Integrating Smart Traffic Management and Electric Energy Generation at Intersections

ENEL 678: Graduate Project in Electrical Engineering

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Introduction

- Real-time modification of traffic signal duration
- Traffic and pedestrian timing
- Improve traffic efficiency
- Piezoelectric technology to capture renewable energy.

Purpose of project

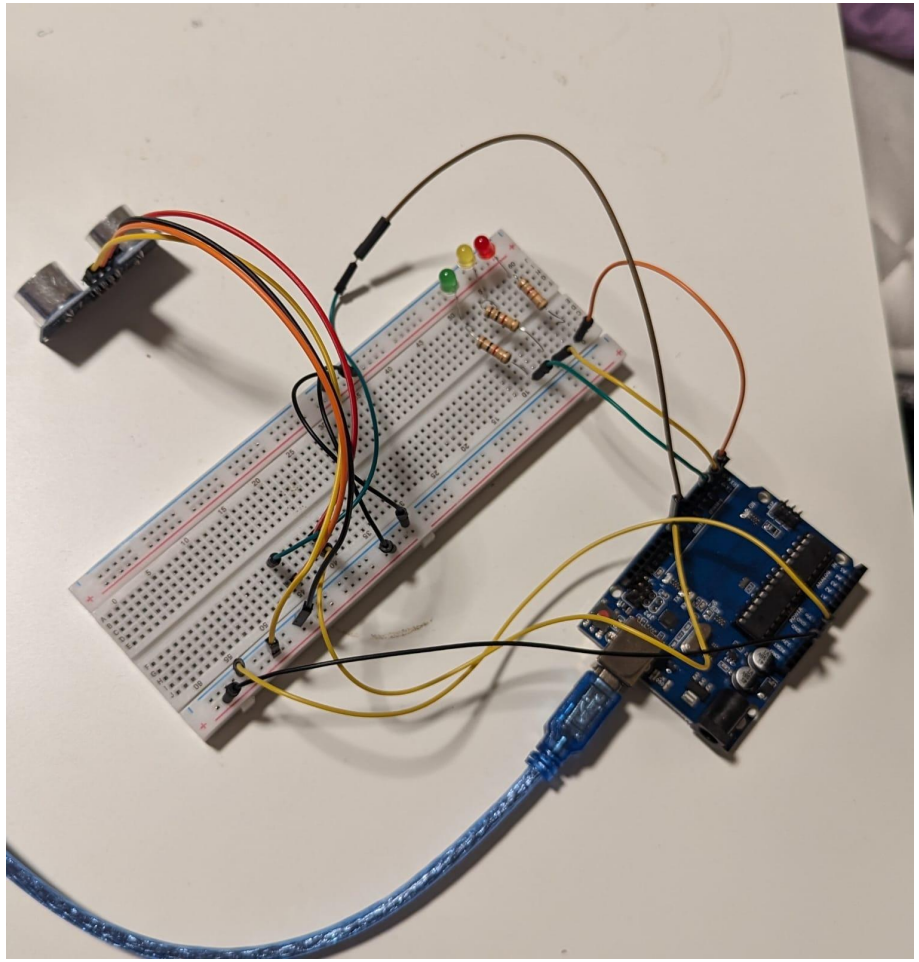
- Reduce traffic congestion
- Prioritizing pedestrian safety
- Sustainable energy generation

Problem Statements

- Longer travel times and pollution due to traffic congestions.
- Energy wastage associated with conventional traffic signals.
- Meet sustainable energy needs.

