

Engineering Lab

Turning with Encoders Investigation

Investigation Description

In this investigation, you will use feedback from VEX Shaft Encoders to program your robot to turn accurately. You will be required to execute the following swing turns and point turns: 180 degree, 90 degree, 60 degree, 45 degree, and 15 degree.

Place this data sheet into your Engineering Journal once you complete it. The data you collect today will be helpful to program robot turns in the future.

Answer the following questions in your engineering journal

How far does your robot travel every time the robot's wheel turns one revolution?

What is the resolution of the encoders connected to the robot?

What is the center to center distance of your robot's wheels?

Can you calculate the number of encoder counts your robot will need to execute a 360 degree swing turn and point turn?

Do you believe that the motor speed will affect the accuracy of the turn? If so, why?

Swing Turn Data Sheet

Power Level	Encoder Counts 180 Degree Turn	Encoder Counts 90 Degree Turn	Encoder Counts 60 Degree Turn	Encoder Counts 45 Degree Turn	Encoder Counts 15 Degree Turn
motor[rightMotor] = 31;					
motor[rightMotor] = 63;					
motor[rightMotor] = 96;					

Point Turn Data Sheet

Power Level	Encoder Counts 180 Degree Turn	Encoder Counts 90 Degree Turn	Encoder Counts 60 Degree Turn	Encoder Counts 45 Degree Turn	Encoder Counts 15 Degree Turn
motor[rightMotor] = 31; motor[leftMotor] = -31;					
motor[rightMotor] = 63; motor[leftMotor] = -63;					
motor[rightMotor] = 96; motor[leftMotor] = -96;					