B.L.D.E.Association's
Dr.P.G.Halakatti College of Engineering & Technology, Vijayapur-586103
Programme: B.E in Electronics and Communication Engineering

Mini Project 2022-23

BIDIRECTIONAL VISITOR COUNTER

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INTRODUCTION

- 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 the counter will be incremented if person enters the room and will be decremented if a person leaves the room. LCD displays this value which is placed outside the room.

- Visitor counting is simply a measurement of the visitor traffic entering and exiting conference rooms, malls, sports venues, etc. With the increase in standard of living, there is a sense of urgency for developing circuits that would ease the complexity of life.

- This system is helpful for counting the number of people in an auditorium or halls 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. Microcontroller 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 LCD display. An IR sensor is used to monitor the person entering and exiting the room.

- 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 the flash memory of the MCU. Microcontroller ATmega32 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 Microcontroller.

- Infra red sensors are a type of light sensors they function in the infra red part of the frequency spectrum. IR sensors are active sensors that consist of an emitter and a Receiver. When the beam is cut the controller then accordingly comes to know if the person is entering or exiting and then accordingly increments or decrements the count which is then displayed on the LCD.

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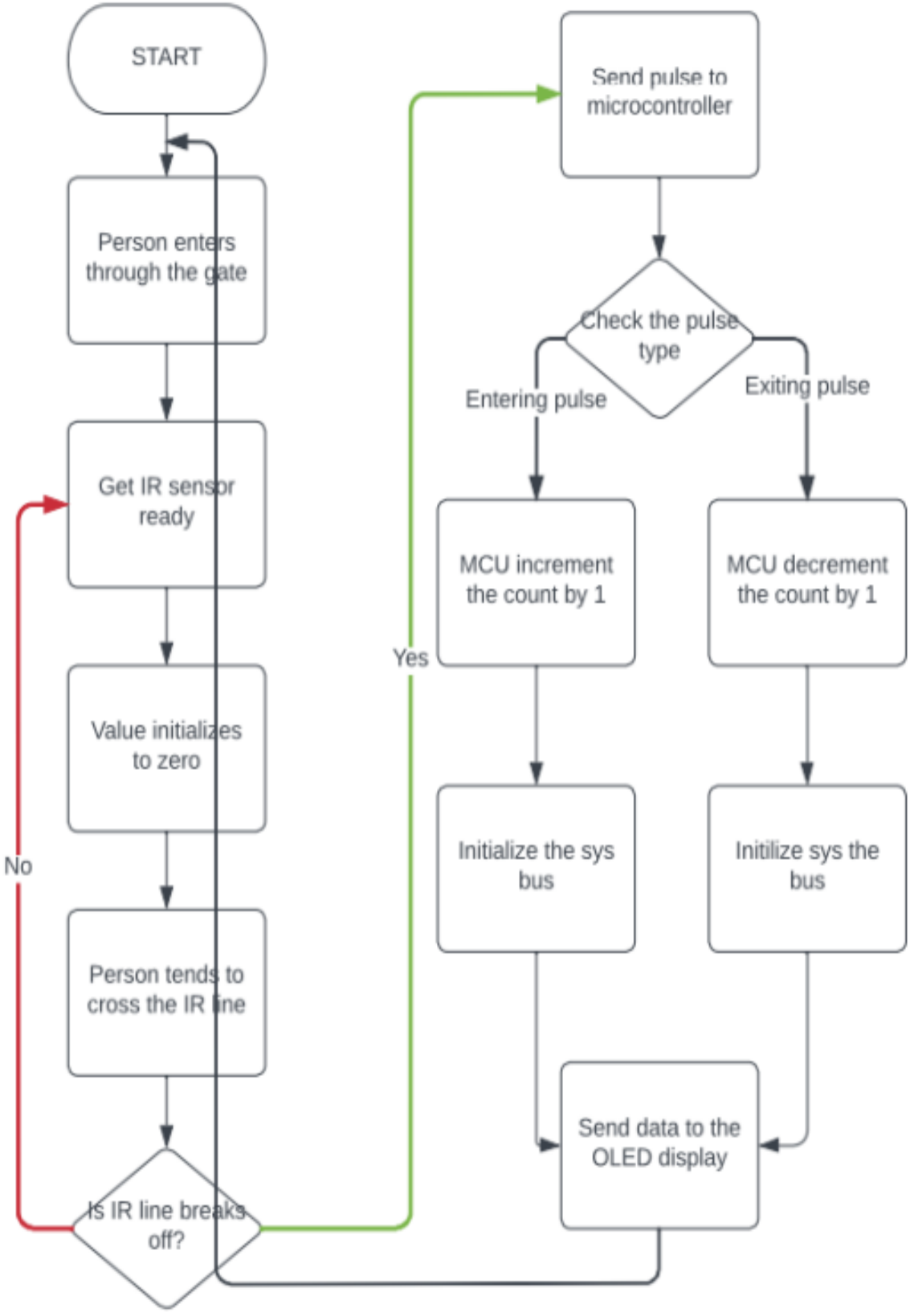
FLOW CHART OF THE SYSTEM:



