

# VEX CODE VR

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Assignment: Intelligently Autonomous - VR Skills

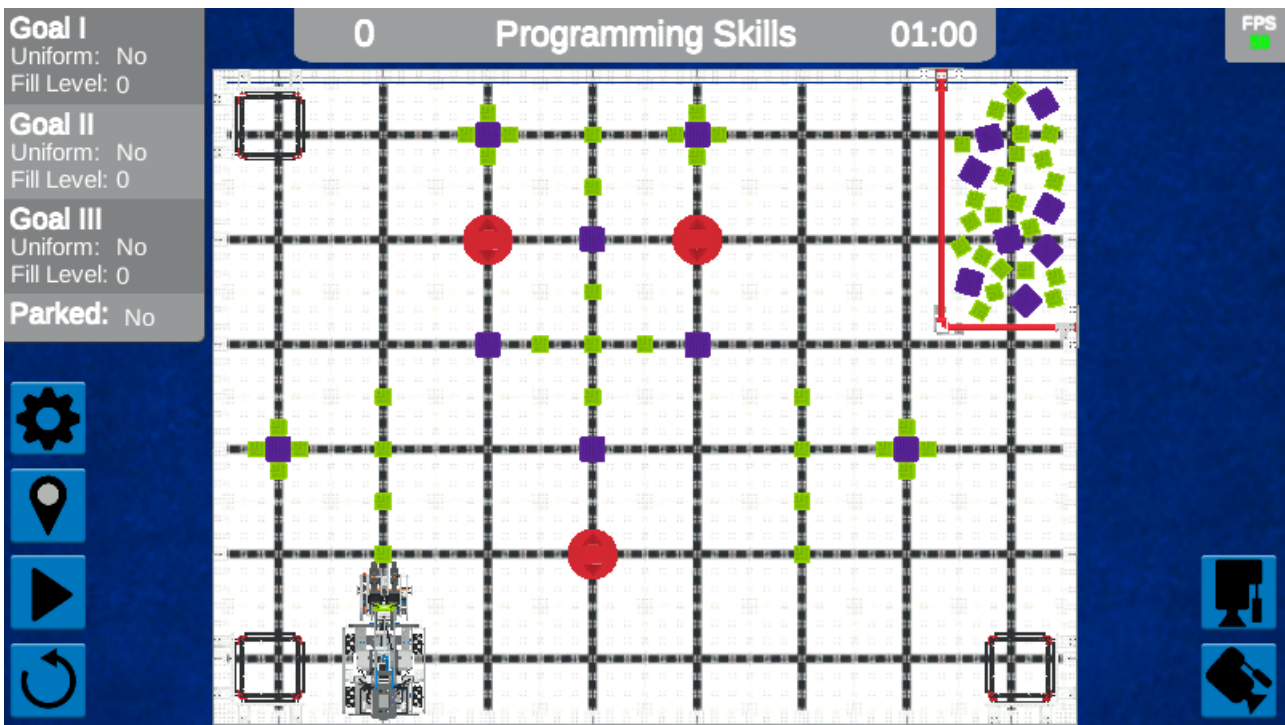
Notes: Team 3959E ~ Holly Springs, North Carolina, USA

Playground: VIQC Virtual Skills - Full Volume

Project Name: Avyukth, Avni, Joshith, Sathvik

Project Type: Blocks

Date: Sun Jan 28 2024



```

when started
  Loops: if the robot is in range of the goal
  Loops:
    distance the range of goal is
    if x_pos < 0 and x_pos < 16 and x_pos < 16 and x_pos < 60 then
      set goal to 1
    else
      set goal to 0
    distance the range of goal is
    if x_pos < 0 and x_pos < 16 and x_pos < 60 and x_pos < 12 then
      set goal to 1
    else
      set goal to 0
  
