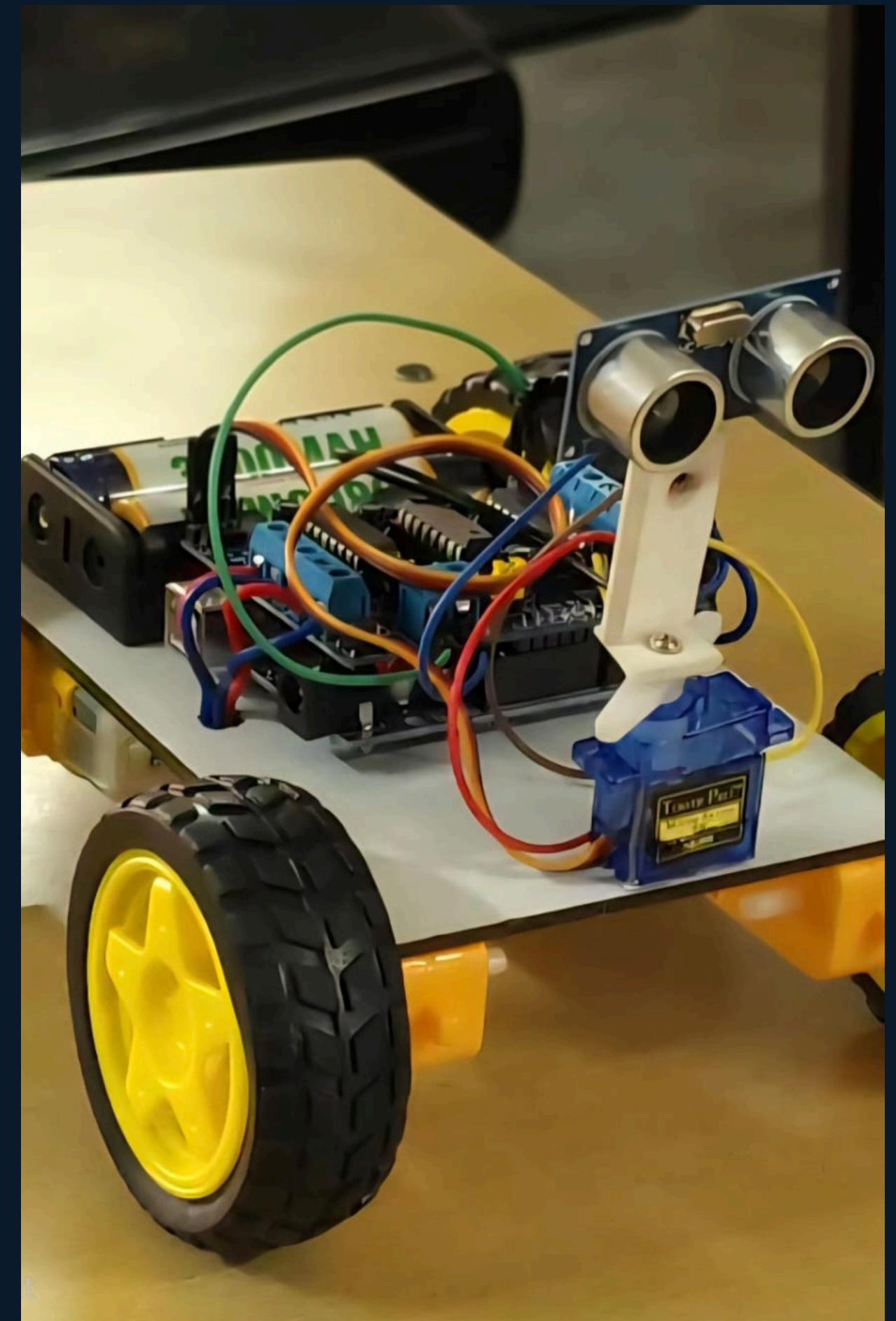
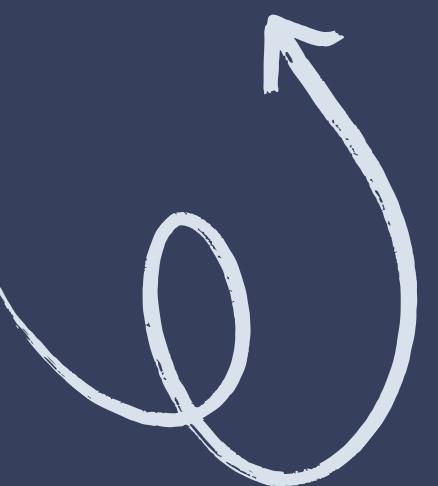


