

VEX CODE VR

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Assignment: VEXcode VR Skills Challenge 2023-24

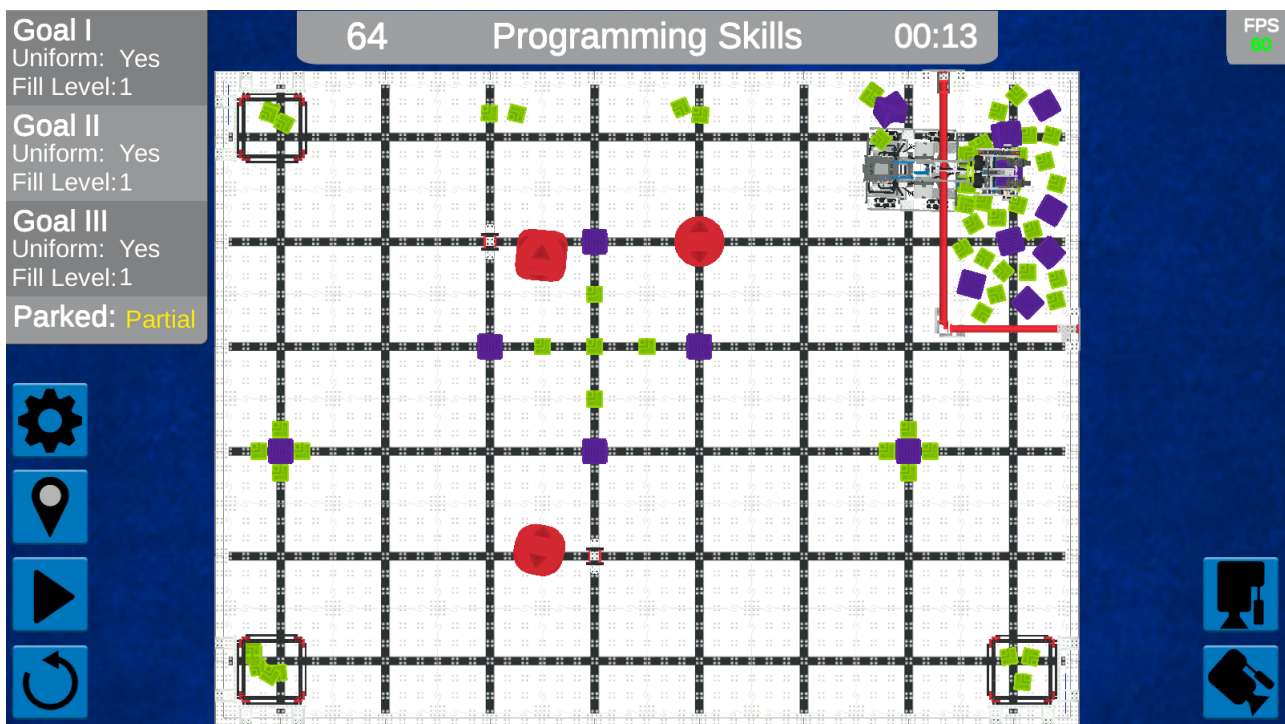
Notes: Team 95129B, San Jose, CA, USA

Playground: VIQC Virtual Skills - Full Volume

Project Name: TBB VEXcode Functions and Sensors Final (1)

