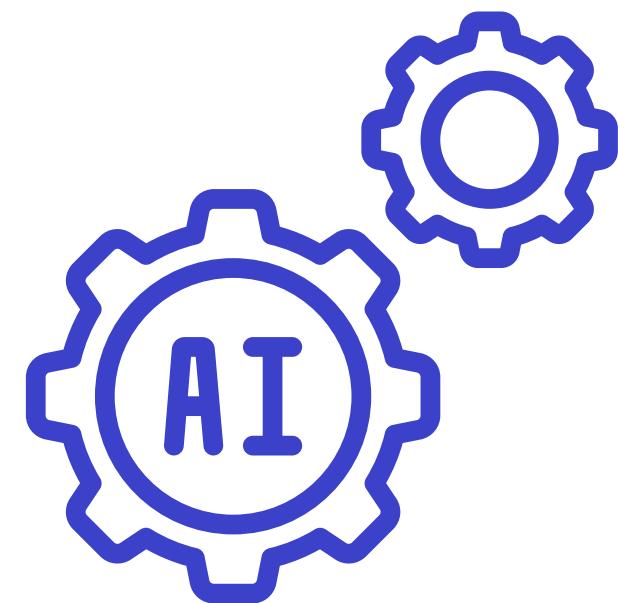


AI FOR TRAFFIC AND PEDESTRIAN MANAGEMENT.

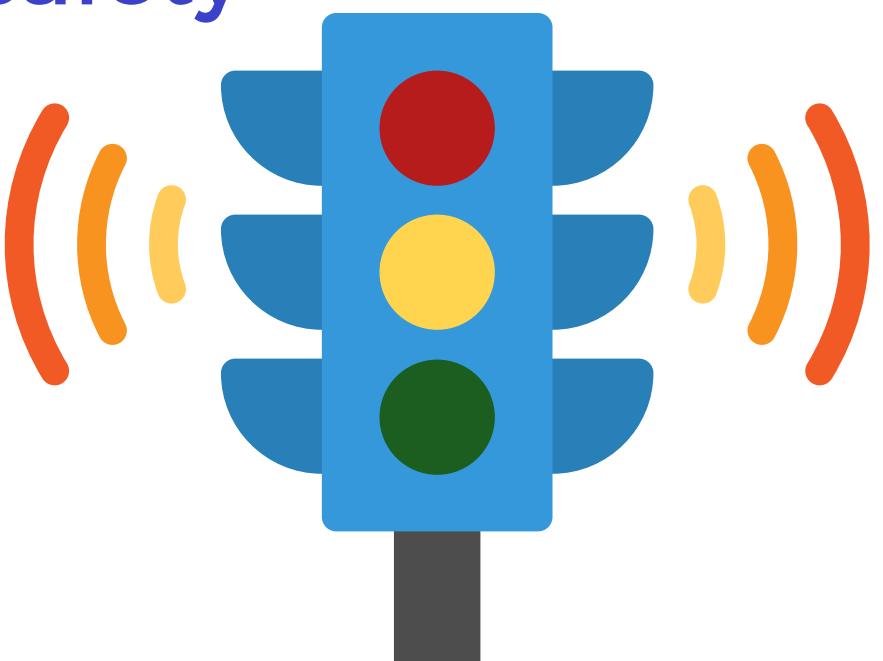
TINY CODERS

- + AI algorithms can optimize traffic signal timings based on real-time traffic density conditions, reducing congestion, waiting times, and fuel consumption for improved traffic flow.



WHAT IS OUR PROBLEM STATEMENT

Design a system that uses IoT and AI to optimize traffic signals, intersections, prioritizing pedestrian safety and reducing accidents at pedestrian crossings by analyzing pedestrian behavior and traffic pattern analysis to implement safety measures at peak traffic times.



MEET THE TEAM



NAMAN SHARMA

Team Leader

From Coding Prodigy to
Musical Genius: Turning Lines
of Code into Melodies.



YUVRAJ SINGH BHULLAR

Programming

The Composer: Ensuring Every Project
Reaches Success.



YASH KAMRA

Designer

Being one step ahead is
crucial for the visionary.