# Wall-E: Obstacle Tracking Robot

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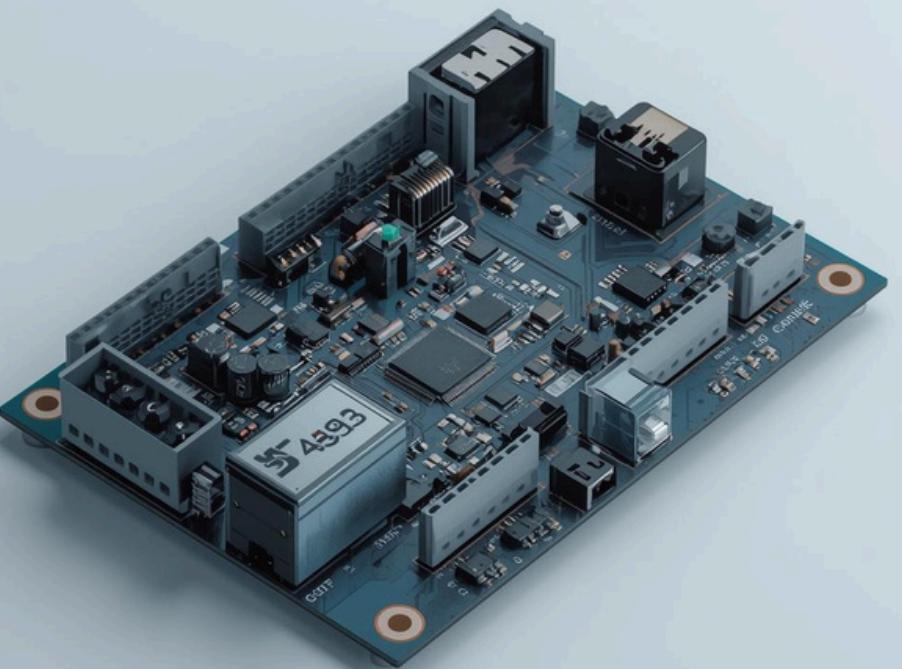
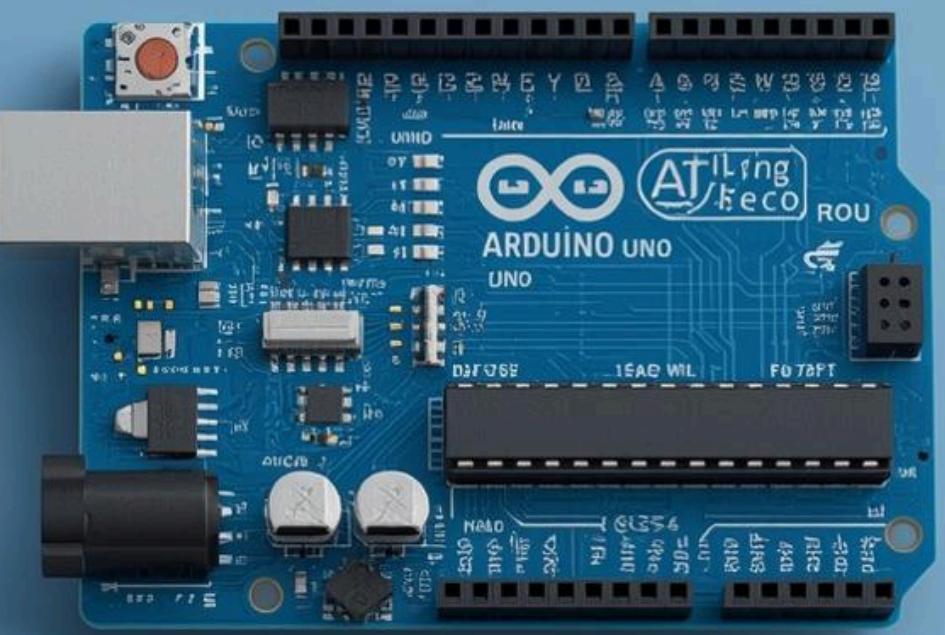


# Introduction to Wall-E

Wall-E is a **miniature autonomous robot car** prototype designed for obstacle detection and navigation. Inspired by industrial Automated Guided Vehicles, it operates safely without human intervention in warehouse environments.



# Key Components of Wall-E



# Sensor-Driven Navigation Explained

Wall-E employs ultrasonic sensors for obstacle detection, processing data via an Arduino microcontroller. It safely navigates by scanning the environment, ensuring efficient movement while avoiding collisions in real-time.



# Industrial Applications of Wall-E



# Why Industry Needs Wall-E

## Key Motivations for Adoption

### Reduce Manual Labor

Automating tasks with Wall-E decreases the need for manual labor, leading to significant cost savings and allowing human workers to focus on more complex responsibilities.

### Improve Workplace Safety

Wall-E enhances safety by avoiding collisions, operating in hazardous areas, and significantly minimizing the risks associated with human-operated machinery in dynamic environments.

### Enable Continuous Operation

With Wall-E's autonomous capabilities, businesses can enjoy uninterrupted operations, maximizing productivity by ensuring tasks are performed consistently without fatigue or downtime.



# Wall-E: Obstacle Avoidance in Action

The Wall-E prototype demonstrates its sophisticated **obstacle avoidance** capabilities, detecting barriers and autonomously navigating around them, showcasing its real-time decision-making and efficiency in dynamic environments.



# Conclusion

The robot highlights how Autonomous Mobile Robots (AMRs) and AGV-type platforms can reduce human effort, minimize workplace risk, and support automation in warehouses, factories, and logistics industries. It aligns with the vision of Industry 4.0, smart manufacturing, and future intelligent mobility systems.

With future enhancements such as AI navigation, camera-vision mapping, IoT monitoring, and path-optimization algorithms, this project holds strong potential for real-world industrial applications and advanced research in robotics and automation.

Thank you for your attention!

