

Touchless Entry Exit Data Tracker

This presentation introduces a real-time monitoring system for crowd flow analysis, utilizing touchless entry and exit data tracking.



Introduction

1

Project Purpose

Automated system tracks individuals entering and exiting a monitored area.

2

Applications

Crowd management, workplace monitoring, real-time analytics for high-traffic areas.

3

Data Collection

Records timestamped data for analysis and visualization.

Project Objectives

Real-Time Monitoring

Counts the no of exits and Entries to a specific area or location via Touchless method and logs the data through a Serial communication to the server

Data Storage

The logged data is then saved to a local CSV file in the server with data and counts

Visualization

Generate real-time and interval-based bar graphs for visualization and simpler analysis purposes

System Design

Hardware Components

ESP8266 microcontroller

Two IR sensors

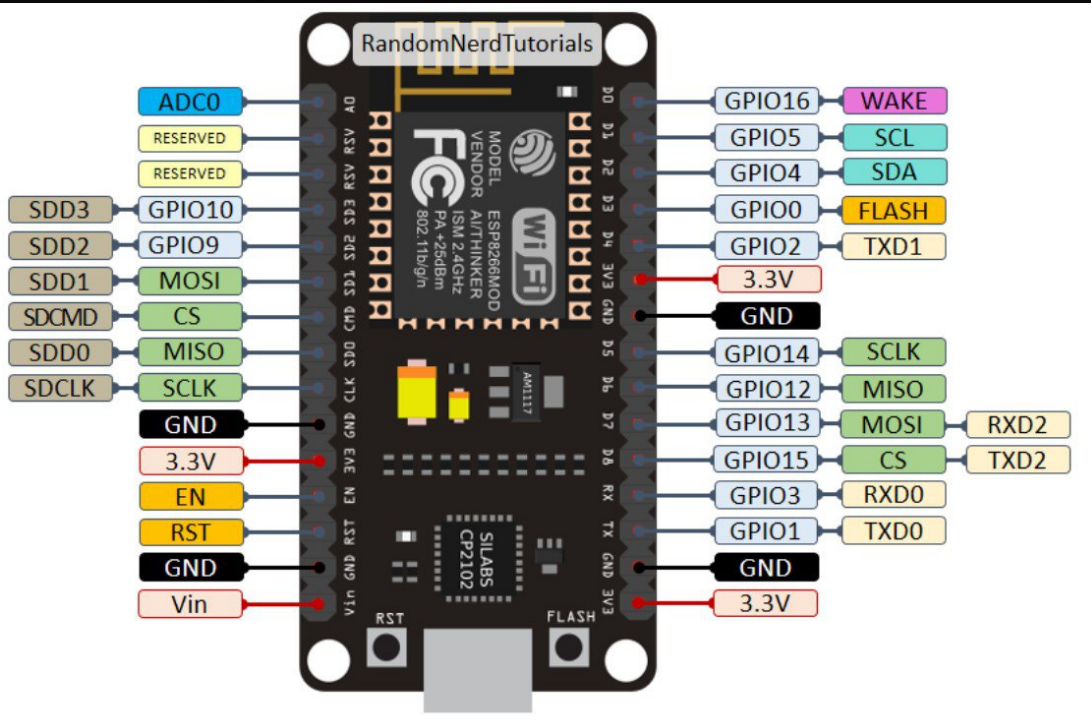
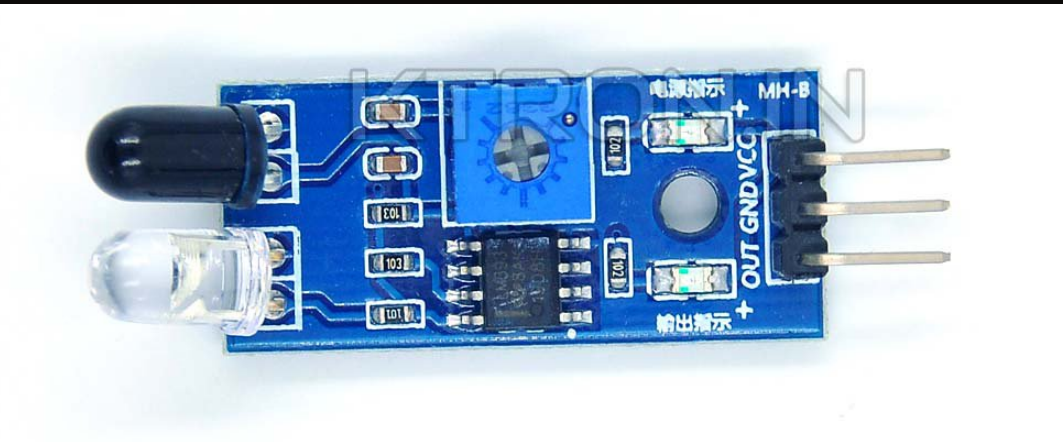
Power source

Software Tools

Python

Arduino

Usb power supply



Working Mechanism

1

Entry/Exit Detection

IR sensors detect individuals, ESP8266 sends data to a serial interface.