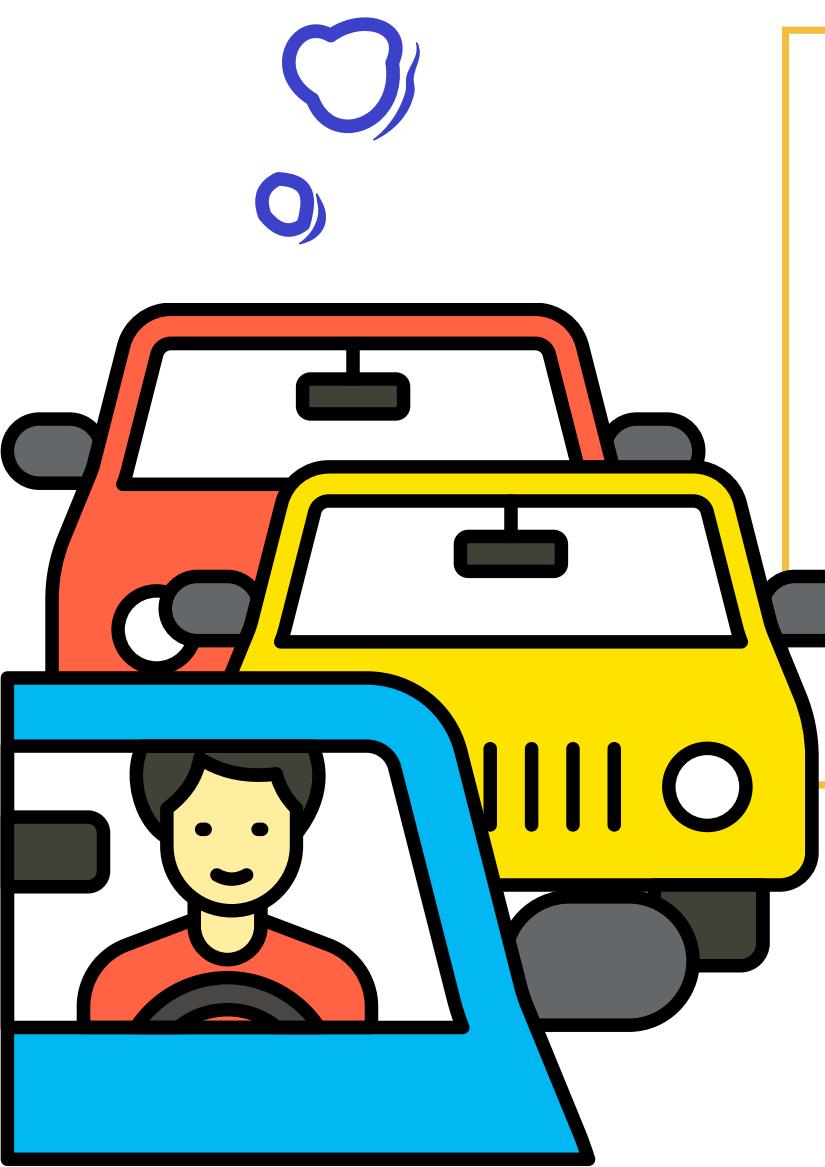
BHAVESH CHOUDHARY

Programming

An analytical thinker who solves problems
using their tech-savvy mind.

OBJECTIVES

WELL THESE THINGS MIGHT
SEEM VAGUE OR QUITE LESS TO
CALL IT A "PROBLEM" BUT IT
ACTUALLY IS.



HOW MANY TIMES
HAVE WE WAITED ON
TRAFFIC LIGHTS TO
TURN GREEN EVEN
WHEN THERE IS
NEGIGIBLE TRAFFIC ON
EITHER SIDE ????

