- 1. IR Transmitter:** We have implemented the Person counter module using 2 transmitters and 2 receivers. We have used Infra-Red transmitters. The reason behind choosing IR LED is, infrared beams are not visible to human eyes and they are not easily triggered by other sources in the environment. Transmitters used are IR LEDs.
- 2. IR Receiver:** We have used the IR sensor as an Infrared receiver. It is an active-low device, which means it gives low output when it receives the Infrared rays. So when the IR rays are interrupted by

any person then Microcontroller will receive a high pulse from the IR receiver.

3. **LCD Display:** We have used 16×2 alphanumeric Liquid Crystal Display (LCD) which means it can display alphabets along with numbers on 2 lines each containing 16 characters. This display should be placed outside the room. It displays various messages like “Person Counter Incremented”, “Person Counter Decrement”, “No of Person in Room = XYZ” where XYZ is the actual person count.
4. **Darlington pair:** It is used to increase the current gain. The output of 555 IC is given to the Darlington circuit. And the output of the Darlington pair is given to IR led, thus it increases the current through Infrared LEDs which helps in increasing the range of infrared rays emitted from IR LEDs.
5. **Microcontroller:** This is the CPU (central processing unit) of our project. The various functions of Microcontroller are like:
 - **Bidirectional Visitor counter section** – It is bidirectional because we have used 2 sensors on a single door. The microcontroller does the function of Reading the digital input from two infrared receivers and calculates the number of persons from them.
 - **Display** – Microcontroller sends the person count to LCD so that the person operating this project should read the number of persons inside the room.

Application

1. Digital Visitor Counter can be used in various rooms like seminar hall, conference hall where the capacity of the room is limited and should not be exceeded. The project will display an actual number of persons inside the room
2. The Bidirectional person counter project can be used in Cinema halls, multiplex, malls as well as in temples to count the number

of a person entering inside. So that these places should not get overcrowded to avoid congestion.

Advantage

1. Human efforts to count the number of persons are eliminated. Since this project does the automatic person counting with the help of two sensors installed on the door frame.