```

```

define DriveForwardAndBack direction distance heading
  turn to previous heading
  move heading heading degrees
  preparing of the previous direction is made in this way
  if direction < 0 then
    rotate 180 from speed variable
  else reverse = for distance inches =
  change speed by distance - direction
  else
  drive forward = for distance inches =
  change speed by distance - direction
  rotate 180 from speed variable
  if heading < 0 then
  change speed by distance - direction - 1
  else if heading < 0 then
  change speed by distance - direction - 0
  else
  change speed by distance - direction - 1
  
```

```

define heading
  initialize heading mode for the program
  set speed
  save variable
  set goal to 1
  set speed to 0
  set speed to 10
  set speed_max to 100
  save new heading
  set velocity to 100
  set driveVelocity to 100
  set headingVelocity = velocity to 100
  set headingVelocity = velocity to 100
  DriveForwardAndBack 0 0 0
  Like slow up to prevent the distance error from measuring
  set headingVelocity = 10 for 110 degrees
  
```

```

when started
  set the goal
  initialize
  Loops: if the robot is in range of the goal
  if from distance = speed distance mode = heading, dir then
  set goal to 1
  DriveForwardAndBack 1 0 0
  else
  Loops: if the robot is in range of the goal
  if from distance = speed distance mode = heading, dir then
  DriveForwardAndBack 1 0 0
  DriveForwardAndBack 0 0 0
  DriveForwardAndBack 1 0 0
  
```

```

define DepthOfGoal
  initialize heading
  set goal to 1
  save variable
  if x_pos < 0 and x_pos < 16 and x_pos < 16 and x_pos < 60 then
  set headingVelocity = down = for 120 degrees =
  set headingVelocity = back = for 160 degrees =
  set headingVelocity = up = for 200 degrees =
  DriveForwardAndBack 1 0 -110
  set headingVelocity = rotate = for 400 degrees =
  DriveForwardAndBack -1 0 -110
  set headingVelocity = down = for 200 degrees =
  DriveForwardAndBack 0 0 0
  save variable
  if x_pos < 0 and x_pos < 16 and x_pos < 16 and x_pos < 60 then
  set headingVelocity = down = for 120 degrees =
  set headingVelocity = back = for 160 degrees =
  set headingVelocity = up = for 200 degrees =
  DriveForwardAndBack 1 0 -120
  set headingVelocity = rotate = for 400 degrees =
  DriveForwardAndBack -1 0 -120
  set headingVelocity = down = for 200 degrees =
  DriveForwardAndBack 0 0 0
  set goal to 1
  save variable
  if x_pos < 0 and x_pos < 16 and x_pos < 16 and x_pos < 60 then
  set headingVelocity = down = for 120 degrees =
  set headingVelocity = back = for 160 degrees =
  set headingVelocity = up = for 200 degrees =
  DriveForwardAndBack 1 0 -120
  set headingVelocity = rotate = for 400 degrees =
  DriveForwardAndBack -1 0 -120
  set headingVelocity = down = for 200 degrees =
  DriveForwardAndBack 0 0 0
  save variable
  if x_pos < 0 and x_pos < 16 and x_pos < 16 and x_pos < 60 then
  set headingVelocity = down = for 120 degrees =
  set headingVelocity = back = for 160 degrees =
  set headingVelocity = up = for 200 degrees =
  DriveForwardAndBack 1 0 -115
  set headingVelocity = rotate = for 400 degrees =
  DriveForwardAndBack -1 0 -115
  set headingVelocity = down = for 200 degrees =
  DriveForwardAndBack 0 0 0
  
