CWSF 2016 - Montreal, Quebec

Nathan Williams

To Gyro or Not To Gyro

Challenge: Innovation
Category: Junior
Region: Bluewater
City: Kincardine, ON
School: École Elgin Market Public School
Abstract: Control systems used on autonomous robots in competitions, like FIRST Lego League, need to respond accurately and consistently every time a program is executed. Two robot designs were tested using constant power, ramped power, and proportional-integral-derivative control turn methods, with and without a gyroscope. The ramped power program data was closest to the target and had the least deviation over the course of ten trials.

Biography

Nathan Williams has been a member of FIRST Lego League for five years. During a competition in 2015, one of the judges asked why his team's robot wasn't using a gyro sensor to control its turns. Nathan decided to find out, and his science fair project To Gyro or Not to Gyro is the result. He is interested in further exploring further methods of calibrating PID control systems and researching robot navigation. He is also interested in exploring whether a system like an Arduino would perform the same way as the Lego EV3 did. Nathan plays hockey, enjoys playing computer games like Kerbal Space Program, and posting animations on his YouTube channel.