Project Type: Blocks

Date: Wed Dec 27 2023



```

when started
  Start at position 0
  Set motor velocities to 18%
  set IntakeMotorGroup velocity to 100 %
  set drive velocity to 100 %
  set turn velocity to 100 %
  set ArmMotorGroup velocity to 100 %
  Set variable for bin height
  set BinHeight to 350
  Intake and score first green block in Bin #1
  Get ready to intake blocks
  Look For a Green Block
  Turn Robot 100 Drive Straight 395 Score In Bin 1
  Intake and score second green block in Bin #1
  Look For a Green Block
  Turn Robot 110 Drive Straight 440 Score In Bin 1
  Intake and score third green block in Bin #1
  Look For a Green Block
  Turn Robot 125 Drive Straight 470 Score In Bin 1
  Intake and get fourth green block
  Look For a Green Block
  Drive to Bin #2
  drive reverse for 320 mm
  turn to heading 270 degrees
  drive forward for 340 mm
  HIT red block
  turn to heading 240 degrees
  spin ArmMotorGroup up for BinHeight degrees and don't wait
  drive forward for 300 mm
  turn to heading 270 degrees
  drive forward for 335 mm
  Score first green block in bin 2
  Drop block in bin
  Get ready to intake blocks
  turn to heading 0 degrees
  wait 0.5 seconds
  Intake and score second green block in Bin #2
  Look For a Green Block
  Turn Robot 105 Drive Straight 80 Score In Bin 2
  Intake and score third green block in Bin #2
  Look For a Green Block
  Turn Robot 120 Drive Straight 200 Score In Bin 2
  Intake and score fourth green block in Bin #2
  Look For a Green Block
  Turn Robot 135 Drive Straight 250 Score In Bin 2
  Drive to Bin #3, intake 1 green block along the way
  drive forward for 210 mm
  Drop first green block in Bin #3
  Turn Robot 45 Drive Straight 140 Score In Bin 3
  turn right for 45 degrees
  Look For a Green Block
  Intake and score second green block in Bin #3
  Turn Robot 110 Drive Straight 180 Score In Bin 3
  Drive to supply zone and hit red blocks along the way
  turn right for 30 degrees
  Lift arm while driving to the supply zone
  spin ArmMotorGroup up for 100 degrees and don't wait
  drive forward for 220 mm
  turn right for 15.5 degrees
  stop IntakeMotorGroup
  drive forward for 1300 mm
  Stop the project immediately to stop the timer
  stop project

```

```

define Turn Robot Degrees Drive Straight Millimeter Score In Bin Bin Number
  This functions turns the robot, drives it towards the bin, and spits out the blocks into the bin.
  Input Parameters:
  - Degrees: The angle to turn the robot
  - Millimeter: Distance to drive the robot to get to bin
  - Bin Number: The bin number to score in
  Raise the arm to the height of the bin
  spin ArmMotorGroup to position BinHeight degrees and don't wait
  Depending on which side the bin is on, you turn to the bin direction.
  If it is Bin #1, the blocks are on the left of the bin, so turn right
  If it is bin 2 or bin 3, the blocks are on the right of the bin, so turn left.
  if Bin Number = 1 then
    turn right for Degrees degrees
  else if Bin Number = 2 then
    turn left for Degrees degrees
  else if Bin Number = 3 then
    turn left for Degrees degrees
  else
    turn right for Degrees degrees
  Drive towards the bin and drop the blocks
  drive forward for Millimeter mm
  Drop block in bin
  Go back to the beginning and get ready to intake more blocks
  drive reverse for Millimeter mm
  Get ready to intake blocks
  Turn the robot to the starting direction, reverse the direction turned in the beginning
  if Bin Number = 1 then
    turn left for Degrees degrees
  else if Bin Number = 2 then
    turn right for Degrees degrees
  else if Bin Number = 3 then
    turn right for Degrees degrees
  else
    turn left for Degrees degrees

```

```

define Look For a Green Block
  This function looks for a block
  Drive Forward until the robot encounters an object
  while not FrontOptical found an object?
    drive forward
  wait 0.2 seconds

```

```

define Get ready to intake blocks
  This function sets the robot up to get blocks. Prepare the arm and sweeper for taking in blocks
  spin IntakeMotorGroup intake
  spin ArmMotorGroup to position 0 degrees and don't wait

```

```

define Drop block in bin
  This function drops the block in the bin
  Keep spinning the sweeper outwards as long as there are blocks in the robot
  while FrontOptical found an object?
    spin IntakeMotorGroup outtake
  wait 0.2 seconds