2

Data Logging

Python script reads serial data, timestamped data is stored in a CSV file.

3

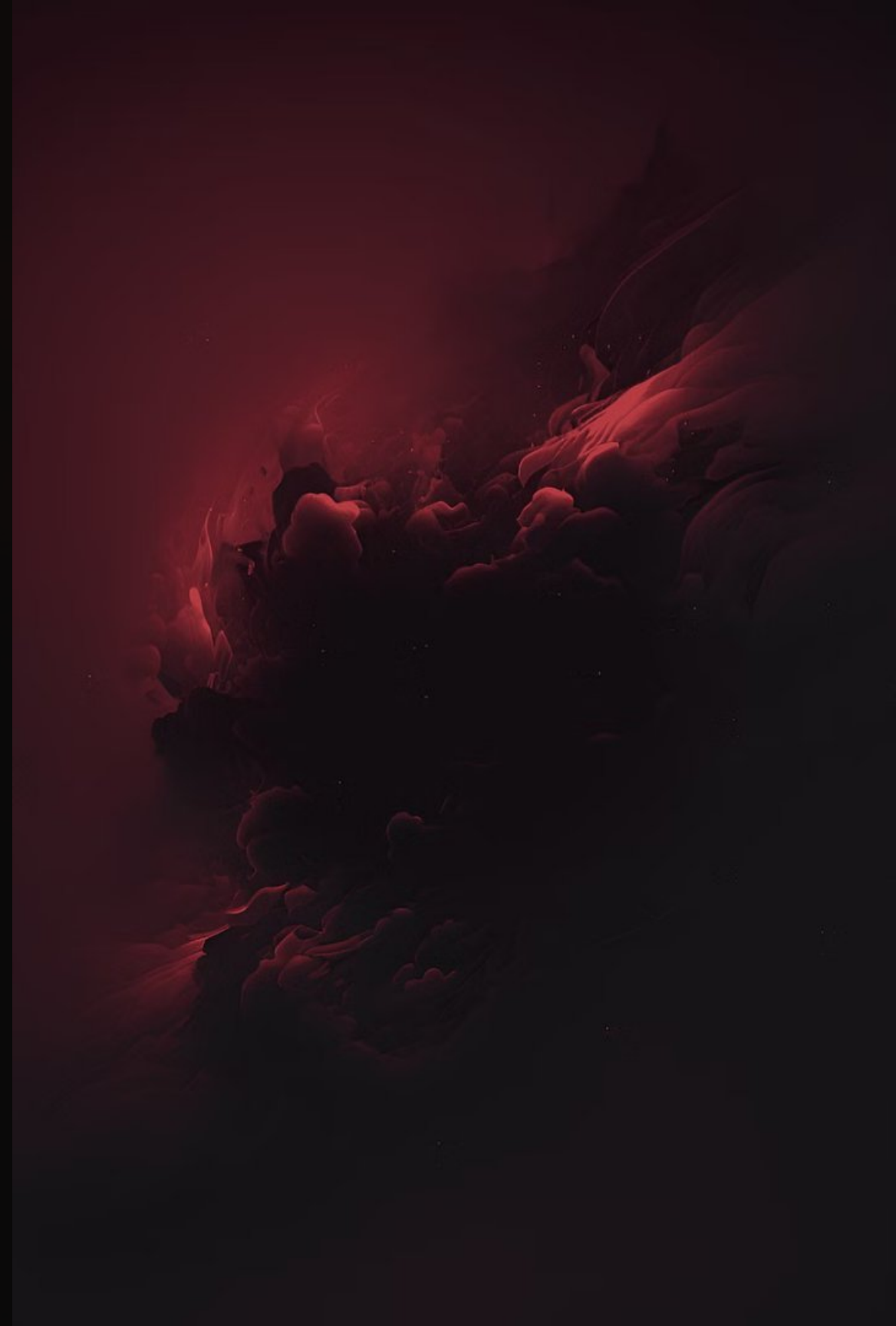
Data Visualization

Two bar graphs: real-time updates for entries/exits, interval-based graph for periodic trends.

