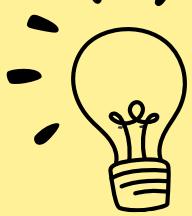


# AMBULANCE DETECTION SYSTEM



VICTORY.EXE

APRIL 2025

# INTRODUCTION

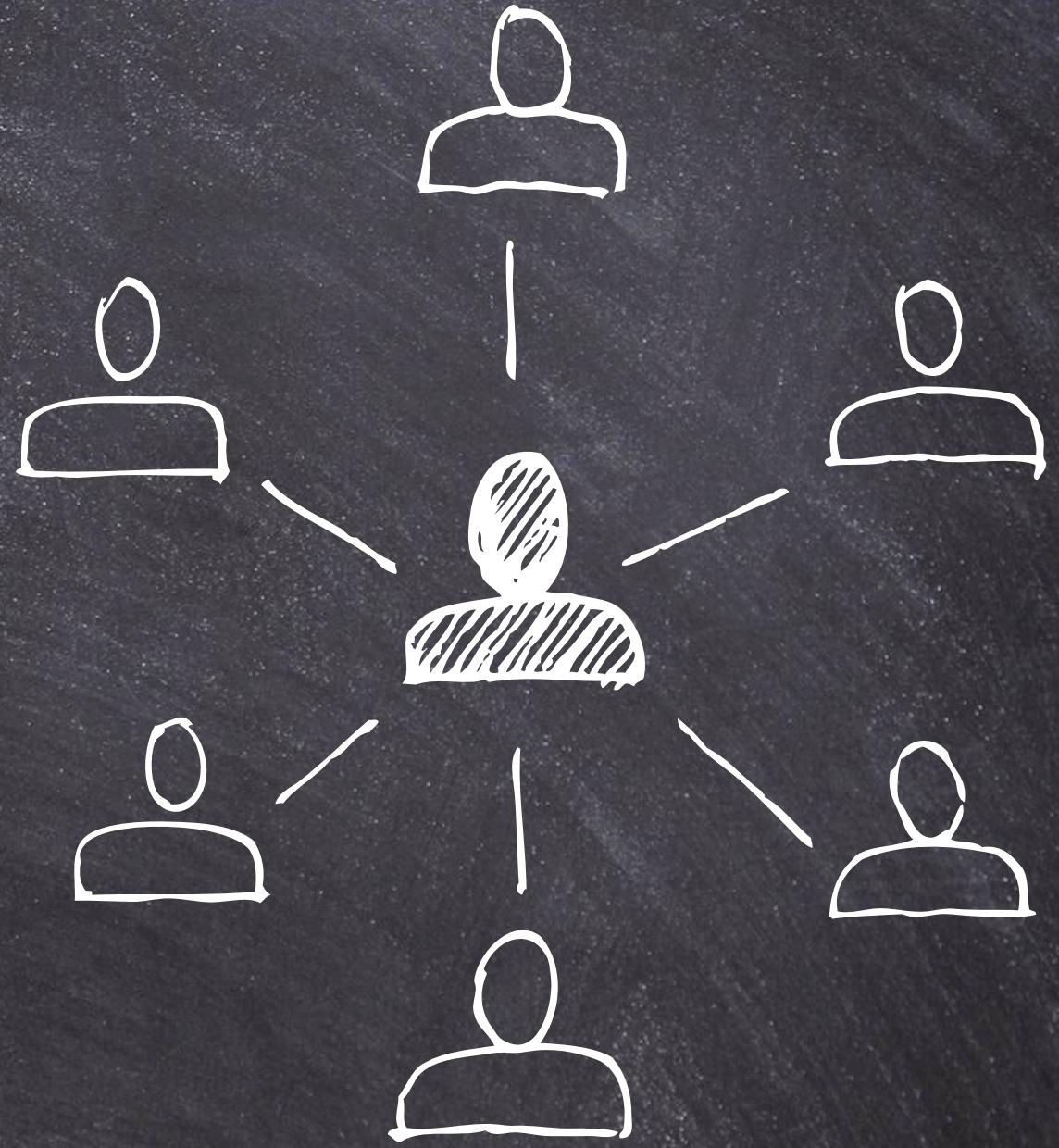


A typical Traffic Management System includes components like traffic signals, surveillance cameras, vehicle sensors, dynamic message signs, and centralized control centers. By collecting real-time data and using software algorithms, TMS can manage traffic lights, detect incidents, guide drivers with alerts, and even support emergency services in response planning.



# FEATURES IN THE CURRENT SYSTEM

1. Uses CCTV cameras
2. Automatic Number Plate Recognition
3. Traffic flow prediction using AI
4. RFID/IOT Based Detection
5. Camera-Based Emergency Vehicle  
Recognition



# OUR PROPOSED SYSTEM

WHAT IT DOES:

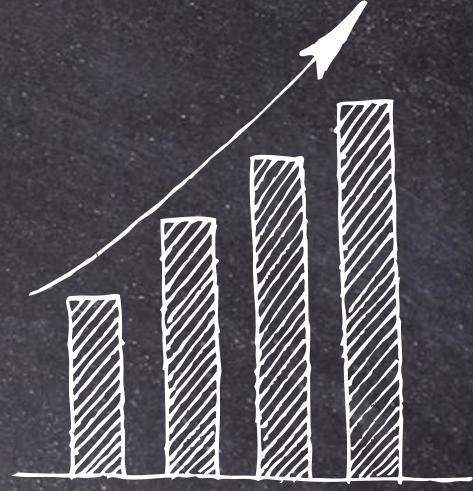
- LISTENS FOR AMBULANCE SIRENS USING SOUND SENSORS.
- AUTOMATICALLY CHANGES THE TRAFFIC LIGHTS BASED ON THE DIRECTION OF THE SOUND.
- DISPLAYS REAL-TIME MESSAGES ON AN LCD.
- HELPS AMBULANCES PASS SMOOTHLY THROUGH INTERSECTIONS.



