ShriShamraoPatil (Yadravkar) Educational & Charitable Trust's

Sharad Institute of Technology
College of Engineering, Yadrav (Ichalkaranji)
An Autonomous Institute
Department of Electronics & Telecommunication Engineering

A
Mini Project Report
On
"BI-DIRCTIONAL VISITOR COUNTERS USING 7-SEGEMENT DISPLAY"

SUBMITTED BY

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An Autonomous Institute

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Department of Electronics & Telecommunication Engineering

This is to certify that,

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Studying in SY E& TC has successfully completed the Mini Project entitled **"Bi-Dirctional visitor counter using 7-segment display"**underthe guidance and supervision of Mr.V.V.Khandareduring the academic year 2021-2022. This is a part of partial fulfillment of the requirement for award of degree of the Bachelor of Technology in Electronics &Telecommunication Engineering.

Mr.V.V.Khandare   **Dr. P. S. Patil**   **Dr. S. A.Khot**

Guide   Head of Department   Principal

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Last but not least we are thankful to our parents for their moral support.

ABSTRACT

Many times, we need to monitor the person/people visiting some place like Seminar Hall, conference room or Shopping mall or temple. This project can be used to count and display the number of visitors entering inside any conference room or seminar hall. This is a bidirectional counter which means it works in a two way. That means counter will be incremented if person enters the room and will be decremented if a person leaves the room. 7-Segment displays this value which is placed outside the room.

This system is helpful for counting the number of people in an auditorium orhalls for seminar to avoid congestion. Moreover, it can also be used to check the number of people who have come to an event or a museum to watch a certain exhibit. Arduino is a reliable circuit that takes over the task of counting the number of persons/ visitors in the room very accurately.

We will be showing the in-count exhibit. Arduino is a reliable circuit that takes over the task of counting the number of persons/ visitors in the room very accurately. We will be showing both In count i.e. number of people entering the room and Out count i.e. number of people exiting the room on a 7-Segment An IR sensor is used to monitor the person entering and exiting the room

The Arduino 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. Arduino ATmega328 continuously monitor the Infrared Receivers. When any object pass through the IR Receiver's then the IR Rays falling on the receiver are obstructed, this obstruction is sensed by the Arduino

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Introduction

In today's world, there is a 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. Many times, we need to monitor the people visiting some place like shopping mall. To provide solution for this we are going to implement a project called "BI Directional Digital Visitor Counter"

This Project bi-directional Visitor Counter and Home Automation using microcontroller is a reliable circuit that takes over the task of controlling the room lights as well as counting member of person 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 in decremented by one.The total member of persons inside the room is also displayed on the seven segment displays

The microcontroller does the above job. the signals from the sensor and this signal is operated under the control of software which is stored in ROM Microcontroller AT mega 328 monitor the Infrared Receivers, When the object gone through the IR Receiver's then the IR Rays falling on the receiver are obstructed, this obstruct in seemed by the microcontroller & counted by the microcontroller and displayed in the 7-seg display

Literature Review

In recent times, the number of visitors to protected and recreational areas has almost doubled during the past ten years throughout the whole world (Horne *et al.,* 1998). Now it is estimated that about five hundred million visits are made annually to national parks and other recreational areas.

These assumptions based on different ways of estimating the number of visits. Earlier, the estimates were based on trial logs, examination of footprints and deterioration of the trails, various permits and best estimates made by personnel working in the areas. However, the lack of uniformity in the world countries development and consequently the lack of uniformity in data keeping practices have made it difficult to estimate correctly the number of visitors to places designated as public in the individual countries and the world at large

Reliable estimates of the number of visitors are extremely important for planning and managing the use of the areas in question. On the basis of such estimates, it is possible to gain clearer picture of the use of the area and the sites where visitor traffic is heaviest. Information on visitor numbers help the people responsible for managing the areas to control the flow of visitors, for example, by directing them to routes that causeless deterioration to vegetation and landscape.

In addition, visitor counts also help to maintain and develop services so that they better correspond to the real number of visitors to the area (e.g. firewood supply and waste disposal). Furthermore, reliable visitor statistics are needed, together with other information gathered from visitor surveys, for evaluating the effectiveness of the area's own activities and for monitoring changes.

During the past two years, appreciable efforts have begun to count visitors to public areas more systematically and consistently. Some counters were already in use in the mid-1990s, but insufficient use was made of them.

More accurate estimation of the number of visitors was made considerably easier by the publication of a manual on visitor counting in Finnish (Horne *et al.,* 1998), which has been widely applied in practice.

Other good manuals on visitor counting have been published, for example, in Scotland and the United States (e.g. Dales *et al.,* 1993 and Yuan *et al.,* 1995). The problem has been and still is to some extent the lack of systematic and sufficiently reliable visitor statistics.

Objective

1. The objective of this project is to make a Microcontroller based model to count number of persons visiting particular room and accordingly light up the room.

