

Autonomous Car

60 minutes (2 periods)

Advanced Robotics & Engineering

WHAT THIS LESSON DOES

Discover the world of ultrasonic sensors with your Move Motor car. Learn how these sensors measure distance, and apply this knowledge to create a project that enables your car to follow an object, reverse, and roam freely while avoiding obstacles. Enhance your car's capabilities by adding lights and improving its sensor range.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the function and operation of ultrasonic sensors.
- Develop skills in creating a new project using the kitronik-move-motor extension.
- Acquire the ability to program a sensor to measure distance.
- Learn to code a car to maintain a specific distance from an object.
- Enhance problem-solving skills by programming the car to reverse and maintain distance.

BEFORE THE BELL

- Prepare to introduce students to the concept of ultrasonic sensors and how they function. Guide them through creating a new project on the MakeCode website, adding the kitronik-move-motor extension. Assist them in programming the sensor to measure distance and display it on the Microbit. Progress to programming the car to maintain a 10cm distance from an object, including reversing. Finally, challenge students to improve the code, adding lights and randomised movement to enhance the car's obstacle avoidance.

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HOW THE LESSON RUNS

Introduction

Create a new project

Measure distance

Follow an object

Reverse

Free roaming

Improve and add lights