SPRK
schools parents robots kids

Percent Error Worksheet

Complete Trials to Reduce Percent Error:

1. How well does this Macro work for the problem you are trying to solve? What happened?

2. Try adjusting one variable at a time and test your variable several times.

3. How do you think this will affect your robot's accuracy? Make a prediction below.

4. What do you think the optimal settings will be for accuracy?

5. Use the Trial Tracking Table to record your results as you adjust the variables in the Macro and test the program.Which variable will you be adjusting?

Summarize your results and create your final Macro.

1. According to your testing, what were the most effective variable settings for accuracy? Write your final Macro here:

2. How significantly did you reduce your percent of error? Describe the process you followed to do this.

3. Why might it be difficult to make the percent of error zero? What other factors might affec the accuracy of your robot?

4. Use the space below to create a graph of your results as you worked to reduce the percent error.

5. How would this kind of testing process be important for engineers in the real world?

Trial Tracking Table

Document the settings and results from the sample program in the row for **Trial 1**.

Use the remaining rows to document how you change the program and the actual distance traveled each time you make a change.

Use the information from the table to create a graph of the percent error for your variable.

Trial	Variable Settings	Desired Distance Traveled	Actual Distance Traveled	Percent Error
1	Delayed Speed:	45 in (114 cm)		
2	Delayed Speed:	45 in (114 cm)		
3	Delayed Speed:	45 in (114 cm)		
4	Delayed Speed:	45 in (114 cm)		
5	Delayed Speed:	45 in (114 cm)		
6	Delayed Speed:	45 in (114 cm)		
7	Delayed Speed:	45 in (114 cm)		
8	Delayed Speed:	45 in (114 cm)		
9	Delayed Speed:	45 in (114 cm)		
10	Delayed Speed:	45 in (114 cm)		
11	Delayed Speed:	45 in (114 cm)		
12	Delayed Speed:	45 in (114 cm)		

Sample Program

Overview:

This basic Macro will move the Sphero in a straight line, from one point to another, along a flat smooth surface. It rolls Sphero at a predetermined speed and heading that determine the direction and length of time the robot will move.

The distance that Sphero rolls is determined by a combination of speed and time. It has been created to overshoot the required distance so that students may experiment with the variables in the program and calculate percent error throughout their trials.