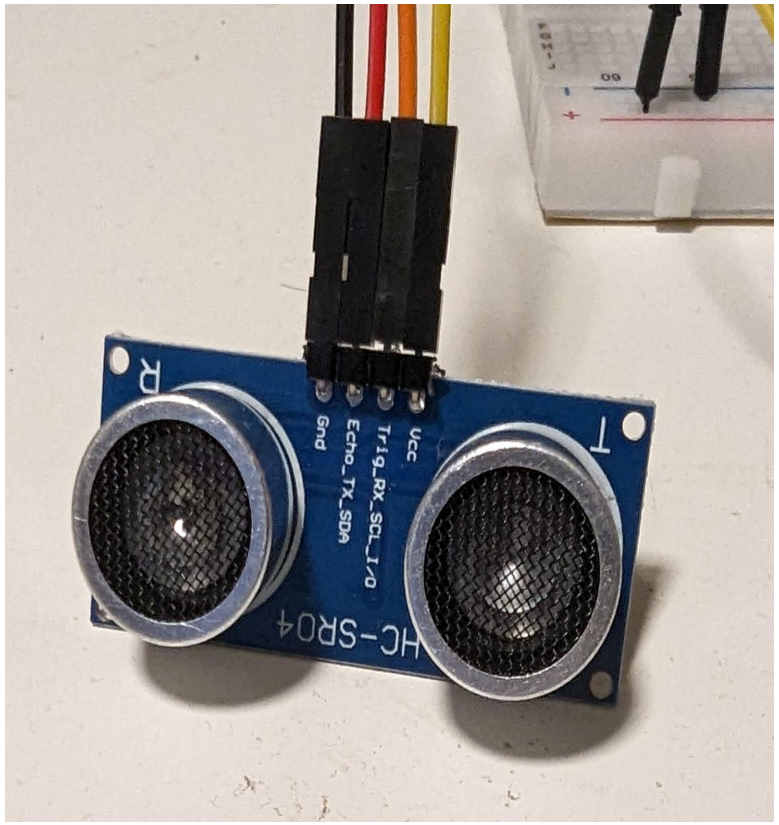
Technical Progress

- Constructed the basic circuit

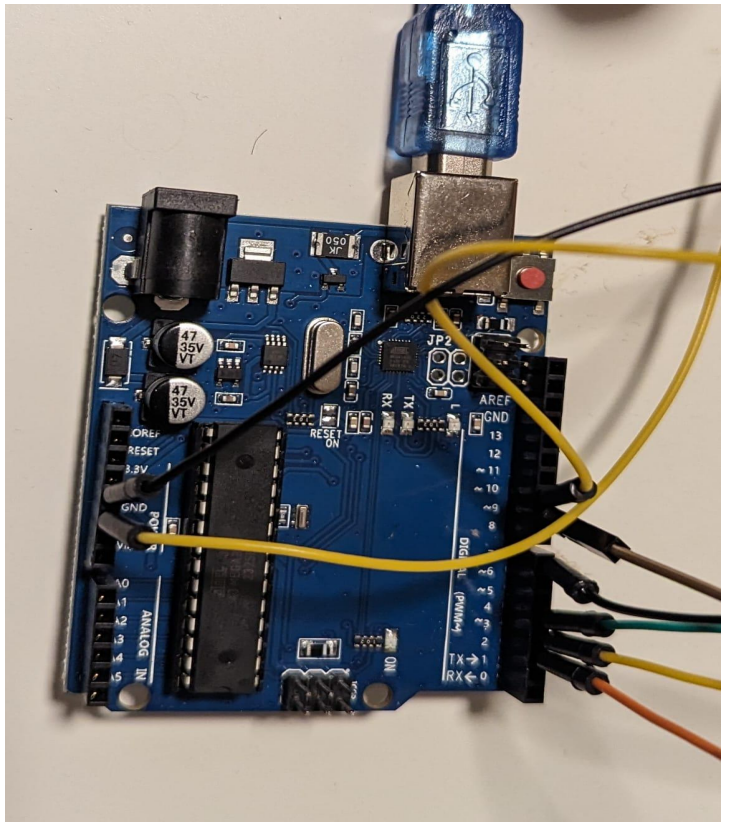


Technical Progress

- Counted the density of vehicles
- Ultrasonic sensor, arduino controller



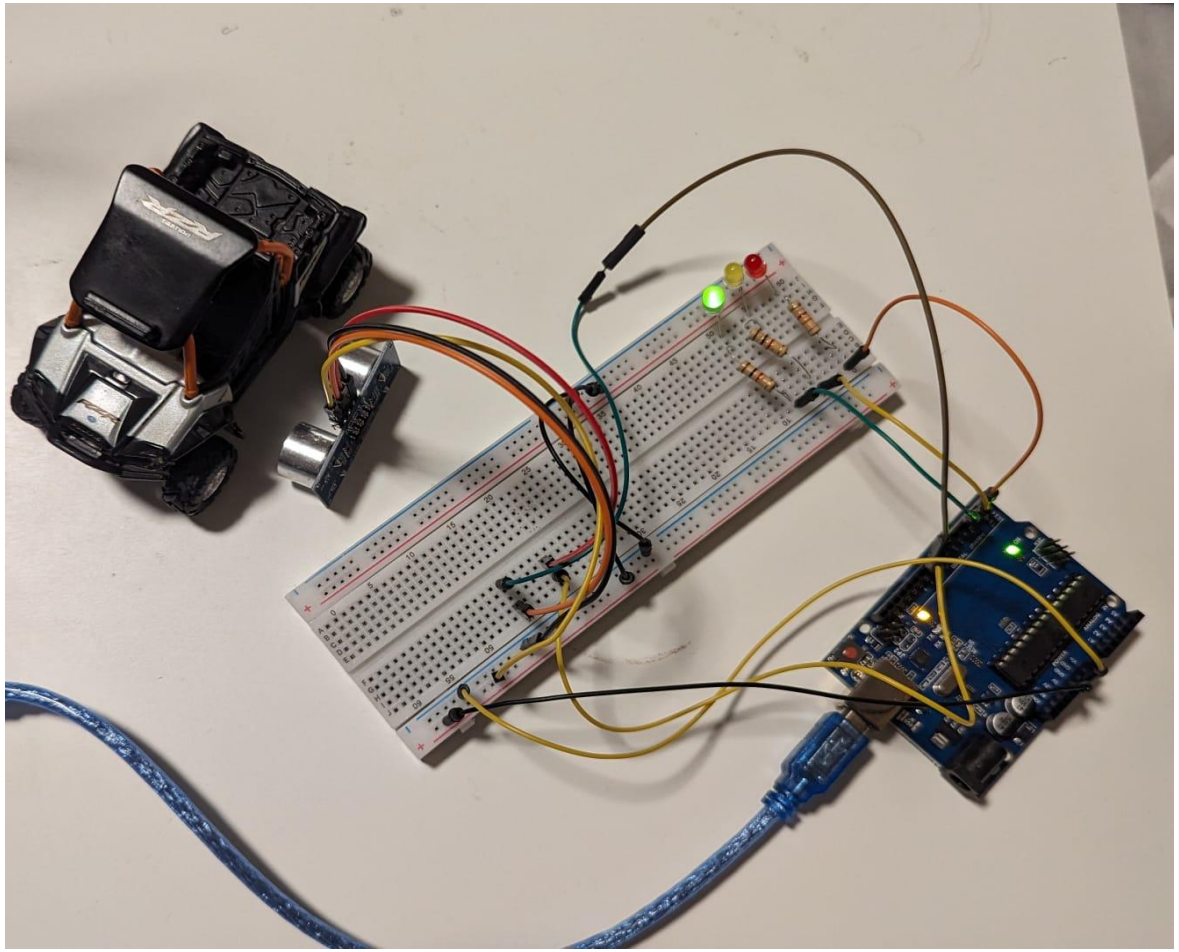
