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Project Overview

RoverCar is a smart rover car controlled via Bluetooth using a mobile app interface. The system is built using an Arduino UNO board and utilizes the RemoteXY platform for easy mobile control. The goal of the project is to demonstrate how software and hardware work together in real embedded
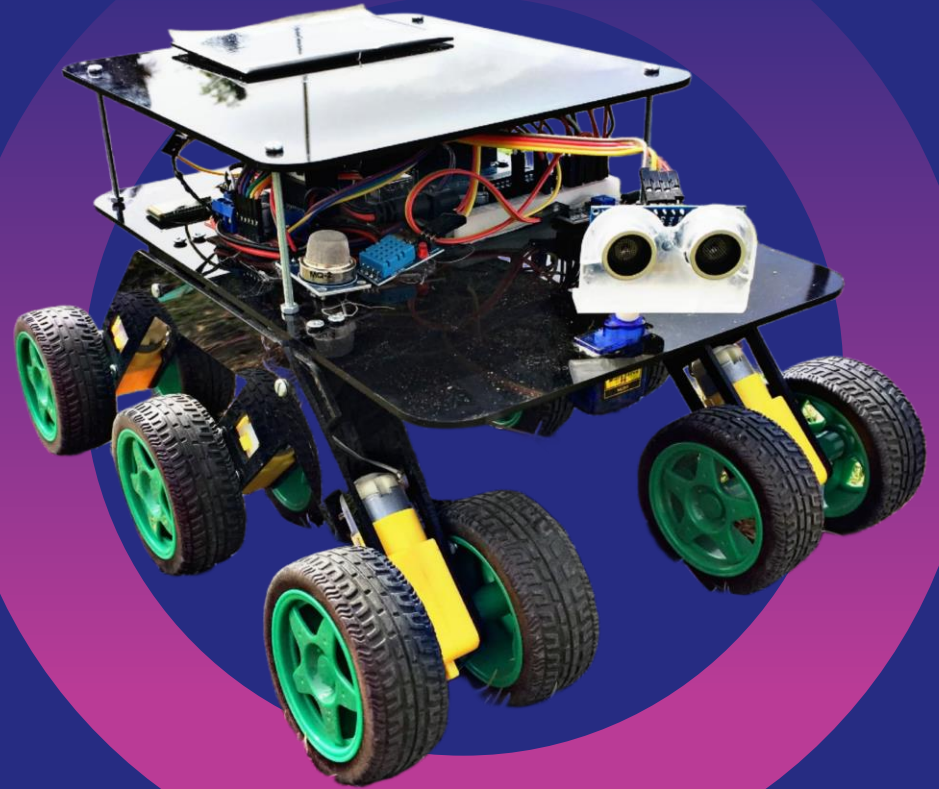
Rover Car Specifications

The RoverCar is an off-road robot equipped with:
•6 Motors & 12 Wheels for movement on rocky terrain.
•Solar Power for sustainable energy.
•Distance, Gas, & Temperature Sensors for environmental monitoring.
•Off-road Capabilities to navigate rough surfaces.
It combines mobility, sustainability, and sensing for exploration and surveillance in challenging environments.

Robot capabilities

Terrain Mastery: Effortlessly **traverses rocky terrain and overcomes** obstacles.

Hazard Detection: Accurately detects **flames**, **gases**, and **distances**.

Mobile Control: Seamlessly **controlled via mobile** device for precise navigation

Application

The **RoverCar Mobile App** allows remote control of the rover via Bluetooth.

- **Wireless Control:** Control movement, camera, via Bluetooth.

- **User-Friendly Interface:** Simple design using **RemoteXY**.

- **Real-Time Feedback:** Displays rover status

- **Control Functions:** Forward, backward, left, right movement

Mobile Control

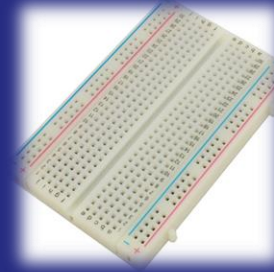**Motion Control**: Control the robot's movement via mobile app.
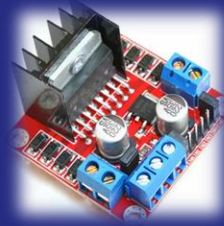
Real-time Sensor Data: Monitor distance, gas, and temperature readings in real-time.

Tools

- **6 DC Motors** – Provide movement and drive control for the rover.
- **12 Wheels** – Ensures enhanced stability and traction, suitable for rough terrain.
- **Solar Panel** – Supplies renewable energy for power efficiency and extended operation.
- **Ultrasonic Sensor** – Enables obstacle detection and distance measurement.
- **DHT11 Temperature & Humidity Sensor** – Monitors environmental temperature and humidity levels.
- **Flame Sensor** – Detects flame presence for fire hazard awareness.
- **MQ-4 Gas Sensor** – Detects methane and other combustible gases for environmental safety.
- **Motor Driver Module** – Controls the motors' speed and direction.
- **Breadboard** – Facilitates prototyping and easy circuit connections without soldering.
- **Jumper Wires** – Connect various electronic components within the circuit.
- **Micro Servo Motor** – Provides precise angular motion for mechanical components.
- **Battery Holder & Batteries** – Portable power source for the rover system.
- **Arduino Uno Board** – Acts as the main microcontroller unit for processing and control.
- **Bluetooth Module (HC-05)** – Enables wireless communication and remote control via Bluetooth.

Thank You!