

Congestion Control Bidirectional Digital visitor counter

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ABSTRACT-The Congestion control Bidirectional Digital visitor counter is a consistent circuit which is mainly designed to monitor the room appliances as well as count number of people entering in the arena very accurately and also avoids congestions in the different areas of usage . When a person enters into the arena a counter is maintained for presenting the number of people and is updated by one and the appliances in the arena will be turned ON and when a person leaves the arena counter is maintained for presenting the number of people and is decreased by one. The appliances will be turned OFF when all the persons in the arena go out. The overall count of people inside the arena will be presented on Liquid crystal display. When a particle passed through the Infrared Receiver's then the Infrared Rays falling on the receivers are obstructed. This obstruction is sensed by the Arduino Microcontroller. It also can manage fans based on relay provide, If the room reaches the maximum capacity then by using wifi module message is sent to authorities to limit the person entering the room. Thereby congestion is avoided.

Keywords:Microcontroller,WIFI,RELAY

I.INTRODUCTION

Automation plays major role in the entire consumer needs of day to day life. Due to the emerging of IOT in different areas makes the automation easier and user oriented is designed. This project mainly designed to observe count of person entering the room, exiting the room and manages the appliances such as fans and bulbs based on the room capacity. Numbers of relays are used to handle the load of appliances. It also monitors the count if matches with room capacity the through wifi module alert message is given to authorities on mobile to manage person entering the room.

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II. WORKING MODEL

When a person entering the room which is observed by infrared sensor there by the count is updated and is indicated in the LCD display, when the person exits from the room the count is updated by the another infrared sensor on to the display .Based on the room count appliances such as fans, lights are handled by using relays. If the count reaches to the capacity of the room an alert message is given to the authorities to manage the persons entering the room. So that the room occupancy is also observed by avoiding congestion.

