

Arduino-Based Wireless Visitor Counter Transmitter And Reciver

Pathak Avdhoot¹, Pathak Shreyash², Pinate Aditya³, Fulgame Abhijeet⁴, Dhanure A.S.⁵

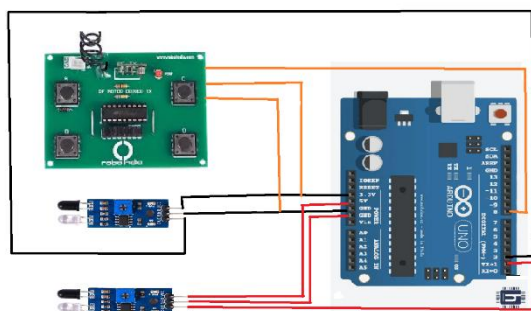
^{1, 2, 3, 4, 5} Dept of Electronics and Telecommunication Engineering

^{1, 2, 3, 4, 5} Vishweshwarayya Abhiyantriki Padvika Mahavidyalaya

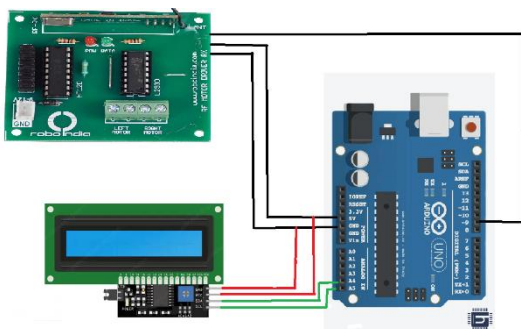
Abstract- This project proposes an Arduino-based wireless visitor counter system that uses IR sensors, motor drivers, and RF communication to monitor and manage visitor flow in enclosed spaces. The transmitter unit detects the direction of movement using IR sensors placed at entry and exit points. Based on the sequence of sensor triggers, the system counts people entering or leaving a room. A motor driver can be used to automate doors or gates accordingly. The visitor count is transmitted wirelessly to the receiver unit via RF modules (e.g., 433 MHz). The receiver, also Arduino-controlled, displays the current count on an LCD screen and can trigger additional actions like turning lights on/off based on occupancy. This cost-effective and efficient solution is ideal for use in smart rooms, libraries, halls, and other controlled environments

I. INTRODUCTION

CIRCUITDIAGRAM

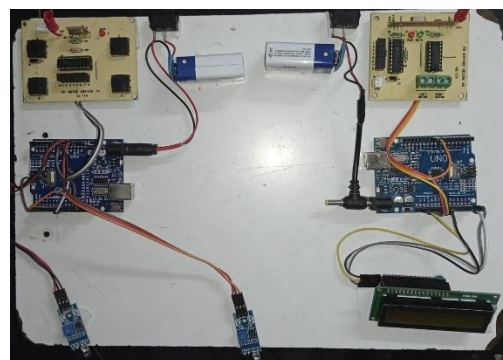


Transmitter



Reciver

II. RESULT



The Arduino-based wireless visitor counter system was successfully designed, implemented, and tested. The transmitter circuit accurately detected the movement of individuals using IR sensors and correctly identified the direction of motion to update the visitor count. The motor driver (L298N) efficiently controlled the door mechanism, automatically opening or closing it when someone entered or exited. The updated count was transmitted wirelessly through the 433 MHz RF module, And the receiver circuit successfully received and displayed the real-time count on an LCD screen. The system responded quickly to sensor inputs and maintained reliable wireless communication over a moderate distance. It was also capable of operating autonomously, requiring no manual intervention.

III. CONCLUSION

The Arduino-Based Wireless Visitor Counter with motor driver, transmitter, and receiver circuits has been successfully designed and implemented. The system effectively detects and counts the number of people entering and exiting a space using IR sensors, with accurate direction sensing. The Arduino UNO reliably processes the data and controls a motor driver (L298N) to automate door movement, enhancing security and convenience.

The use of RF modules (433 MHz) enables efficient wireless transmission of the visitor count from the transmitter to the receiver circuit. The receiver accurately displays the count on an LCD, allowing real-time monitoring from a remote location. The system proved to be responsive, low-

cost, and easy to install. This project demonstrates a practical application of embedded systems and wireless communication, suitable for use in schools, offices, libraries, and other public spaces where monitoring foot traffic is essential. It enhances automation and supports smart building initiatives.

REFERENCES

- [1] Arduino Official Documentation – <https://www.arduino.cc>
- [2] Used for understanding the programming and interfacing of Arduino UNO with IR sensors, RF modules, and motor drivers.
- [3] L298N Motor Driver Datasheet – STMicroelectronics
- [4] Helped in understanding motor driver pin configuration and interfacing with Arduino for door automation.
- [5] 433 MHz RF Module Tutorial – <https://circuitdigest.com>
- [6] Provided guidance on setting up wireless communication between transmitter and receiver circuits.
- [7] Electronics Hub – Visitor Counter Project Guide – <https://www.electronicshub.org>
- [8] Served as a reference for IR sensor placement and logic for detecting entry and exit.
- [9] Instructables – Arduino People Counter Projects – <https://www.instructables.com>
- [10] Offered insights into practical applications and real-world implementations of similar systems.
- [11] These sources supported the successful development, programming, and testing of the wireless visitor counter system.