Ultrasonic Sensor



Arduino Board

Technical Progress

- Setting the traffic light duration based on vehicle density



Traffic Light Control

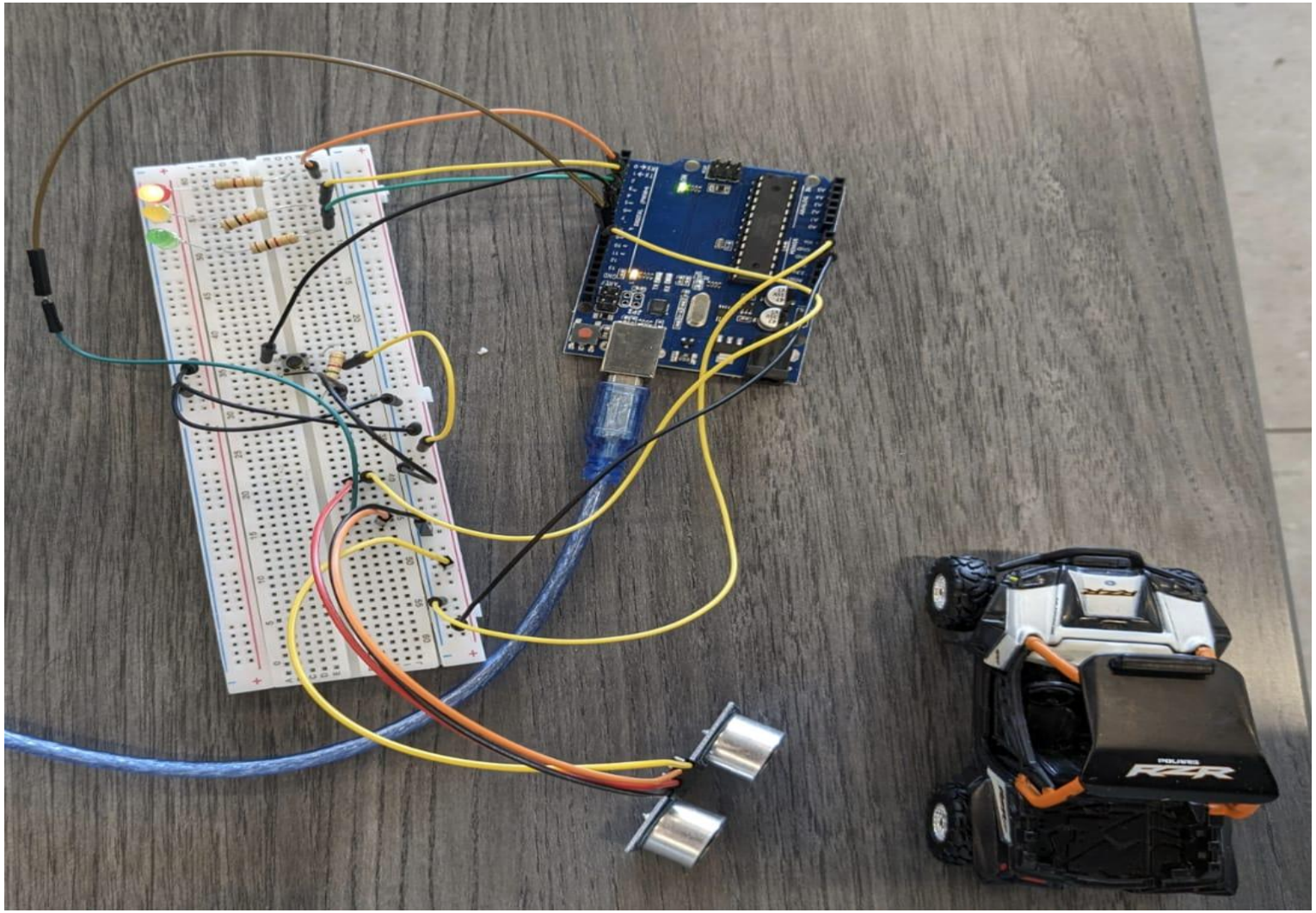
Technical Progress

- Demonstration of code
- Working model

Technical Progress

- Pedestrian in the traffic - in progress
- Challenges: technical, external.

Technical Progress



Conclusion

- On track with the initial roadmap.
- Solving technical challenges.
- Commence work on piezoelectric energy.

THANK YOU