## Blue Ocean Robotics®

## Innovative Educational Kits

# RoboLearner™ Smart Educational Kit


**Blue Ocean Robotics**
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# User Manual: RoboLearner™ Smart Educational Kit for Teens

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## List of Illustrations



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# Introduction

In this workbook, we'll introduce you to the **RoboLearner™ Smart Educational Kit**. Using a series of step-by-step examples, we'll show you how to assemble, activate, and explore your robot. The RoboLearner Kit includes:

- A microcontroller
- Sensors for obstacle detection and navigation
- Motors and wheels
- Programmable modules
- Durable mechanical parts

This kit enables teens to learn coding, robotics, and basic engineering concepts through interactive projects. The following steps apply to all key components, ensuring a comprehensive learning experience.

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# Required Hardware and Software

The following requirements are based on the simplest configurations for optimal performance.

### Hardware

- **CPU:** 1 GHz or higher
- **RAM:** 2 GB minimum
- **Storage Space:** 500 MB
- **Minimum Screen Resolution:** 1024 × 768

### Software

- **Operating System:** Windows 10/MacOS 11/Linux
- **Browser:** Chrome Version 90 or higher
- **RoboLearner App:** Download from www.robolearner.com/app

# Glossary

| Term | Definition |
|---|---|
| **Microcontroller** | The brain of your robot, processing all instructions. |
| **Sensor** | Detects objects, paths, or obstacles. |
| **Calibration** | Adjusting sensors for accurate detection. |
| **Drag-and-Drop Interface** | A coding method requiring no programming knowledge. |

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## Assembling the Robot

### Step-by-Step Instructions

1. **Unbox and Verify Components**
    - Open the RoboLearner Kit and ensure all parts are included as per the packing list.
    - Contact customer support at support@robolearner.com if any items are missing.

**FIGURE 1** below shows the kit layout.

2. **Construct the Frame**
    - Assemble the base frame using screws and brackets provided. Refer to **FIGURE 2** for assembly guidance.
    - Attach the wheels and motors securely.

**FIGURE 2** below shows assembly guidance.

***Note: After Assembling the car It would look like the above figure***

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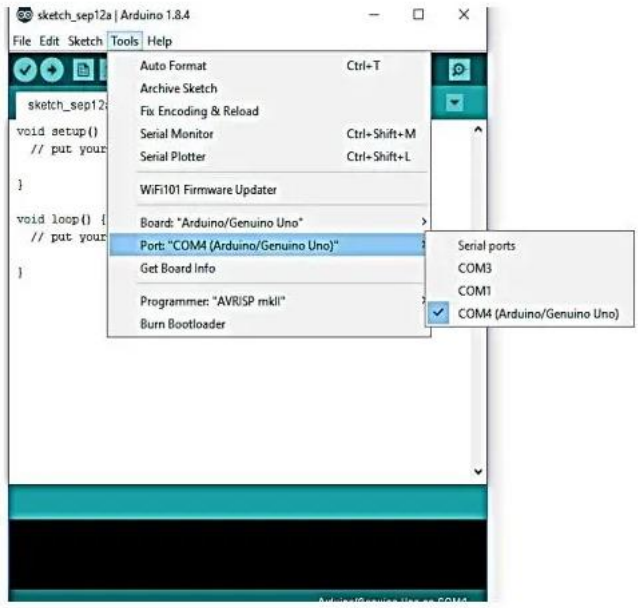
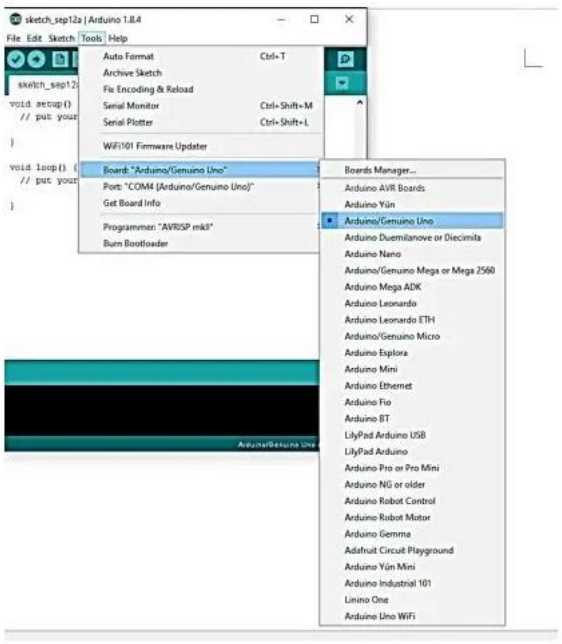
# Activating the RoboLearner Kit

1. **Install the RoboLearner App**
    - Download the app from www.robolearner.com/app.
    - Install and launch the app, then create an account using your email address.
2. **Connect the Robot**
    - Connect the microcontroller to your computer using the provided USB cable.
    - Open the RoboLearner app, navigate to the **Device Setup** tab, and click **Connect Device**.
    - Follow the on-screen calibration instructions.

