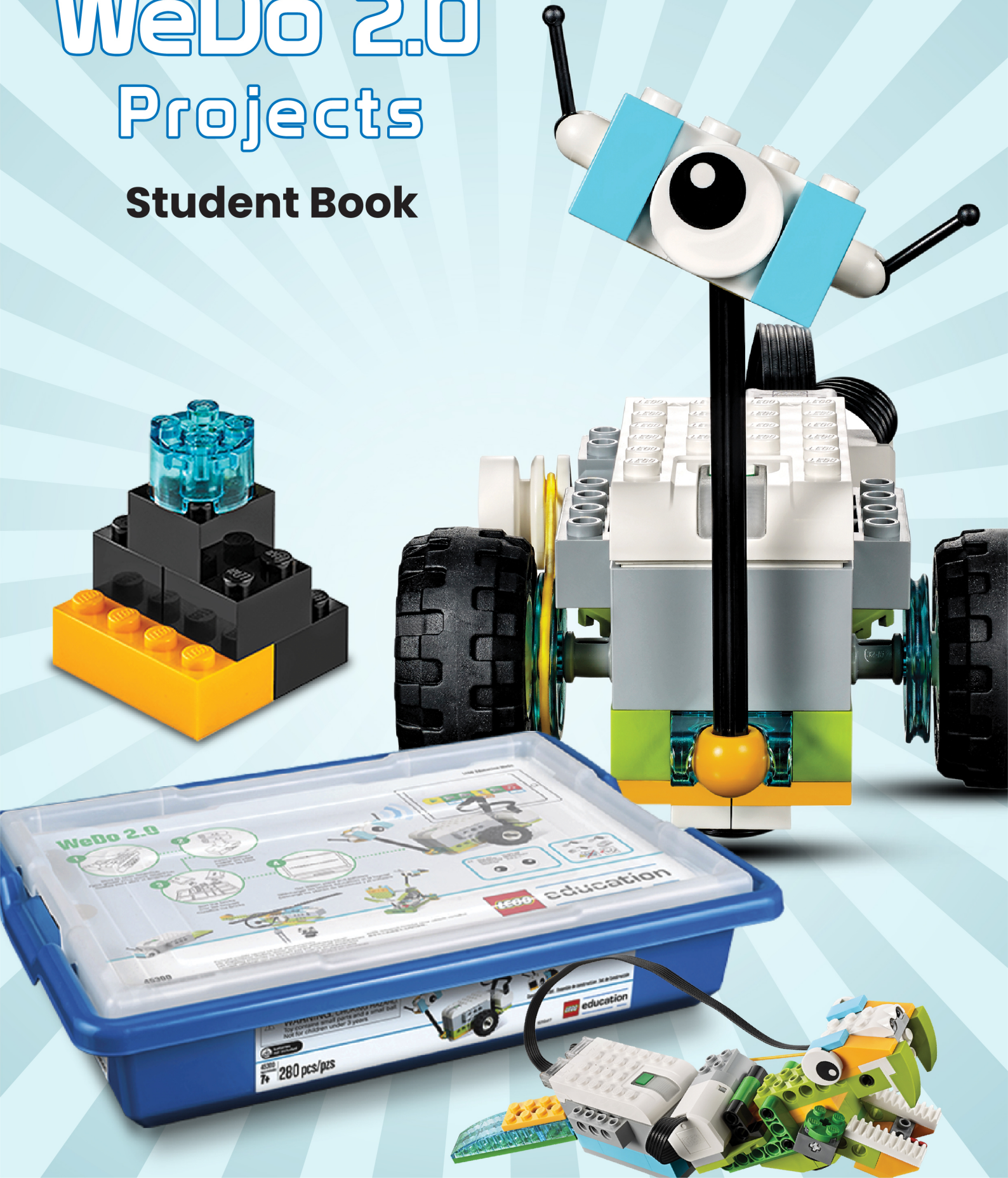
LEGO education

WeDo 2.0 Projects

Student Book



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LEGO education WEDO 2.0

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Line Follower

WeDo 2.0 Project

Project at a Glance

In this project Students will learn a new feature of the motion sensor in order to help them to design and program a model of a line follower.

Key Words:

Line, Follower, Motion sensor, black.

Learning Objectives

By the end of this project, students should be able to:

- Describe the principle of a Line Follower Robot.
- Recognize the capabilities of the motion sensor.
- Build and program a model of a line follower robot.

Introduction

The **line Follower Robot** is an autonomous robot which follows either black line in white are or white line in black area.

The Robot must be able to detect particular line and keep following it. Generally, the path is predefined and can be either visible like a black line on a white surface with a high contrasted color or it can be invisible like a magnetic field.
The sensor works by detecting reflected light coming from its own infrared LED. By measuring the amount of reflected infrared light, it can detect transitions from light to dark (lines) or even objects directly in front of it. Students have already some information about the motion sensor as they have sued it in many projects, but the new feature that they will learn in this project, is the motion sensor can detect the color of the items in front of it and gives it a readying value. And in this case, we can take advantage of this feature and use it to accomplish a specified mission.

Connection

1) Show your students a connection photo / video about line follower robot.
2) Ask your students these question for discussion:
   - What can you see in this picture?
   - How do you think this robot works?
   - Do you have an idea what sensors we can use to do that?

Create

Hands-On, Minds-ON (learn by doing):

Students will model a Line follower robot and identify the characteristics of it. After building the robot, and programming it, describe the code to the students and what it's doing and on what basis is it moving the robot.

Note

Before the class time, prepare a path in which the robot will follow using a black tape color. Make sure that the lightening in the classroom is reduced so that the robot and follow the black color tape more easily.

Share

Ask the students to share, present, and discuss their ideas, models, and programs with their colleagues.

Continue Phase

It’s time to take the project to the next level, you can choose a way to enhance the model by changing the code or model structure.

Investigate more

We suggested that each group of students work on their own to try a different color tape and see if the motion sensor will follow the line correctly. Also ask them if they can enhance the code to make the movement of the robot easier and faster.