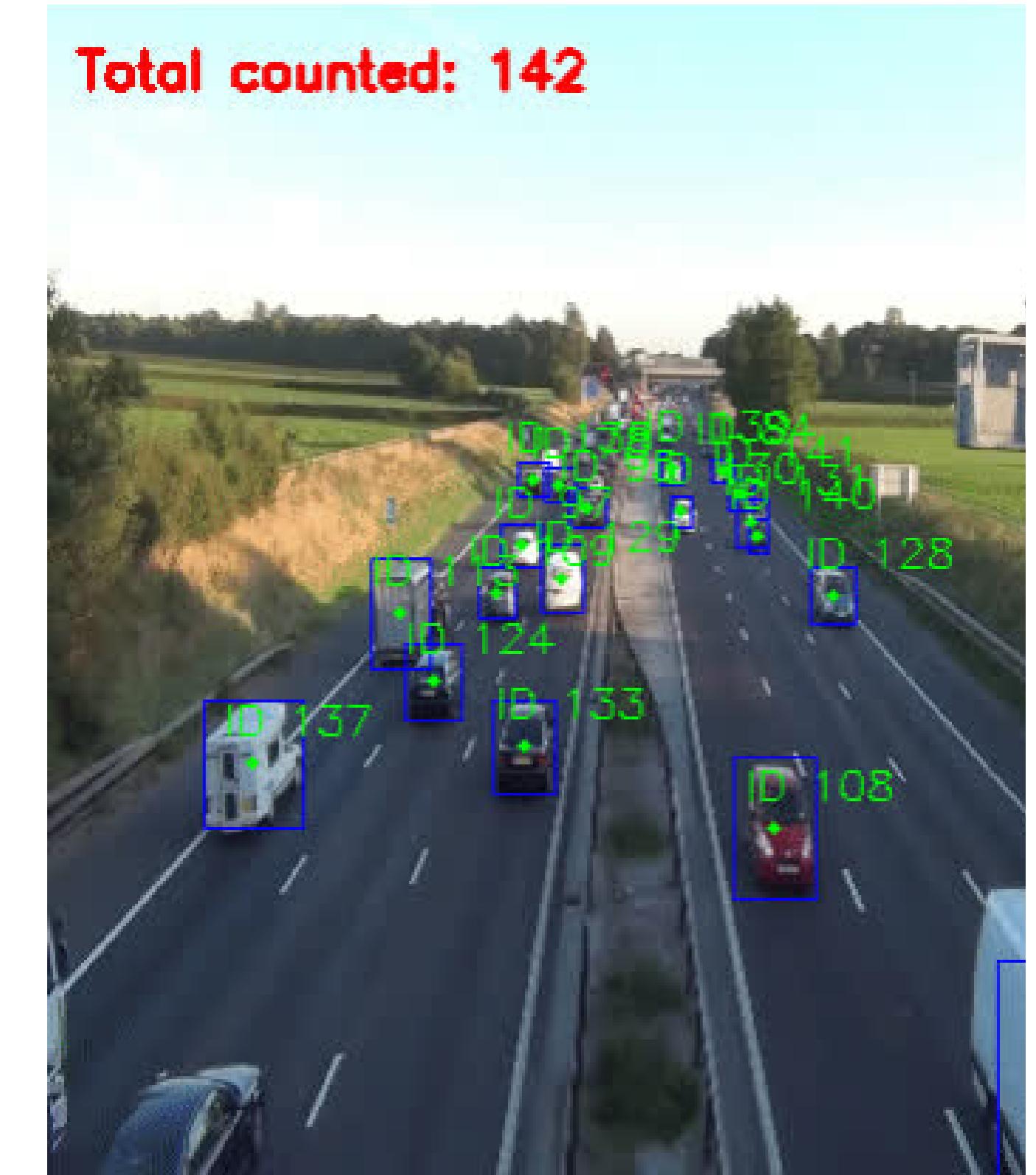
HOW MANY TIMES
HAVE WE AS
PEDESTRIANS HAVE
WAITED TO CROSS THE
ROAD WHEN THERE IS
NO TRAFFIC AT ALL?

HOW MUCH ENGINE OIL
IS WASTED WHILE
WAITING AT TRAFFIC
LIGHT

NOVELTY OF OUR IDEA



The novelty of using AI algorithms for dynamic traffic signal optimization lies in its ability to adapt in real time, make data-driven decisions, reduce congestion, decrease waiting times, and minimize fuel consumption. While existing traffic management solutions have this demerits, AI-driven optimization offers a more advanced and adaptable approach to improving urban traffic flow and efficiency



PRACTICABILITY: OF OUR IDEA

- **Cost-Benefit Analysis:** The cost of implementing AI-driven signal optimization should be justified by the expected reductions in congestion, waiting times, and consumption of fuel.
- **Integration:** We can integrate speed cameras with traffic lights
- **Regulatory Approval:** Compliance with local regulations and permissions for AI use in traffic management.