2. Design a bi-directional visitor counter controlled by the microcontroller which will display its statistical output on an LCD screen

3. Ensure that the system functions effectively, using an 8-bit microcontroller, IR LED phototransistor circuits and is powered by a 9V PP3 battery.

4. Ensure that the project fulfill all requirements for the award of a Higher NationalDiploma in Computer Engineering

Problem Statement

Background reading revealed that the technology of visitor counting had dated back to the 1990s. However, there are some shortcomings present in the existing system. Visitor counting is simply a measurement of the visitor traffic entering and exiting offices, malls, sports venues, etc.

Counting the visitors helps to maximize the efficiency and effectiveness of employees, floor area and sales potential of an organization.

Visitor counting is not limited to the entry/exit point of a company but has a wide range of applications that provide information to management on the volume and flow of people throughout a location.

Proposed system:

This Project bi-dictional Visitor Counter and Home Automation using microcontroller is a reliable circuit that takes over the task of controlling the room lights as well as counting member of person visitors in the room very accurately When somebody enters into the room then the counter is incremented by one and the light in the mom will be switched ON and when any one leaves the room then the counter in decremented by one.

The light will be only witched OFF until all the persons in the room grout. The total member of persons inside the room is also displayed on the seven segment displays

The microcontroller does the above job. the signals from the seniors and this signal is operated under the control of software which is stored in ROM microcontroller ATmega 328 monitor the Infrared Receivers, When y object paw through the IR Receiver's then the IR Rays falling on the river are obstructed, this obstructed in seemed by the microcontroller

## Circuit Diagram

Detach a power rail from a breadboard
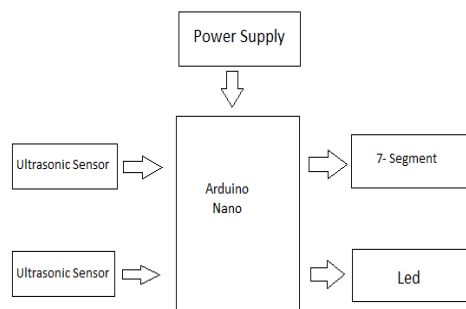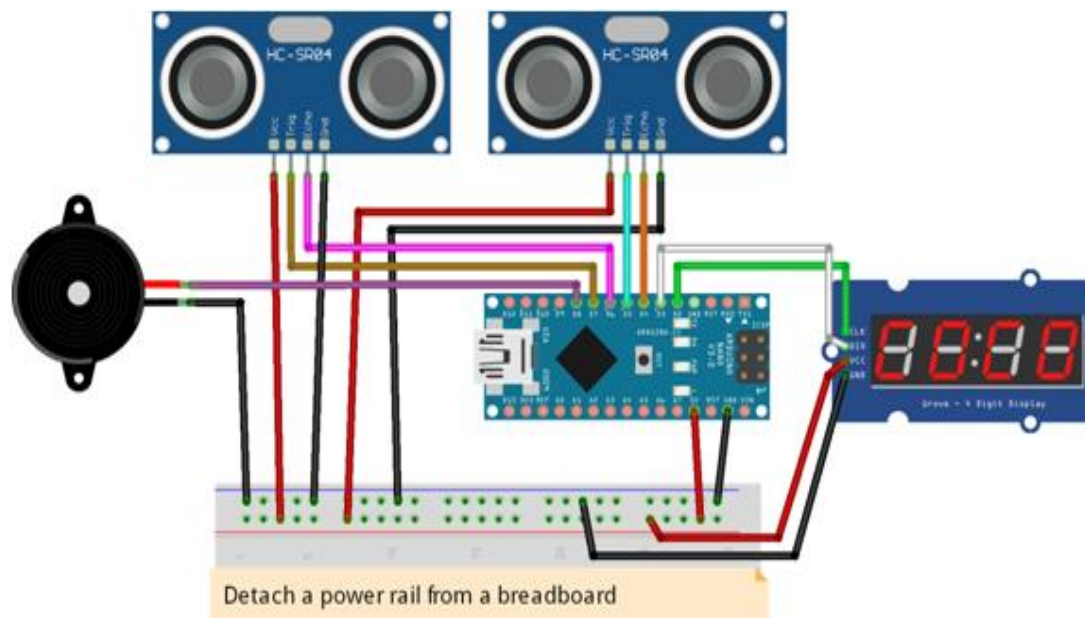
1)Arduino Uno
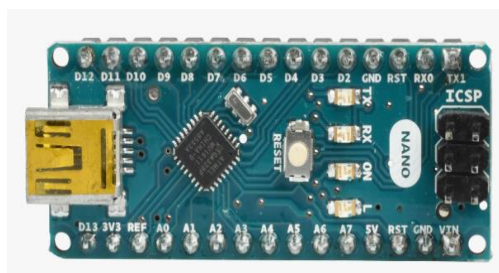
The Arduino nano is an open-source microcontroller board based on the Microchip ATmega328Pmicrocontroller and developed by Arduino. The board is equipped with sets of digital and analog input/output pins that maybe interfaced to various expansion boards and other circuits. Theboardhas14digitalI/Opins,6analogI/O pins, and programmable with the ArduinoIDE, via a type B USB cable. It can be powered by the USB cable or by an external9-voltbattery, though it accepts voltages between 7 and 20volts.Microcontroller: ATmega328.

