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#region VEXcode Generated Robot Configuration
import math
import random
from vexcode_viqc import *

# Brain should be defined by default
brain=Brain()

drivetrain = Drivetrain("drivetrain", 0)
intake_bumper = Bumper("IntakeBumper", 3)
front_optical = Optical("FrontOptical", 4)
intake_motor_group = Motor("IntakeMotorGroup", 5)
arm_motor_group = Motor("ArmMotorGroup", 6)
front_distance = Distance("FrontDistance", 9)

#endregion VEXcode Generated Robot Configuration
myVariable = 0

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def when_started1():
  global myVariable
  intake_motor_group.set_velocity(100, PERCENT)
  arm_motor_group.set_velocity(100, PERCENT)
  drivetrain.set_turn_velocity(100, PERCENT)
  drivetrain.set_drive_velocity(100, PERCENT)


   # Task 1: Collect and deliver the first purple block to Goal1
   # Strategy: Raise arm, move forward, collect block, reverse, turn, and score
  arm_motor_group.spin_for(FORWARD, 70, DEGREES,wait=False)
  intake_motor_group.spin(FORWARD)
  drivetrain.drive_for(FORWARD, 12, INCHES)
  arm_motor_group.spin_for(FORWARD, 250, DEGREES,wait=False)
  drivetrain.drive_for(REVERSE, 10, INCHES)
  drivetrain.turn_to_heading(105, DEGREES)
  intake_motor_group.spin_for(REVERSE, 1, TURNS)

  # Task 2: Collect and deliver the second purple block to Goal1
  # Similar strategy as Task 1 but with different positions and angles
  drivetrain.turn_to_heading(20, DEGREES)
  intake_motor_group.spin(FORWARD)
  drivetrain.drive_for(FORWARD, 35, INCHES)
  arm_motor_group.spin_for(REVERSE, 260, DEGREES)
  drivetrain.drive_for(REVERSE, 7, INCHES)
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arm_motor_group.spin_for(FORWARD, 260, DEGREES,wait=False)
drivetrain.turn_to_heading(180, DEGREES)
drivetrain.drive_for(FORWARD, 18, INCHES)
intake_motor_group.spin_for(REVERSE, 1, TURNS)

# Task 3: Collect and deliver the third purple block to Goal1
# Adjust strategy for different block location

drivetrain.turn_to_heading(5, DEGREES)
intake_motor_group.spin(FORWARD)
drivetrain.drive_for(FORWARD, 18, INCHES)
drivetrain.turn_to_heading(10, DEGREES)
drivetrain.drive_for(FORWARD, 5, INCHES)
arm_motor_group.spin_for(REVERSE, 260, DEGREES)
drivetrain.drive_for(REVERSE, 18, INCHES)
arm_motor_group.spin_for(FORWARD, 260, DEGREES,wait=False)
drivetrain.turn_to_heading(175, DEGREES)
drivetrain.drive_for(FORWARD, 4, INCHES)
intake_motor_group.spin_for(REVERSE, 1, TURNS)


# Task 4: Collect and deliver the fourth purple block to Goal1
# Adjust strategy for different block location
drivetrain.turn_to_heading(-55, DEGREES)
intake_motor_group.spin(FORWARD)
arm_motor_group.spin_for(REVERSE, 255, DEGREES, wait=False)
drivetrain.drive_for(FORWARD, 31, INCHES)
drivetrain.drive_for(REVERSE, 31, INCHES)
arm_motor_group.spin_for(FORWARD, 255, DEGREES,wait=False)
drivetrain.turn_to_heading(170, DEGREES)
drivetrain.drive_for(FORWARD, 3, INCHES)
intake_motor_group.spin_for(REVERSE, 1, TURNS)


# Task 5: Collect and deliver the first Red block to Goal2
# Adjust strategy for Red block and Goal2 location
drivetrain.turn_to_heading(-90, DEGREES)
arm_motor_group.spin_for(REVERSE, 200, DEGREES, wait=False)
intake_motor_group.spin(FORWARD)
drivetrain.drive_for(FORWARD, 32, INCHES)
drivetrain.turn_to_heading(-135, DEGREES)
arm_motor_group.spin_for(FORWARD, 220, DEGREES,wait=False)
drivetrain.drive_for(FORWARD, 12, INCHES)
drivetrain.turn_to_heading(-97, DEGREES)
drivetrain.drive_for(FORWARD, 26, INCHES)
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intake_motor_group.spin_for(REVERSE, 1, TURNS)