TINY coders

SUSTAINABILITY OF OUR IDEA



The sustainability of AI-driven traffic signal optimization is closely linked to its environmental impact reduction, resource efficiency, economic benefits, alignment with smart city goals, and long-term viability. Careful planning and consideration of practicality factors are essential to maximize the positive impact of AI on urban transportation sustainability.

```
vehicles at signal 1
();
vehicles at signal 2
();
vehicles at signal 3
();
vehicles at signal 4
();
for(int i=1; i<3; i++)
{
    digitalWrite(signal1[i], LOW);
    digitalWrite(signal2[i], LOW);
    digitalWrite(signal3[i], LOW);
    digitalWrite(signal4[i], LOW);
}
for(int i=0; i<1; i++)
{
    digitalWrite(signal1[i], HIGH);
    digitalWrite(signal2[i], HIGH);
    digitalWrite(signal3[i], HIGH);
    digitalWrite(signal4[i], HIGH);
}
```

CODE SNIPPETS & FUNCTIONS USED

- functions:
- setup()
- loop()
- softInterr()
- signal1Function(),
signal2Function(),
signal3Function(),
signal4Function()
- low()



COMPONENTS USED IN PROPOSED DESIGN

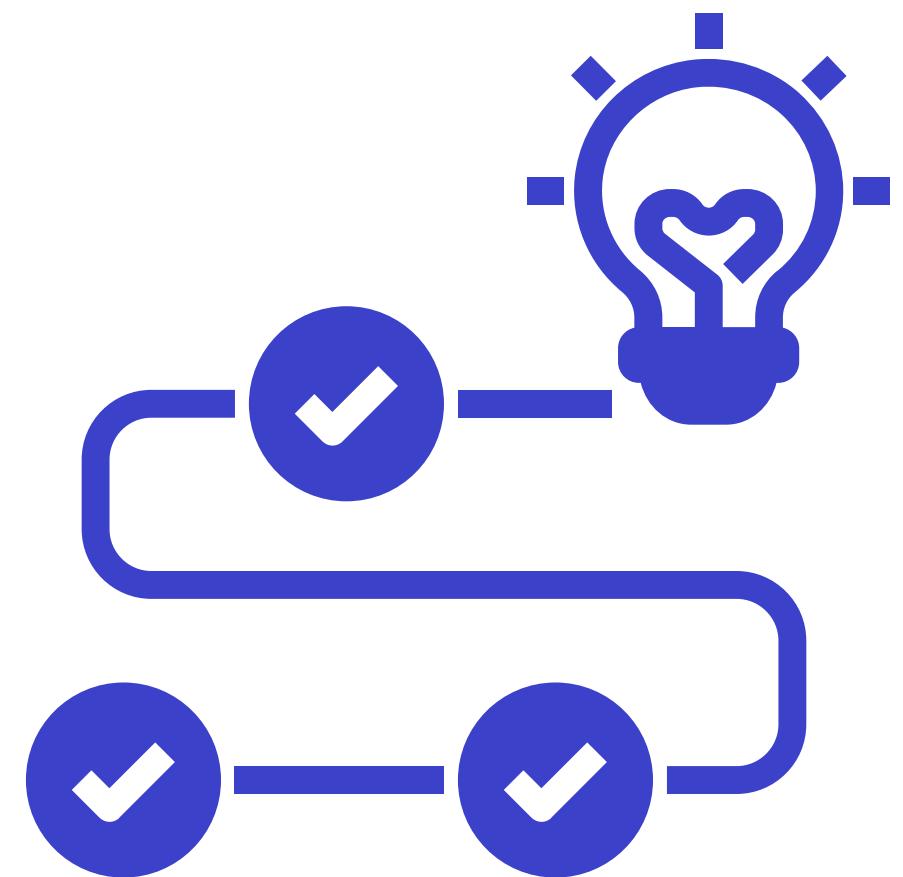
- Arduino Board
- Ultrasonic Sensors (HC-SR04)
- LEDs (Light Emitting Diodes)





CONCLUSION

In conclusion our Arduino based solution demonstrates a practical application of microcontroller-based traffic signal management. It provides a foundation for dynamically adjusting traffic signals in response to real-time traffic conditions, which can help improve traffic flow and reduce congestion at intersections. The combination of ultrasonic sensors, LEDs, and interrupt-driven sensor readings creates a versatile and responsive traffic signal system that has the potential for further development and integration into smart city transportation initiatives.



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FUTURE ASPECTS: OF OUR IDEA

WE WANT TO WORK ON CONDITION WHICH WE
DONT COVERED:

- If the density on both sides of the roads is the same, a random set of traffic lights will be chosen to be green, and the other set will be red.
- There will be a base case where if the traffic light on one side was green before the condition where the density of the roads is the same, then the traffic light on the other side will turn green, and vice versa
- We will futher work on its implementation in crossroads



THANK YOU