# OUR PROPOSED SYSTEM

## COMPONENTS USED

- 2 X ARDUINO UNO
- 4XLM393 SOUND SENSORS (MODIFIED WITH 10K POTENTIOMETER)
- 3 X LEDs (RED, YELLOW, GREEN)
- 16X2 LCD DISPLAY
- POTENTIOMETER (FOR LCD CONTRAST)
- RESISTORS (FOR LEDs)
- BREADBOARD + JUMPER WIRES



# BENEFITS OF PROPOSED SYSTEM

COST EFFECTIVE

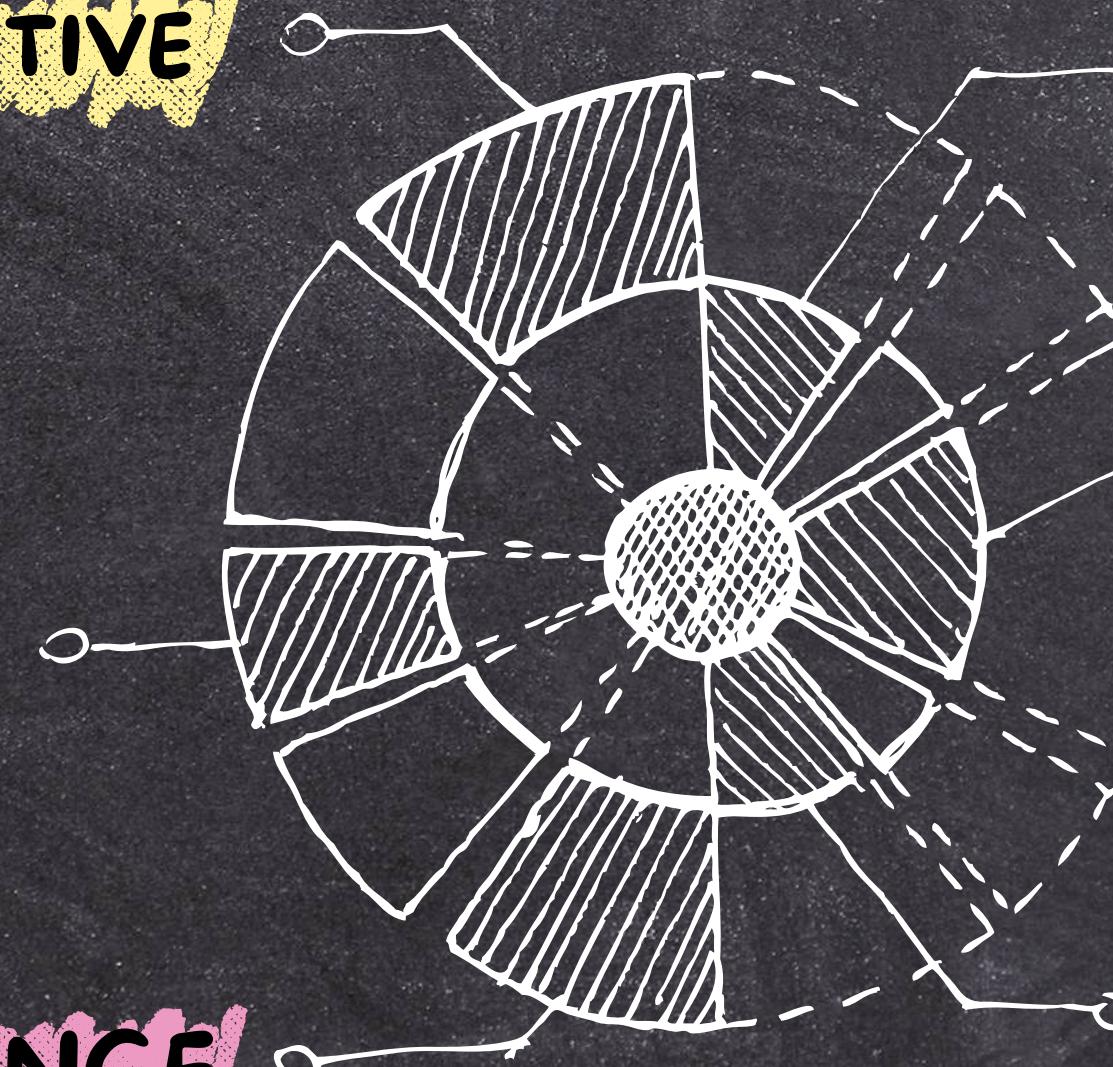
FASTER RESPONSE TIME

CONTACTLESS

REDUCED CONGESTION

LOW MAINTENANCE

SCALABLE



# CHALLENGES

- Using Fixed Thresholds: We set a specific sound level and frequency range that matches a siren. Only when this is detected, the system responds. This keeps it lightweight and easy to implement.
- Testing Microphone Positions: We manually tested different placements to find the most effective spot for reliable sound capture.
- Local Processing on Microcontroller: All logic runs on the device itself (like Arduino). This way, there's no need for internet - it reacts instantly based on the sound it hears.

# FUTURE ENHANCEMENTS

- Add more sound sensors for accurate direction sensing.
- Include timers or real-time clocks for scheduled light control.
- Integrate GPS or IoT for live ambulance tracking and coordination.



FIGHTING!