LEGO education

Make a System That Sorts Colors

Design, build and program a robotic system that can identify at least three different colors of LEGO elements and sort them into separate locations.

Connect

Design Brief

Design, build and program a robotic system that can identify at least three different colors of LEGO elements and sort them into separate locations.

Brainstorm

Discuss different solutions to the design brief.

Think about:

• What colors will you sort?

• What size element will you sort?

• What kind of motorized mechanism can move those elements?

• How can the robot sense different locations?

• What design features will ensure the robot's movements are accurate and repeatable?

Select the Best Solution

Describe the solution that you have agreed to build and program.

Think about examples from your brainstorming discussion. Then explain why you chose this solution for the design brief.

Construct

Build and Program

Now you are ready to start building and programming your solution!

As you work on your solution:

1. Describe one part of your design that worked especially well.

2. Describe one design change that you had to make.

3. What will you try next?

As you test your design solution, use the table for recording your findings.

Contemplate

Test and Analyze

How well does your solution satisfy the design brief? Record your data. Name the columns and rows, such as Trial Number, Expected position, Actual position, Difference and Changes.

Review and Revise

Take a moment to reflect on your robot solution.

Think about:

• Can the robot's movement be made more accurate?

• What are some ways that others have solved the problem?

Describe two ways you could improve your robot.

Continue

Communicate

Here are some ideas:

• Create a video of your project, especially your final presentation and your robot's performance.

• Explain some important features of your software program.

• Produce a building guide for your model by taking a series of photographs as you deconstruct it.

• Include an image of your program with comments.

• Add a team photograph!

Congratulations! What will you design next?