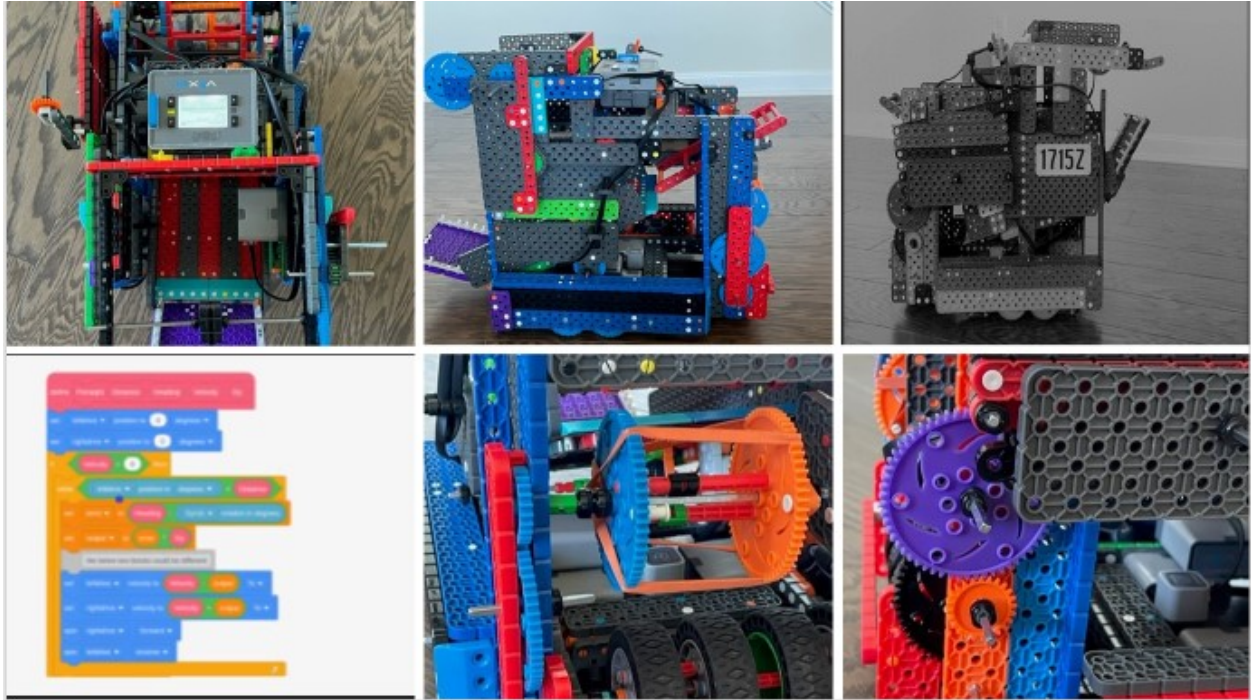


Math in VEX IQ

We use mechanisms like Gear ratio and a proportional-integral-derivative (PID).

A PID uses a feedback mechanism that is used in many applications including our robot's autonomous code. We use the PID code is used to move forward by a setpoint The formula for which is $u(t) = K_p \cdot e(t) + K_i \int e(t) dt + K_d \cdot \frac{de(t)}{dt}$. Our team had an opportunity to learn about this important concept that we are surrounded with in our lives. Ex. Car cruise control, Thermostats and Ovens.



We use gear ratio to control the speed and torque of the robot the formula for which is the $gear_ratio = \frac{\text{number_of_teeth_on_driving_gear}}{\text{number_of_teeth_on_drivengear}}$.