```

```

when started
  Start at position D
  Set motor velocities to 100%
  set IntakeMotorGroup velocity to 100 %
  set drive velocity to 100 %
  set turn velocity to 100 %
  set ArmMotorGroup velocity to 100 %
  Set variable for bin height
  set BinHeight to 390
  Intake and score first green block in Bin #1
  Get ready to Intake blocks
  Look For a Green Block
  Turn Robot 100 Drive Straight 395 Score In Bin 1
  Intake and score second green block in Bin #1
  Look For a Green Block
  Turn Robot 110 Drive Straight 440 Score In Bin 1
  Intake and score third green block in Bin #1
  Look For a Green Block
  Turn Robot 125 Drive Straight 470 Score In Bin 1
  Intake and get fourth green block
  Look For a Green Block
  Drive to Bin #2
  drive reverse for 320 mm
  turn to heading 270 degrees
  drive forward for 340 mm
  Hit red block
  turn to heading 240 degrees
  spin ArmMotorGroup up for BinHeight degrees and don't wait
  drive forward for 500 mm
  turn to heading 270 degrees
  drive forward for 335 mm
  Score first green block in bin 2
  Drop block in bin
  Get ready to Intake blocks
  turn to heading 0 degrees
  wait 0.5 seconds
  Intake and score second green block in Bin #2
  Look For a Green Block
  Turn Robot 105 Drive Straight 80 Score In Bin 2
  Intake and score third green block in Bin #2
  Look For a Green Block
  Turn Robot 120 Drive Straight 200 Score In Bin 2
  Intake and score fourth green block in Bin #2
  Look For a Green Block
  Turn Robot 135 Drive Straight 250 Score In Bin 2
  Drive to Bin #3, Intake 1 green block along the way
  drive forward for 510 mm
  Drop first green block in Bin #3
  Turn Robot 45 Drive Straight 140 Score In Bin 3
  turn right for 45 degrees
  Look For a Green Block
  Intake and score second green block in Bin #3
  Turn Robot 110 Drive Straight 180 Score In Bin 3
  Drive to supply zone and hit red blocks along the way
  turn right for 30 degrees
  Lift arm while driving to the supply zone
  spin ArmMotorGroup up for 100 degrees and don't wait
  drive forward for 220 mm
  turn right for 15.5 degrees
  stop IntakeMotorGroup
  drive forward for 1300 mm
  Stop the project immediately to stop the timer
  stop project

```

define Turn Robot Degrees Drive Straight Millimeter Score In Bin Bin Number

This functions turns the robot, drives it towards the bin, and spits out the blocks into the bin.

Input Parameters:

- Degrees: The angle to turn the robot
- Millimeter: Distance to drive the robot to get to bin
- Bin Number: The bin number to score in

Raise the arm to the height of the bin

spin ArmMotorGroup to position BinHeight degrees and don't wait

Depending on which side the bin is on, you turn to the bin direction.

If it is Bin #1, the blocks are on the left of the bin, so turn right

If it is bin 2 or bin 3, the blocks are on the right of the bin, so turn left.

if Bin Number = 1 then

turn right for Degrees degrees

else if Bin Number = 2 then

turn left for Degrees degrees

else if Bin Number = 3 then

turn left for Degrees degrees

else

turn right for Degrees degrees

Drive towards the bin and drop the blocks

drive forward for Millimeter mm

Drop block in bin

Go back to the beginning and get ready to intake more blocks

drive reverse for Millimeter mm

Get ready to intake blocks

Turn the robot to the starting direction, reverse the direction turned in the beginning

if Bin Number = 1 then

turn left for Degrees degrees

else if Bin Number = 2 then

turn right for Degrees degrees

else if Bin Number = 3 then

turn right for Degrees degrees

else

turn left for Degrees degrees

define

Look For a Green Block

This function looks for a block
Drive forward until the robot
encounters an object

while

not

FrontOptical ▼

found an object?

drive

forward ▼

wait

0.2

seconds

define

Get ready to intake blocks

This function sets the robot up to get blocks. Prepare the arm and sweeper for taking in blocks

spin

IntakeMotorGroup ▾

intake ▾

spin

ArmMotorGroup ▾

to position

0

degrees ▾

and don't wait

define

Drop block in bin

This function drops the block in the bin
Keep spinning the sweeper outwards as
long as there are blocks in the robot

while

FrontOptical ▼

found an object?

spin

IntakeMotorGroup ▼

outtake ▼

wait

0.2

seconds