

# Bidirectional Visitor Counter

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**Abstract-** In this project we will make a bidirectional counter with a microcontroller board Arduino Uno R3, this project is based on pair of infrared sensors that detects interrupts when it detects the obstacles. the pair of sensors can detect the visitor from both the directions the number of entering visitors and the number of exiting visitors.

**Keywords-** Arduino Uno R3, Infrared Sensors, Breadboard

## I. INTRODUCTION

A bidirectional visitor counter is a device or system designed to keep track of the number of people or objects entering and exiting a specific area. Unlike a unidirectional counter, which only counts entries or exits, a bidirectional counter records both entries and exits, providing a more accurate measure of traffic flow. These systems are commonly used in various applications, including retail stores, public buildings, transportation hubs, and more, to monitor visitor movements and analyze data for operational and security purposes. Bidirectional visitor counters often utilize sensors, cameras, or other technology to detect and record each entry and exit, helping businesses and organizations make informed decisions based on visitor data.

Introduce the concept of a bidirectional visitor counter and its significance in applications like retail stores, libraries, and public buildings. Also, it is usually used at factories and companies for counting the products when the products are in major manner.

## II. AIM & OBJECTIVE

Creating a bidirectional visitor counter using an AT89C51 microcontroller involves a combination of hardware and software. Read already published work in the same field. Goggling on the topic of your research work.

## III. INFORMATION

A Bidirectional Visitor Counter using the Arduino uno r3 microcontroller is a device designed to count the number of people entering and exiting a specific area or building.

Here's a basic description of such a system

**Sensor Setup:** The system is equipped with a pair of sensors, typically infrared sensors, positioned at the entry and exit points. These sensors detect the presence of a person passing through.

**Microcontroller Arduino uno R3(AT328P):** The AT328P microcontroller is the brain of the system. It processes the sensor data and keeps track of the count.

**Display Unit:** A display unit, usually an LCD or LED display, shows the current count. It may also indicate the direction of movement, such as "In" and "Out".

**Counting Logic:** The microcontroller processes the sensor inputs and maintains a count in memory.

**Reset Button:** To reset the count, a reset button is often provided.

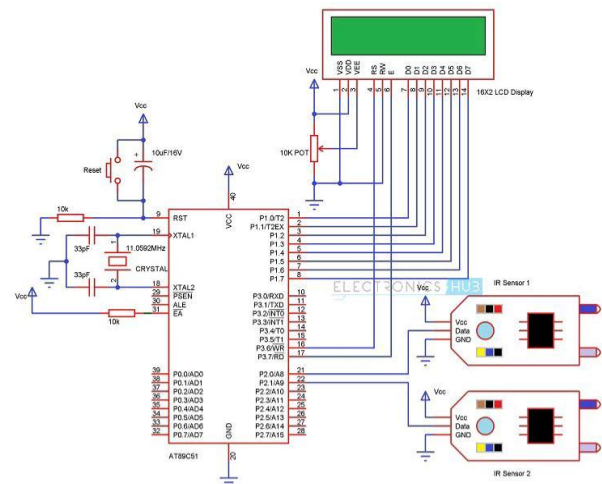


Fig1-circuit diagram

## IV. COMPONENTS

### 1. Arduino Uno R3

The Arduino Uno R3 is a versatile microcontroller board that serves as an excellent starting point for electronics and coding enthusiasts. Here are the key specifications and features of the Arduino Uno R3: Microcontroller: The Uno R3

is based on the ATmega328P microcontroller. Digital I/O Pins: It has 14 digital input/output pins, of which 6 can be used as PWM outputs. Analog Inputs: The board provides 6 analog input pins. Clock Frequency: The Uno R3 operates at a 16 MHz clock frequency, which synchronizes internal functions.

**USB Connection:** It includes a USB connection for programming and communication. **Power Options:** You can power it via a USB cable, an AC-to-DC adapter, or a battery. **Reset Button:** The board features a reset button for convenience. **EEPROM:** The ATmega328P also has 1 KB of EEPROM, which retains data even when powered off.

## 2. Infrared sensor:

Infrared Obstacle Avoidance IR Sensor Module (Active Low) contains a pair of infrared transmitting and receiving tubes. When the transmitted light waves are reflected back, the reflected IR waves will be received by the receiver tube. The onboard comparator circuitry does the processing and the green indicator LED comes to life.

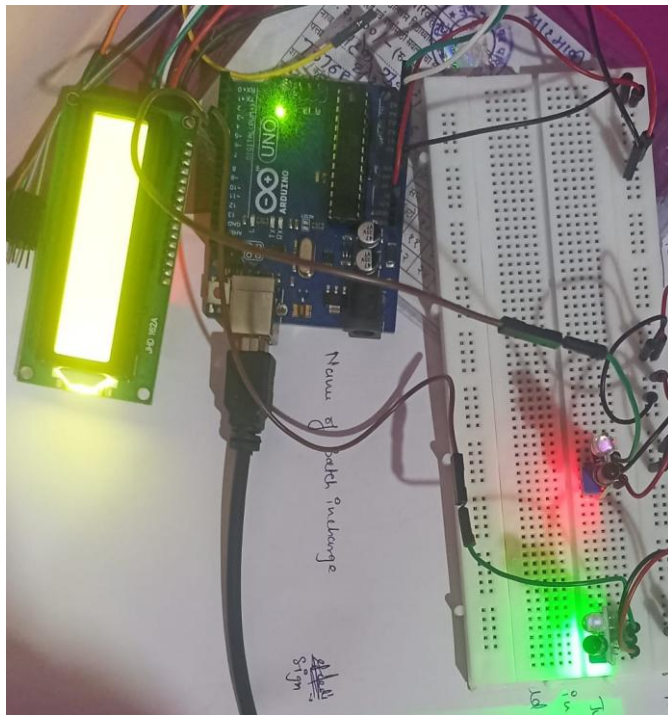


Fig-Bidirectional visitor counter

## V. CONCLUSION

We developed a bidirectional visitor counter tested it in few local halls also have unlocked future possibilities. When somebody enters into the room then the counter will be

decremented. The number of LED lights will be counted and the count will be displayed.

## REFERENCES

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