FIRST TECH CHALLENGE

Updated 10.21.2019

Team # 4965	Team Name: Animatores Romanis

Autonomous objectives:

We strafe and scan the first three stones until we encounter a skystone. We scan the skystone using our color sensor, then we grab the skystone, travel under the bridge, and place it on the foundation. After that, we drag the foundation into the build zone and park under the skybridge.

Sensors used:

In order to scan the stones, we use the Rev Robotics Color Sensor V3. We use the expansion hub's built-in inertial measurement unit (imu) to perform distance-based driving in our autonomous. In addition, we use encoders on our arm and claw to control the robot during driver-control and autonomous periods.

Key algorithms:

We use a linear search algorithm to find and index our motors. We use the DriveTrain algorithm to calculate the movement of the robot, taking into account the current heading distance traveled using the IMU. Using this algorithm, we can tell the robot to move a specific number of centimeters and turn a specific number of degrees.

Driver controlled enhancements:

We use encoders to control the arm and claw with a high degree of precision, and we have programmed upper and lower bounds for the arm such that it will never break. In addition, we have built-in options for our drivers to drive slowly, normally, or quickly.

Engineering notebook references:

Please review our autonomous code and our entries on the evolution of our autonomous strategy. In addition, please reference the pages of the progression of our claw and arm designs for a comprehensive journey through the transformation of our robot.

Autonomous program diagrams: