

# VEX CODE VR

Student Name: Darren

Assignment: Vexcode Vr Skills challenge - Elementary

Notes: From Team 8391Z - Caution Tape Robotics, Markham Ontario Canada

Playground: VIQC Virtual Skills - Full Volume

Project Name: My project

Project Type: Blocks

Date: Fri Jan 05 2024





when started

This code sets three variables, a height for scoring cubes, a height for collecting bigger purple cubes surrounded by green cubes, and a heading for facing left.

set ScoreCubes to 320

set ScorePurple to ScoreCubes - 42

set faceWest to 270

This code sets the speed of the arm, intake, and drivetrain to the fastest speed it can run.

set drive velocity to 100 %

set turn velocity to 100 %

set IntakeMotorGroup velocity to 100 %

set ArmMotorGroup velocity to 100 %

This runs the code where the robot scores purple cubes, knock down red cubes and fully park.

Purple1

Purple2

Last goal

Park

define Purple1

This code scores cubes for Goal 2

This turns to robot to face a purple cube at 45 degree heading, take it, turn around, drive to goal two, face left and score it.

turn to heading 45 degrees

spin IntakeMotorGroup intake

drive forward

Detection 0.01

wait until FrontOptical detects purple ?

turn left for 185 degrees

spin ArmMotorGroup up for ScoreCubes degrees

drive forward for FrontDistance object distance in mm - 20 mm

turn to heading faceWest degrees

drive forward for 10 mm

spin IntakeMotorGroup outtake

wait 0.6 seconds

This part makes the robot face forward, drive forward, turn while intaking the purple cube between goal two and three.

turn to heading 0 degrees and don't wait

spin ArmMotorGroup down for ScorePurple degrees

drive forward for 20 inches

turn to heading faceWest degrees

spin IntakeMotorGroup intake

Detection 0.1

turn to heading 180 degrees and don't wait

It then face backwards, drive to goal two, turn to face left and score the cube.

spin ArmMotorGroup up for ScorePurple degrees

drive forward for FrontDistance object distance in mm - 20 mm

turn to heading faceWest degrees

drive forward for FrontDistance object distance in mm - 50 mm

spin IntakeMotorGroup outtake

wait 0.6 seconds

```

define Purple2

This code scores cubes for goal 3

This code makes the robot go backwards, take the purple cube, turn and score it in goal three,

drive reverse
wait 1 seconds
spin IntakeMotorGroup intake
spin ArmMotorGroup down for ScoreCubes degrees and don't wait
turn to heading 0 degrees
drive forward
Detection 0.1
wait until FrontOptical detects purple ?
turn to heading ScoreCubes + 4 degrees and don't wait
spin ArmMotorGroup up for ScoreCubes degrees
drive forward for 200 mm
drive forward for FrontDistance object distance in mm - 50 mm
spin IntakeMotorGroup outtake
wait 0.6 seconds

This code makes the robot face the purple cube to the right of goal three, take it, turn to goal three and score the cube.

turn right for 105 degrees
spin ArmMotorGroup down for ScorePurple degrees and don't wait
spin IntakeMotorGroup intake
drive forward
Detection
wait until FrontOptical detects purple ?
turn to heading faceWest + 7 degrees
spin ArmMotorGroup up for ScorePurple degrees
drive forward for FrontDistance object distance in mm - 60 mm
spin IntakeMotorGroup outtake
wait until not IntakeBumper pressed?
wait 0.5 seconds

This makes the robot turn right and drive forward, turn and face the red cube.

turn to heading 90 degrees
drive forward for 304 mm
turn to heading 180 degrees

```

define **Detection**

This is a little code that detects if the intake had found a red/green cube. It would outtake the green/red cube. If it detect a purple cube, it would stop the intake.

```
forever
  if (FrontOptical detects red ? or FrontOptical detects green ? and IntakeBumper pressed?) then
    repeat until (FrontOptical detects purple ? and IntakeBumper pressed?)
      turn right for 90 degrees
      spin IntakeMotorGroup outtake for 2 turns
      turn left for 90 degrees
      spin IntakeMotorGroup intake
      if (FrontOptical detects purple ? and IntakeBumper pressed?) then
        break
    else if (FrontOptical detects purple ? and IntakeBumper pressed?) then
      stop IntakeMotorGroup
      break
  else
    spin IntakeMotorGroup intake
```

define Detection Wait time

This is similar to the "Detection" function, except that there is a wait time in seconds imputed so that you don't have to wait for the code to be finished.

```
forever
  if (FrontOptical detects red ? or FrontOptical detects green ? and IntakeBumper pressed?) then
    repeat until (FrontOptical detects purple ? and IntakeBumper pressed?)
      turn right for 90 degrees
      spin IntakeMotorGroup outtake for 2 turns
      turn left for 90 degrees
      spin IntakeMotorGroup intake
      if (FrontOptical detects purple ? and IntakeBumper pressed?) then
        break
    else if (FrontOptical detects purple ?) then
      wait Wait time seconds
      stop IntakeMotorGroup
      break
    else
      spin IntakeMotorGroup intake
```

define Last goal

This scores cubes for goal 3.  
  
This first part firsts knocks down the red cube, then go right and knock down the second red cube, then gets the purple cube in front of the red cube

```
spin ArmMotorGroup down for ScorePurple - 20 degrees  
drive forward for 105 mm  
turn to heading 90 degrees  
drive forward for 18 inches  
turn to heading 91 degrees  
drive forward for 19 inches  
turn to heading 180 degrees  
drive forward for 18 inches  
spin ArmMotorGroup down for 20 degrees  
turn to heading faceWest degrees  
spin IntakeMotorGroup intake  
drive forward
```

Detection  
wait until FrontOptical detects purple ?

This makes the robot drive to the wall with goal one and two, turn the robot to goal one and score the purple cube.

```
turn to heading 180 degrees and don't wait  
spin ArmMotorGroup up for ScorePurple degrees  
drive reverse for 3 inches  
drive forward for 39 inches  
turn to heading 92 degrees  
drive forward for FrontDistance object distance in mm - 50 mm  
spin IntakeMotorGroup outtake  
wait until not IntakeBumper pressed?  
wait 0.5 seconds
```

This makes the robot drive reverse, face a purple cube near the supply zone, take it, turn around, drive back to the wall between goal one and two, and score the cube in goal one.

```
drive reverse for 6 inches  
turn to heading 0 degrees  
spin ArmMotorGroup down for ScorePurple degrees and don't wait  
spin IntakeMotorGroup intake  
drive forward  
Detection 0.4  
wait until FrontOptical detects purple ?  
turn to heading 180 degrees  
spin ArmMotorGroup up for ScorePurple degrees and don't wait  
wait 0.2 seconds
```

```
drive forward for FrontDistance object distance in mm - 20 mm  
turn to heading 95 degrees  
drive forward for FrontDistance object distance in mm - 60 mm  
spin IntakeMotorGroup outtake  
wait until not IntakeBumper pressed?  
wait 0.5 seconds
```



define

Park

This fully park the robot on  
the low bar of the supply zone

turn to heading 195 degrees

drive reverse for 48 inches and don't wait

spin IntakeMotorGroup outtake

spin ArmMotorGroup up for 5000 degrees

set ArmMotorGroup timeout to 6 seconds

spin ArmMotorGroup down