4

Threshold Alerts

System warns if total count exceeds a preset limit.



Key Features

Automation

Touchless data collection using IR sensors.

Real-Time Insights

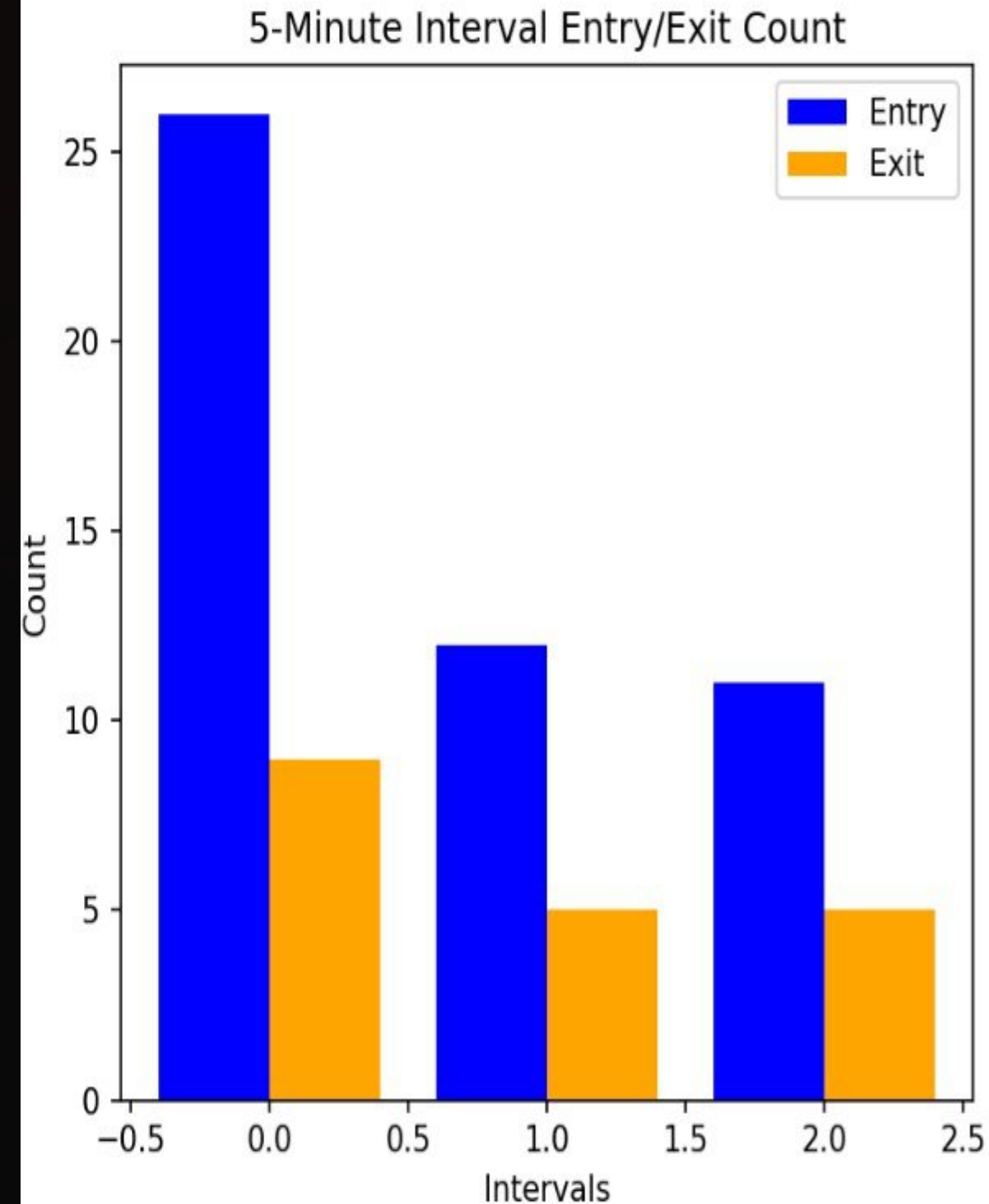
Live bar graphs for entry/exit counts.

Interval-Based Analysis

Aggregates data into 5-minute blocks.

Data Security

Locally saved CSV file for analytics.



(x, y) = (1.592, 5.16)



Hardware Setup

Describe placement of IR sensors and ESP8266, circuit diagram.

Python Script

Serial data reading, bar graph generation with matplotlib, CSV storage process.

