**Find Homebase – R&B**

0.1. Check distance to wall.

0.2. If too far close distance until within safe limit, if already safe distance ignore step.

0.3. Check Colour, store colour, rotate right 45 degrees until can’t see colour, then move forward, if only one colour is found twice repeat previous step.

1. If colour red & blue beep to show success. \*\*\*\*

2.1. If red and black detected, turn left 90 degrees from red or 180 degrees from black.

2.2. Travel until you reach the other wall.

2.3. Check if wall is blue, if blue, continue, if not, restart.

2.4. Turn 90 degrees right, check distance, if close enough check colour, if not, close distance before checking colour.

2.5. Turn 90 degrees left, check distance, if close enough check colour, if not, turn right 20 degrees before closing distance and then checking colour.

2.6. Repeat step 2.4 & 2.5 until it can detect red and blue, beep to show success. \*\*\*\*

3. If Blue and yellow are detected, do 2.1 to 2.6 in reverse.

4.1. If Yellow and Black detected, if facing black turn 90 degrees Left or if facing yellow turn 180 degrees left, before heading to wall

4.2. Then do from step 2.3

If home base is Red and Blue

Set Corner1 = Red

Set Corner2 = Blue

Set Corner3 = Yellow

Set Corner4 = Black

Command Findwall

Set Passed = false

For

Colour1 = ColourSensor

For

Rotate right 45 Degrees

While Colour1 == ColourSensor

Command FindWall

Colour2 = ColourSensor

If Colour1 != Colour2

Set Passed = true

While Passed == false

Set FoundBase = false

If Colour1 == Corner1 && Colour2 == Corner2 || Colour1 == Corner2 && Colour2 == Corner1

Set FoundBase = true

Else If Colour1 == Corner1 && Colour2 == Corner4 | Colour2 == Corner1 && Colour1 == Corner4

If Colour1 == Corner1

Rotate 180 degrees Left

Else If Colour1 == Corner4

Rotate 90 degrees Left

Command Findwall

For

If ColourSensor == Corner2

Colour1 = Corner2

Rotate right 90 degrees

Command FindWall

If ColourSensor == Corner1

Colour2 = Corner1

Rotate left 90 degrees

Command FindWall

While Colour1 != Corner2 && Colour2 != Corner1

Set FoundBase = true

Else If Colour1 == Corner2 && Colour2 == Corner3 | Colour2 == Corner2 && Colour1 == Corner3

If Colour1 == Corner2

Rotate 180 degrees Right

Else If Colour1 == Corner3

Rotate 90 degrees Right

Command Findwall

For

If ColourSensor == Corner1

Colour1 = Corner1

Rotate Left 90 degrees

Command FindWall

If ColourSensor == Corner2

Colour2 = Corner2

Rotate Right 90 degrees

Command FindWall

While Colour1 != Corner1 && Colour2 != Corner2

Set FoundBase = true

Else If (Colour1 == Corner4 && Colour2 == Corner3 | Colour2 == Corner4 && Colour1 == Corner3) && (Corner1 == Corner1 && Corner2 == Corner2)

If Colour1 == Corner4

Rotate 180 degrees Left

Else If Colour1 == Corner3

Rotate 90 degrees Left

Command FindWall

Rotate 90 Degrees Left

For

If ColourSensor == Corner2

Colour1 = Corner2

Rotate right 90 degrees

Command FindWall

If ColourSensor == Corner1

Colour2 = Corner1

Rotate left 90 degrees

Command FindWall

While Colour1 != Corner2 && Colour2 != Corner1

Set FoundBase = true

**Find White block**

1. Create range having the minimum as a stored variable that starts at zero, and having the maximum as the highest distance of distance sensor.

2. Store the number of the distance senor into the minimum range, minus a bit.

3. Rotate tiny bit to the right.

4. Repeat steps 2 & 3 until range breaks.

5. Head towards break until distance is close, and then check colour.

6. If white, success, if not, start from 2