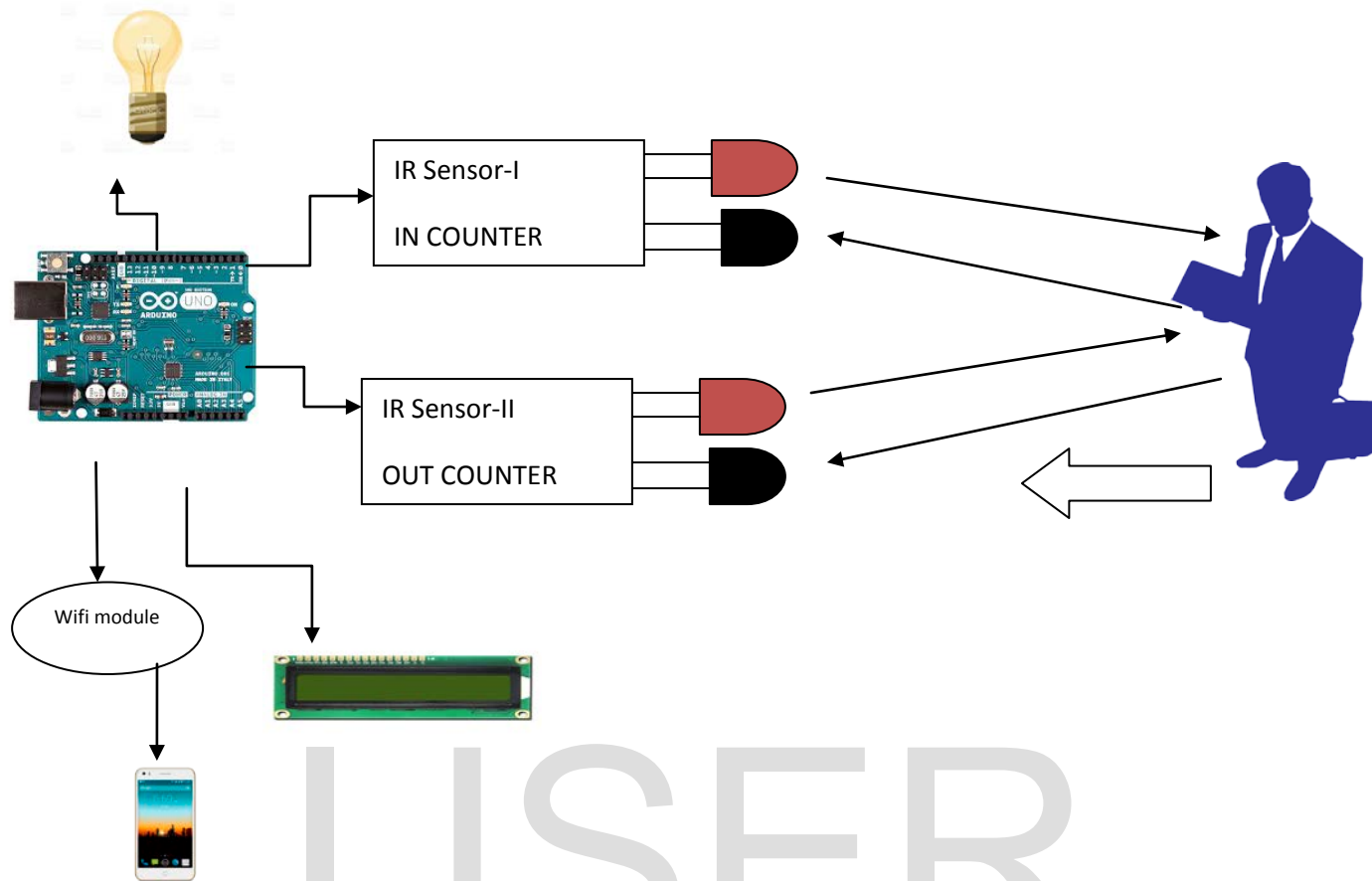


Figure 2.1 overall block diagram of congestion control bidirectional visitor counter

III. DATAFLOW DIAGRAM

This dataflow diagram gives the overall flow of sequence of events occurred in this project. When a person enters the arena, based on sensor activation the counter is updated. When entry sensor is obstructed count is incremented and appliance is turned on. When exit sensor is obstructed count is decremented and displayed on the LCD screen. If the person count is reaches to zero then appliances are turn to off. When room capacity reaches to maximum limit then alert message is to authorities through wifi module on mobile