- Operating Voltage: 5V.

- Input Voltage(recommended):7-12V.

- Input Voltage(limits):6-20V.

- Digital I/OPins:14(ofwhich6providePWMoutput)

- AnalogInputPins:6.

- DC Current per I/O Pin: 40mA.

2) HC – SR04
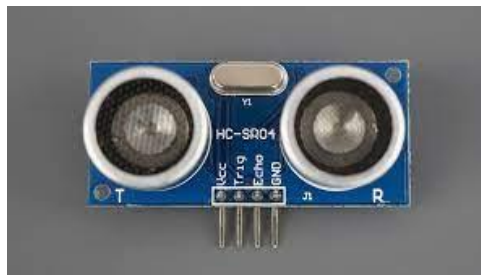
The HC-SR04 ultrasonic sensor includes a transmitter & a receiver. This sensor is used to find out the distance from the objective. Here the amount of time taken to transmit and receive the waves will decide the distance between the sensor and an object. This sensor uses sound waves by using non-contact technology. By using this sensor, the distance which is required for the target can be measured without damage and provides accurate details. The range of this sensor available between 2cms to 400cms.

3) 7 segment display
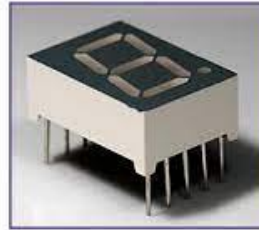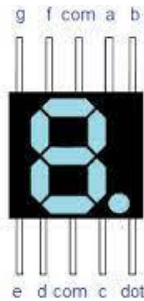
A seven-segment display is a form of electronic display device for displaying decimal numerals that is an alternative to the more complex dot matrix displays. A seven-segment display is a form of electronic display device for displaying decimalnumerals that is an alternative to the more complex dot matrix displays.

Seven-segment displays are widely used in digital clocks, electronic meters, basic calculators, and other electronic devices that display numerical information.

Result
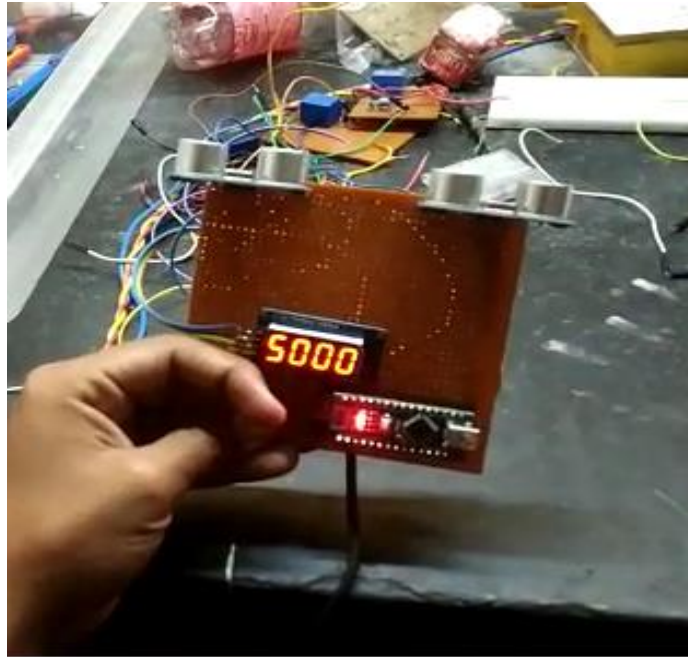
Applications

1. This circuit can be used domestically to get an indication of number of persons entering a party

2. It can be used at official meetings

3. It can be at becomes and other places to keep a check on the number of personentering a secured place.

4. It can also be used as home automation system to ensure energy saving by switching on the loads and fans only when necessary

Advantages:

1. The most advantage is that it will help to save the electricity when there is no one in room lights will be off.

2. For school, collage, andcompanies.

3. No need of human interface.

4. Can work 24x7 without any problem.

5. Low cost and very easy to implement.

6. Whole system works automatically, it will reduce human work.

Conclusion

In demonstration of the project, the infrared sensing part used to detect the passage of visitors worked

• Microcontroller was very efficient in its task performance, thus computation of counts and controlling I/O devices

• Also, the LCD, led and the buzzer were effective in alerting and notifications.

Hence the whole purpose of the bidirectional visitor counter was successfully achieved and is applicable in the wider scope. Finally, we conclude that the proposed system will count visitors effectively and efficiently by reducing the rate at which error occurs when counting visitors.

As the project was to design and construct a device that would count and display the exact number of people in a building

References

http://www.madlab.org/electrnx/lesson7.html

http://circuitdigest.com/electronic-circuits/object-counter-circuit-diagram

http://www.engineersgarage.com/contribution/anjali/counter-using-ic-4026