```

define Initialize

Organizes initial blocks for the program

clear all rows

Sets Variables

set use\_goal\_B to 1

set y\_pos to 0

set x\_pos to 18

set block\_stop\_dist to 155

Sets Motor Velocities

set turn velocity to 100 %

set drive velocity to 100 %

set IntakeMotorGroup velocity to 100 %

set ArmMotorGroup velocity to 100 %

Drive Forward and Back 0 0 0

Lifts arm up to prevent the distance sensor from detecting it

spin ArmMotorGroup up for 110 degrees

```

define Deposit in Goal
  0 uttas kles Blocks
  if use_goal_B = 1 then
    First_Cube
    if x_pos > -0.1 and x_pos < 19 and y_pos > -0.1 and y_pos < 1.01 then
      spin Arm Motor Group down for 125 degrees
      spin Intake Motor Group intake for 360 degrees
      spin Arm Motor Group up for 350 degrees
      Drive Forward and Back 1 3 -110
      spin Intake Motor Group outtake for 400 degrees
      Drive Forward and Back -1 3 -110
      spin Arm Motor Group down for 250 degrees
      Drive Forward and Back 0 0 0
    Second_Cube
    if x_pos > -0.1 and x_pos < 19 and y_pos > 1.02 and y_pos < 6.01 then
      spin Arm Motor Group down for 125 degrees
      spin Intake Motor Group intake for 360 degrees
      spin Arm Motor Group up for 350 degrees
      Drive Forward and Back 1 3.4 -125
      spin Intake Motor Group outtake for 400 degrees
      Drive Forward and Back -1 3.4 -125
      spin Arm Motor Group down for 250 degrees
      Drive Forward and Back 0 0 0
    if use_goal_A = 1 then
      Third_Cube
      if x_pos > -0.1 and x_pos < 19 and y_pos > 6.02 and y_pos < 12.01 then
        spin Arm Motor Group down for 125 degrees
        spin Intake Motor Group intake for 360 degrees
        spin Arm Motor Group up for 350 degrees
        Drive Forward and Back 1 40 -28
        spin Intake Motor Group outtake for 400 degrees
        Drive Forward and Back -1 40 -20
        spin Arm Motor Group down for 250 degrees
        Drive Forward and Back 0 0 0
      Fourth_Cube
      if x_pos > -0.1 and x_pos < 19 and y_pos > 12.02 and y_pos < 18.01 then
        spin Arm Motor Group down for 125 degrees
        spin Intake Motor Group intake for 360 degrees
        spin Arm Motor Group up for 350 degrees
        Drive Forward and Back 1 35 -15
        spin Intake Motor Group outtake for 400 degrees
        Drive Forward and Back -1 35 -15
        spin Arm Motor Group down for 250 degrees
        Drive Forward and Back 0 0 0
  
```

when started

Constantly checks whether or not the robot is in range of the goal

forever

Defines the range for Goal II

if  $x\_pos > 0$  and  $x\_pos < 36$  and  $y\_pos > 0$  and  $y\_pos < 6.01$  then

set use\_goal\_B to 1

else

set use\_goal\_B to 0

Defines the range for Goal III

if  $x\_pos > 0$  and  $x\_pos < 36$  and  $y\_pos > 6.01$  and  $y\_pos < 72$  then

set use\_goal\_A to 1

else

set use\_goal\_A to 0

when started

Main Run Code

Initialize

forever

Constantly Checks is there is something in front of it

if  $\text{FrontDistance} < \text{block\_stop\_dist}$  then

stop driving

Deposit in Goal

else

Drive Forward and Back 1 1 0

Code for hitting 2 red blocks and partial Parking

if  $x\_pos = 18$  and  $y\_pos = 41$  then

Drive Forward and Back 1 40 90

Drive Forward and Back 0 0 0

Drive Forward and Back 1 30 90

```
define Drive Forward and Back direction distance heading
Turns to provided heading
turn to heading heading degrees
Depending on the provided direction
it moves in that way
if direction = -1 then
  Adds/Subtracts from y-pos variables
  drive reverse for distance inches
  change y_pos by distance * direction
else
  drive forward for distance inches
  change y_pos by distance * direction
  Adds/Subtracts from y-pos variables
if heading < 0 then
  change x_pos by distance * direction * -1
else if heading = 0 then
  change x_pos by distance * direction * 0
else
  change x_pos by distance * direction * 1
```