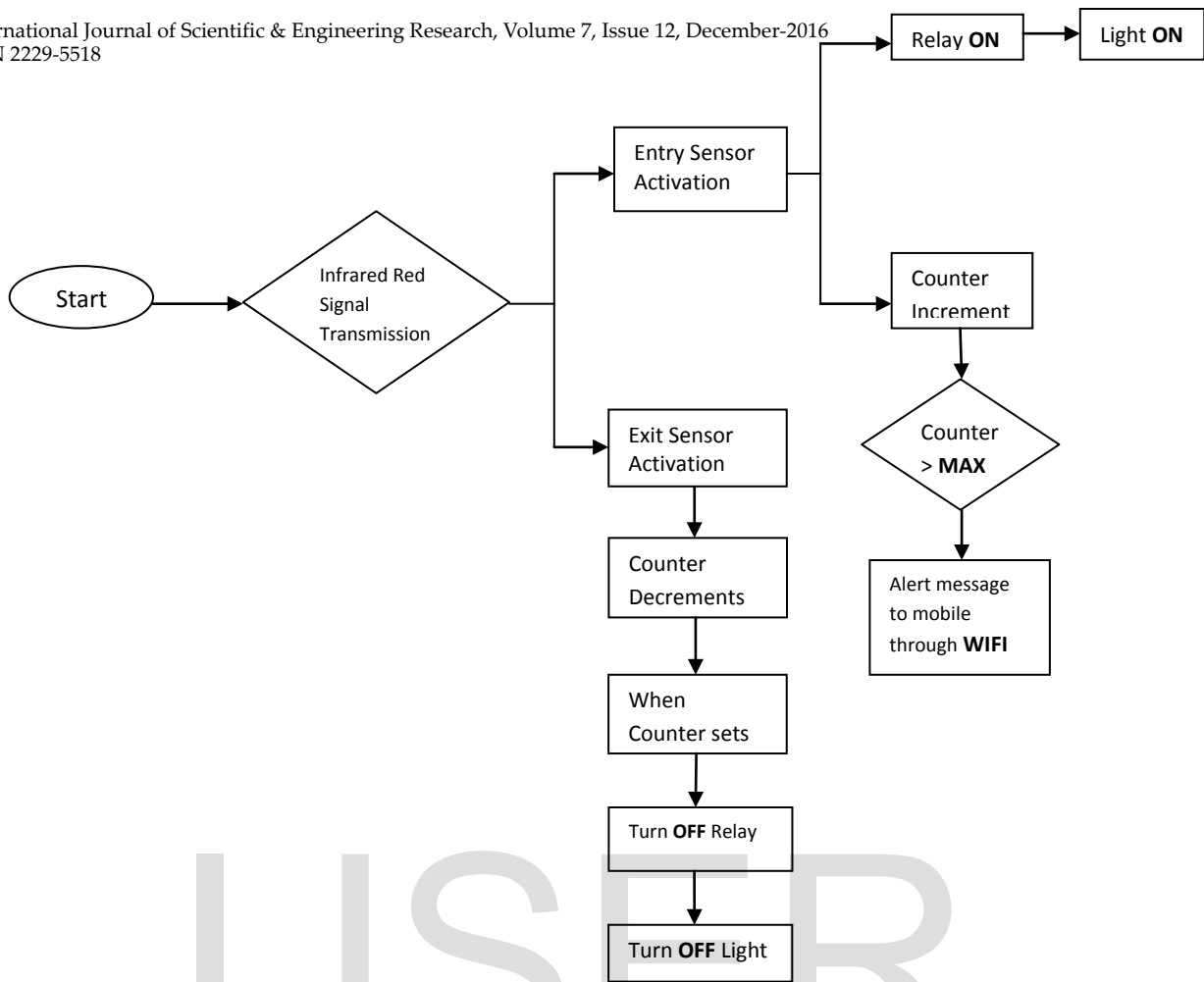


Figure 3.1 Dataflow diagram for congestion control bidirectional visitor counter

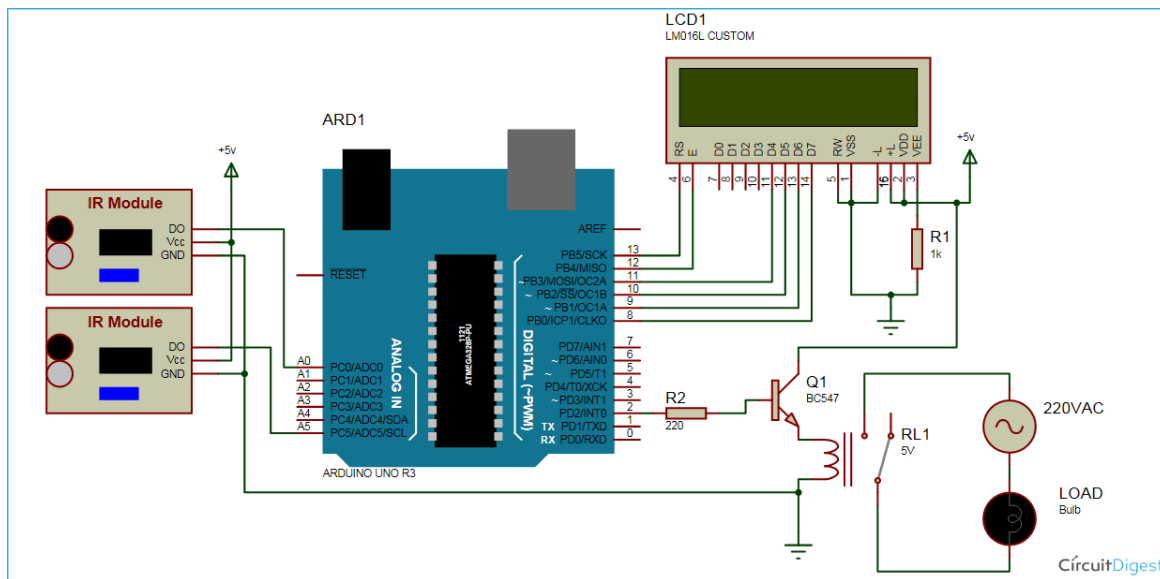
IV. PROPOSED SYSTEM

This project is operated by using two infrared sensors for detecting the person entering and leaving the room and to manage appliances. When a person enters the room one IR-sensor is obstructed between transmitter and receiver. The Arduino microcontroller is programmed in to identify the signal turns on the bulb and fans inside the arena. It gives commands to relay to on the appliances. When a person leaves the room another IR-sensor issues the control signals to Arduino MC to update the count. If there are no persons in the room the appliances will turn off by relay. If the room capacity is exceeded then an alert message is sent through wifi module on mobile. Here by respective authorities will manage congestion.

ADVANTAGES

1. Low Cost.
2. Easy to use.
3. Can implement on Single door.

V. CIRCUIT DIAGRAM



COMPONENTS

- Arduino UNO
- Relay (5v)
- Resistors
- IR Sensor module
- 16x2 LCD display
- Bread Board
- Connecting Wires
- Led
- BC547 Transistor
- Wifi module
- mobile

VI. FUTURE SCOPE

The number of applications for this system is numerous .By using this concept we can implement various Appliances Such as fans, tube lights, etc. By modifying this circuit and using more relays we can achieve a task of opening, closing the door.

VII.CONCLUSION

“Congestion control Bidirectional Digital visitor counter” is a system to control Room (Classroom, Auditorium, Hall) Lights (LEDs) will display room capacity and monitors congestion . It can handle more number of appliances by adding number of relays.

VII.REFERENCES

- [1] <https://www.arduino.cc/>
- [2] <http://www.instructables.com/>
- [3] <https://en.wikipedia.org/wiki/Relay>
- [4] <http://www.onlinejournal.in/IJRV214/149.pdf>