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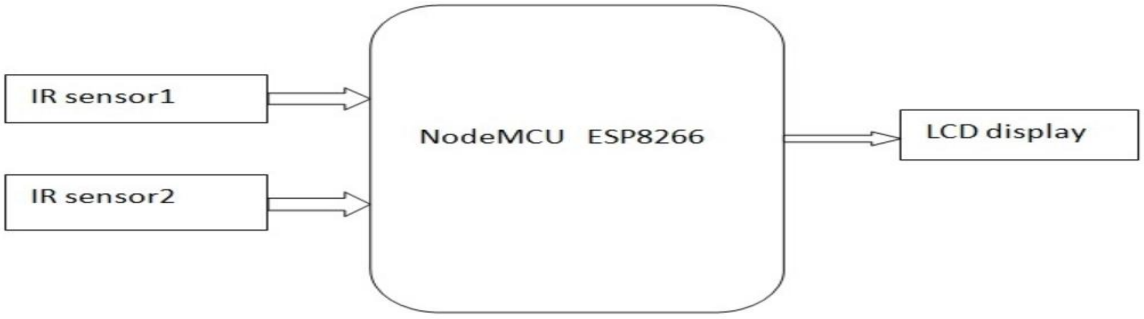
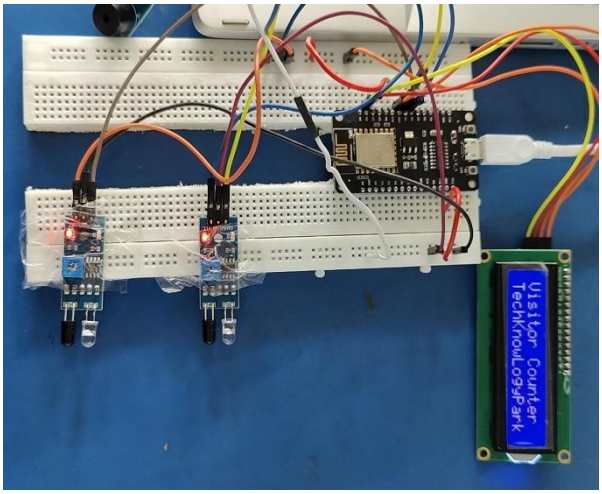
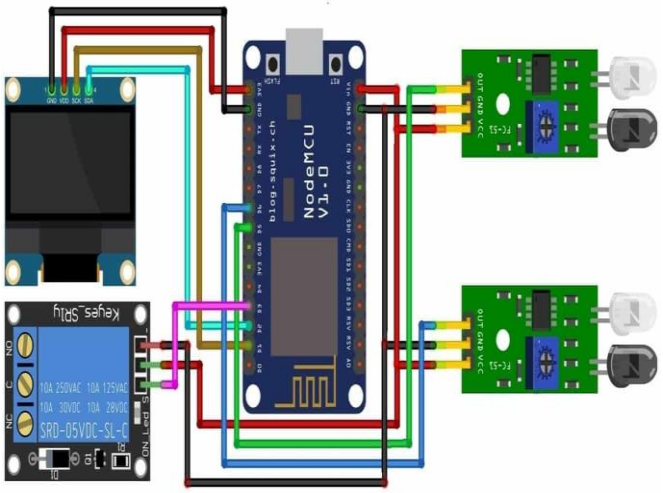
METHODOLOGY







The device has a pair of IR Sensor module. One of the IR Sensors needs to be placed at the entrance (sensor at pin PB2) and the other at the exit (sensor at pin PB3), i.e inside the room door and outside the room door. When no visitors are inside the room, the light turns off and the LCD Display will indicate no visitors are present inside the room.

When someone makes an entry, the visitor is added and LCD Display displays the number of incoming visitors. At this instance, the light automatically turns ON. When a person leaves the room or exits, the visitor is subtracted. Hence the total number of current visitors is displayed on LCD. The LCD Display also displays the number of visitors who visited the room and the number of visitors who exit.

So this is how the Bi-directional Visitors Counter with an automatic Light Control System works.

ADVANTAGES & APPLICATIONS

ADVANTAGES:

1. This system is helpful for counting the number of people in an auditorium or halls for seminar to avoid congestion.
2. No need of human intervention.
3. Can work 24x7 without any problem.
4. Low cost and very easy to implement

APPLICATIONS:

1. The Bidirectional Visitor Counter can be used domestically to get an indication of the number of persons entering a party

2. It can be used at official meetings.

3. It can be used at homes and other places to keep a check on the number of persons entering a secured place.

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

CONCLUSION

I re-iterate the following as noted from our discussions of the results above :

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

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

3. Also, the LCD, lamp was effective in alerting and notifications.

4. Hence the whole purpose of the bidirectional visitor counter was successfully achieved and is applicable in the wider scope.

Finally, I conclude that the proposed system will count visitors effectively and efficiently by reducing the rate at which error occurs when counting visitors.

FUTURE SCOPE

1. Lights can be turned ON/OFF according to the number of people in the room.
2. We can check the ambient light intensity and then decide if the light needs to be turned ON or not.
3. Metal detector can be added for security reasons.