# Task 6: Collect and deliver the first purple block to Goal3
# Adjust strategy for different goal
drivetrain.turn_to_heading(-30, DEGREES)
arm_motor_group.spin_for(REVERSE, 280, DEGREES, wait=False)
intake_motor_group.spin(FORWARD)
drivetrain.drive_for(FORWARD, 22, INCHES)
drivetrain.turn_to_heading(-8, DEGREES)
arm_motor_group.spin_for(FORWARD, 260, DEGREES,wait=False)
drivetrain.drive_for(FORWARD, 29, INCHES)
intake_motor_group.spin_for(REVERSE, 1, TURNS)


# Task 7: Collect and deliver the second Red block to Goal2
# Similar to previous Red block collection but with different positions
drivetrain.turn_to_heading(95, DEGREES)
arm_motor_group.spin_for(REVERSE, 200, DEGREES, wait=False)
intake_motor_group.spin(FORWARD)
drivetrain.drive_for(FORWARD, 14, INCHES)
drivetrain.turn_to_heading(210, DEGREES)
arm_motor_group.spin_for(FORWARD, 200, DEGREES,wait=False)
drivetrain.drive_for(FORWARD, 34, INCHES)
drivetrain.turn_to_heading(180, DEGREES)
drivetrain.drive_for(FORWARD, 7, INCHES)
intake_motor_group.spin_for(REVERSE, 1, TURNS)

# Task 8: Collect and deliver the second purple block to Goal3
# Adjust strategy for different block and goal locations
drivetrain.turn_to_heading(40, DEGREES)
arm_motor_group.spin_for(REVERSE, 260, DEGREES, wait=False)
intake_motor_group.spin(FORWARD)
drivetrain.drive_for(FORWARD, 24, INCHES)
drivetrain.turn_to_heading(-32, DEGREES)
arm_motor_group.spin_for(FORWARD, 260, DEGREES,wait=False)
drivetrain.drive_for(FORWARD, 25, INCHES)
intake_motor_group.spin_for(REVERSE, 1, TURNS)

# Task 9: Collect and deliver the third purple block to Goal3
# Adjust strategy for different block and goal locations
drivetrain.turn_to_heading(65, DEGREES)
arm_motor_group.spin_for(REVERSE, 260, DEGREES, wait=False)
intake_motor_group.spin(FORWARD)
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    drivetrain.drive_for(FORWARD, 14, INCHES)
    drivetrain.turn_to_heading(-85, DEGREES)
    arm_motor_group.spin_for(FORWARD, 260, DEGREES,wait=False)
    drivetrain.drive_for(FORWARD, 5, INCHES)
    intake_motor_group.spin_for(REVERSE, 1, TURNS)

    # Task 10: Collect and deliver the fourth purple block to Goal3
    # Adjust strategy for different block and goal locations
    drivetrain.turn_to_heading(87, DEGREES)
    arm_motor_group.spin_for(REVERSE, 260, DEGREES, wait=False)
    intake_motor_group.spin(FORWARD)
    drivetrain.drive_for(FORWARD,28, INCHES)
    drivetrain.turn_to_heading(-88, DEGREES)
    arm_motor_group.spin_for(FORWARD, 260, DEGREES,wait=False)
    drivetrain.drive_for(FORWARD, 28, INCHES)
    intake_motor_group.spin_for(REVERSE, 1, TURNS)

  # Task 11: Knock down the third Red block and execute partial parking
  # Specific movements for knocking down and positioning for parking
    drivetrain.turn_to_heading(-70, DEGREES)
    drivetrain.drive_for(REVERSE,13, INCHES)
    arm_motor_group.spin_for(REVERSE, 100, DEGREES,wait=False)
    drivetrain.turn_to_heading(-86, DEGREES)
    drivetrain.drive_for(REVERSE,38, INCHES)
    drivetrain.turn_to_heading(-73, DEGREES)
    drivetrain.drive_for(REVERSE,4, INCHES)
    arm_motor_group.spin_for(FORWARD, 1500, DEGREES)
    arm_motor_group.spin_for(REVERSE, 1500, DEGREES)

vr_thread(when_started1)
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