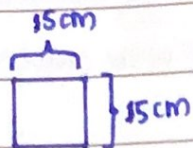


White box placement  $\rightarrow$  Right #FFFFFF

Black box placement  $\rightarrow$  left #000000



Distance  $\rightarrow$  X colour  $\rightarrow$  hex?

Proximity sensor

sensitivity input

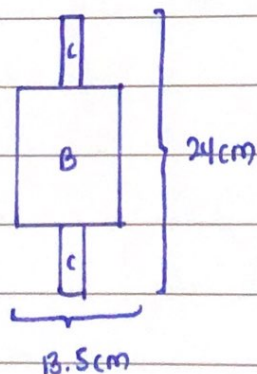
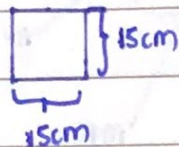
100cm

① Start with the left set of boxes

② If condition of box is validated then move on to the opposite box.

③ Check condition for the colour validation

④ If false use claw and pickup box



[Robot dimensions]

FUNCTION CheckColour (ColourSensorInput : STRING) RETURNS STRING

DECLARE InputColour : STRING.

Black = "#000000"

White = "#FFFFFF"

InputColour ← ColourSensorInput.

IF InputColour = Black THEN

RETURN "Black"

ELSE IF InputColour = White THEN

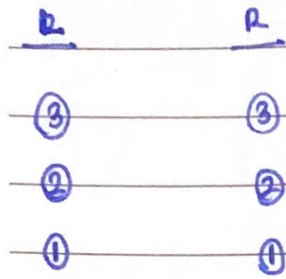
RETURN "White"

ENDIF

ENDFUNCTION

Vera

(4) Paths that are needed to be coded



FOR L3

- $(3 \rightarrow 3)$  and inverse (x)
- $(3 \rightarrow 2)$  and inverse
- $(3 \rightarrow 1)$  and inverse

FOR L2

- $(2 \rightarrow 3)$  and inverse
- $(2 \rightarrow 2)$  and inverse (y)
- $(2 \rightarrow 1)$  and inverse

FOR L1

- $(1 \rightarrow 3)$  and inverse
- $(1 \rightarrow 2)$  and inverse
- $(1 \rightarrow 1)$  and inverse (z)

Same logic can be used for (x), (y) and (z)



## main Program

// Greet the robot to the first left branch

DECLARE LeftSort : BOOLEAN

DECLARE SensorColourInput : STRING

LeftSort ← FALSE

SensorColourInput ← "-" / ## Null

WHILE LeftSort = FALSE

• // Input value from colour sensor into [ColourSensorInput]

INPUT ColourSensorInput

IF checkColour (ColourSensorInput) = "Black" THEN

// move robot to the second row

INPUT ColourSensorInput

IF checkColour (ColourSensorInput) = "Black" THEN

// move robot to the third row

INPUT ColourSensorInput

IF checkColour (ColourSensorInput) = "Black" THEN

LeftSort ← TRUE

ELSE

// use claw to carry box

[3 → 3] // move opposite side of the robot to the 3<sup>rd</sup> row of the right side

INPUT ColourSensorInput

IF checkColour (ColourSensorInput) = "Black" THEN

// Grab block on the right side

// Rotate robot by 180°

// Place block on right side

// Place block on left side after moving back  $[3 \rightarrow 3]$  inv

ELSE

// move to row - 2 right branch  $[3 \rightarrow 2]$

INPUT ColourSensorInput

IF checkColour(ColourSensorInput) = "Black" THEN

// Grab block on the right

// Rotate by 180° 3

// Place block on right side

$[3 \rightarrow 2]$  inv // Go back to row <sup>3</sup> on the left and place other block

ELSE

// move to row - 1 right branch  $[3 \rightarrow 1]$

INPUT ColourSensorInput

IF checkColour(ColourSensorInput) = "Black" THEN

// Grab block on the right

// Rotate by 180°

// Place block on the right side

$[3 \rightarrow 1]$  inv // Go back to row <sup>3</sup> on the left and place other block

ENDIF

ENDIF

ENDIF

ENDIF

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ELSE

```

// Use claw to carry box from left branch
// move to the 3rd Row of the right side [2 → 3]
INPUT colourSensorInput
IF checkColour( colourSensorInput) = "black" THEN
    // Grab block on the right side
    // Rotate robot by 180°
    // Place block on the right side
[2 → 3] inv] // Go back to row 2 on the left and place other block
ELSE
    // move to the 2nd row on the right side [2 → 2]
    INPUT colourSensorInput
    IF checkColour( colourSensorInput) = "Black" THEN
        // Grab block on the right side
        // Rotate 180°
        // Place block
[2 → 2] inv] // Go back to row 2 on the left and place other block
    ELSE
        // move to the 1st Row on the right side [2 → 1]
        INPUT colourSensorInput
        IF checkColour( colourSensorInput) = "Black" THEN
            // grab black on the right side
            // Rotate 180°
            // Place block
[2 → 1] inv] // Go back to row 2 on the left and place other block
        ENDIF
    ENDIF
ENDIF
ENDIF
ENDIF
ENDIF

```



ELSE

// use claw to carry the box on the left side

// move to the 3<sup>rd</sup> row on the right side [1 → 3]

INPUT ColourSensorInput

IF CheckColour (ColourSensorInput) = "Black" THEN

// Grab box on the right branch

// rotate robot by 180

// Place box on the right side

[1 → 3] inv // Go back to the first row of the left side and place other block

ELSE

// move to the 2<sup>nd</sup> row on the right side [1 → 2]

INPUT ColourSensorInput

IF CheckColour (ColourSensorInput) = "Black" THEN

// Grab box on the right branch.

// rotate robot by 180

// Place box on the right side.

[1 → 2] inv // Go back to the 1<sup>st</sup> row of the left side and place other block

ELSE

// move to the 1<sup>st</sup> row on the right side [1 → 1]

INPUT ColourSensorInput

IF CheckColour (ColourSensorInput) = "Black" THEN

// Grab box on the right branch

// rotate robot by 180

// Place box on the right side

[1 → 1] inv // Go back to the 1<sup>st</sup> row of the left side and place other block

ENDIF

ENDIF

ENDIF

ENDIF

ENDWHILE

IF LeftSort = TRUE THEN

// Take Robot to the end point.

And external end point by following the path