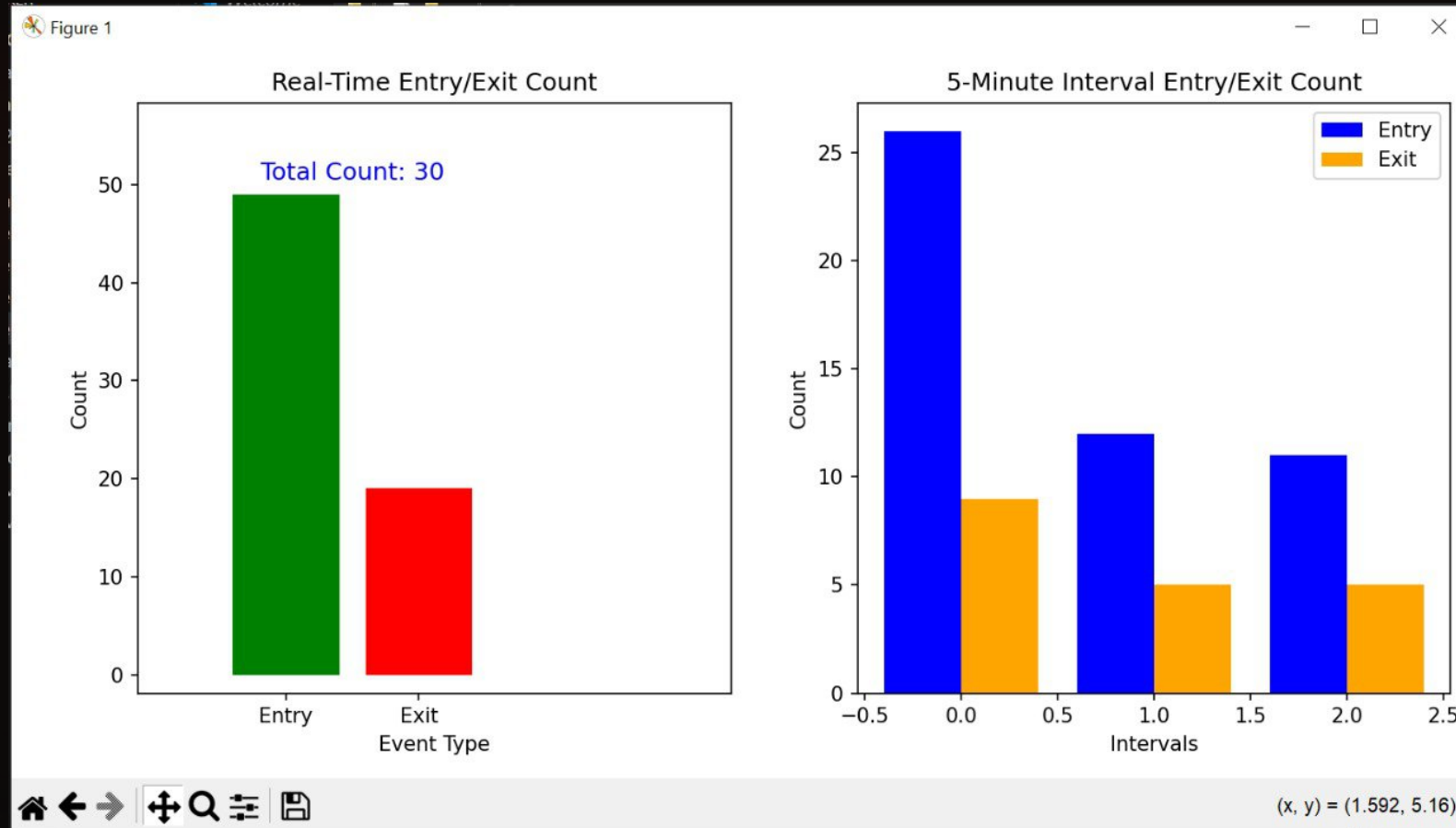
Challenges

Serial communication reliability, handling real-time data visualization.

Solutions

Error handling in serial decoding, structured interval data aggregation.

Results



Real-Time Graph

Live updates for entry/exit counts.

Interval-Based Graph

Aggregates data into 5-minute blocks.

Applications



Event Management

Track crowd flow at events.



Security and Surveillance

Monitor access to restricted areas.



Workplace Safety Monitoring

Track employee movement and ensure safety.

Scalability

Extendable to larger systems with multiple entry/exit points, integration with cloud storage or online dashboards.

If the clients are connected over the internet, then the number of clients who can use this facility will be increased tenfold.

Integration of realtime AI monitoring helps in getting more information to be gathered

