**Find the Blob**

Complete this lab in groups of 2 and use the simulator. Your teacher will provide you with a python file with the code to place the blobs in the simulator. There will be an area designated for your code to find the blobs. Write your code there!

**Prompt:**

Your robot needs to find a blob! The scribbler loves blobs! Use if statements, while loops, AND the given helper function to help your robot find either red, green, blue, or yellow blobs.

**Write a plan and algorithm before you begin coding!** Let a teacher, TA, or TF verify your plan won’t destroy the building then go ahead and start coding!

Functions you can use:

picture = takePicture() - returns a picture of everything in front of the robot and stores it in picture

getWidth( picture ) - returns the width of the picture (the length of the  “x-axis”)

(optional) show( picture ) - displays the picture

**Helpful Hints:**

**Your robot can take pictures!**

|  |  |
| --- | --- |
| https://lh3.googleusercontent.com/GBEECrcGs0ppxK22ZDOfGVZWkbgFtoshiBZDJ8OD83tJWxBYzG59WCJixbKsWPnGsB73vltVSThlMkLNvVB6tkjAt6t4VKt0-djB7QwAV7irDmCpcwarjg0vASeOSeG7Vbi1GcI | To take a picture simply do:  takePicture()  To save this picture into a variable so it can be shown, simply do:  pic = takePicture()  show(pic) |

Use the helper function **findColorSpot(picture, color)** so the robot can look for a blob! Once the robot takes a picture it needs to search for the location of the blob in the picture. For example, if you are looking for a red blob and a photo is stored you would use the function like so:

findColorSpot(pic, 1)

The helper function does not understand “red” or “blue”, you MUST pass in the following numbers for each color:  **RED = 1, GREEN = 2, BLUE = 3, YELLOW = 4**

The helper function will return a number. That number is approximately on the X axis where the blob is The picture is 256 pixels wide. If there is NO blob in the picture it will return 0, if it’s right next to the blob it will return -1.

x = findColorSpot(pic,1)

print(x)

>>> 120

What happens when the robot doesn’t see any blobs? **HINT:** Randomness is super important in many areas of science, like natural selection in biology for example. Randomness is how the roomba robot works: <https://www.youtube.com/watch?v=8Jke6pUO0T0&feature=youtu.be>

To get a random number in python use: randrange(LOWER BOUND NUMBER, UPPER BOUND NUMBER).

**Bonuses:**

- What if your robot wants to find another blob after it’s already found one? Can you randomly get the robot to find blobs of different colors?