**FIGURE 3** shows the connection process.




Configuration of ports

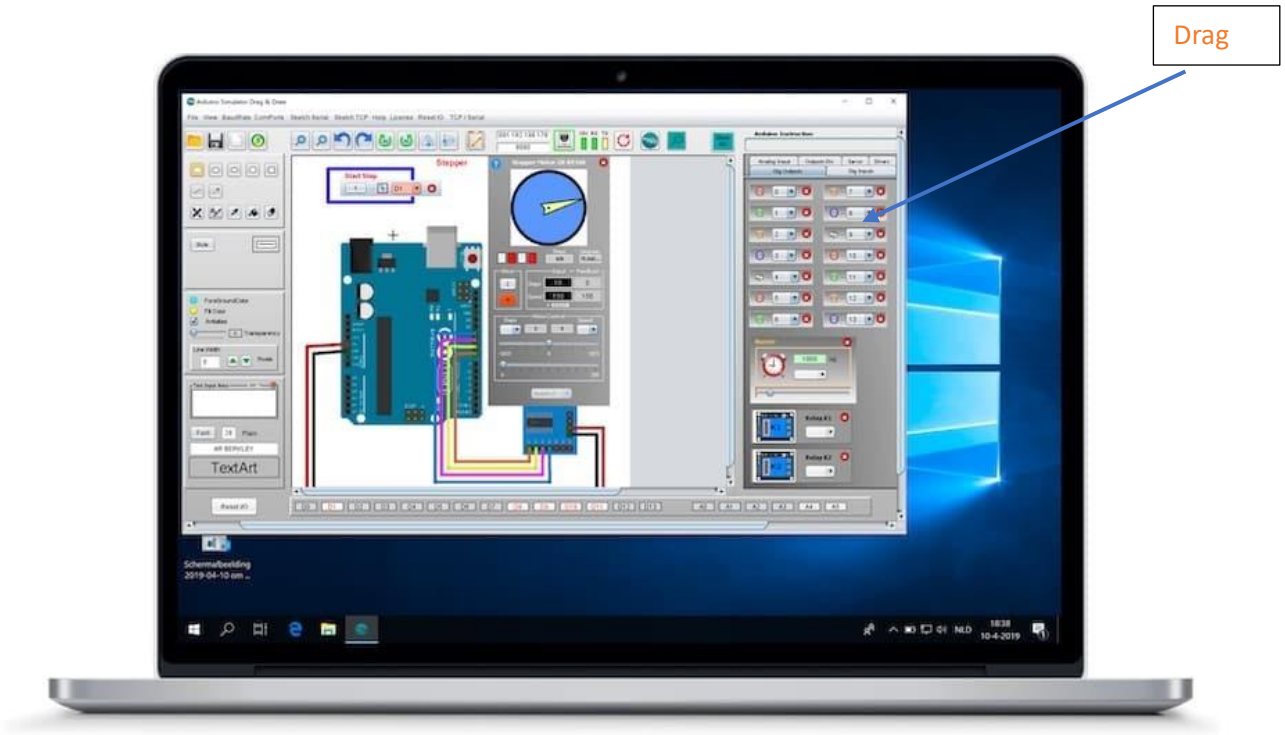



Configuration of the board

## Programming Features

1. **Explore Pre-Designed Projects**
    - Access pre-designed challenges like obstacle detection and line following.
2. **Create Custom Programs**
    - Use the drag-and-drop coding interface to design unique robot behaviors.
    - Refer to **FIGURE 4** for an example of the programming interface.

**FIGURE 4** shows the programing interface.




***Note: You can Drag the Components from the right and place it on the main screen***

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## Troubleshooting Guide

| Issue | Possible Cause | Solution |
|---|---|---|
| Robot not powering on | Loose or disconnected battery | Reconnect the battery securely. |
| Motors not responding | Faulty motor connections | Check motor wiring. |
| Sensors not detecting objects | Calibration incomplete | Re-run the calibration wizard in the app. |

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## Frequently Asked Questions (FAQ)

### Q1: What should I do if the app doesn't recognize my device?

**A1:** Ensure the USB cable is properly connected and that your device drivers are up to date. Restart the RoboLearner app if needed. If the issue persists, contact support at support@robolearner.com.

### Q2: Can I use this kit on a tablet instead of a laptop?

**A2:** Yes, the RoboLearner app supports tablets that meet the hardware and software requirements. Ensure your tablet has a USB port or an adapter for connecting the microcontroller.

### Q3: My robot isn't moving after programming. What could be wrong?

**A3:** Check the motor connections and ensure they are securely attached. Verify that the battery is properly connected and charged.

### Q4: How do I update the RoboLearner app to the latest version?

**A4:** Visit www.robolearner.com/app to download the latest version. Install it over the current version to retain your saved projects.

### Q5: Are there advanced tutorials for more complex projects?

**A5:** Yes, visit the "Tutorials" section on our official website for advanced projects and coding challenges.

### Q6: Can I get replacement parts if something is damaged?

**A6:** Yes, replacement parts are available through our website. Visit www.robolearner.com/store or contact customer support for assistance.

### Q7: Is there a warranty for the RoboLearner kit?

**A7:** The RoboLearner kit comes with a 1-year limited warranty. Check the warranty card included in your package for details or visit www.robolearner.com/warranty.

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## Conclusion

Congratulations on completing the setup! Your RoboLearner Kit is now ready to enhance your robotics journey. Visit our official website for advanced tutorials and community projects.