CSE435 – Robotics

Lab 1 - Introduction to RobotBasic Simulator

General Notes

- Commands in RobotBASIC are **not case-sensitive**.
- The simulator "run screen" is **800 × 600 pixels** (width × height).
- Parameters in square brackets [ ] are optional. If omitted, RobotBASIC uses defaults.
- The screen origin (0,0) is **top-left**. Increasing x moves right, increasing y moves down.

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1. Initializing a Robot

```
rLocate x, y, [heading, size, color]
```

Parameter	Meaning / Default	Notes
x, y	Coordinates in the screen	x,y are coordinates of the center of the robot
heading	Direction in degrees	Default = 0 (facing upward). Positive values clockwise
size	Diameter in pixels	Default = 20 (range 5 → 50)
color	Color of the robot	Default = blue

Examples:

```
rLocate 400, 300
rLocate 100, 100, 45, 30, red
```

To print x and y values

```
print(rGpsX())
print(rGpsY())
```

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2. Animating the Robot

Moving Forward / Backward

```
rForward value
```

- value in pixels.
- Positive → move forward.
- Negative → move backward.

Turning

rTurn dvalue

- dvalue in degrees.
- Positive → clockwise.
- Negative → counterclockwise.

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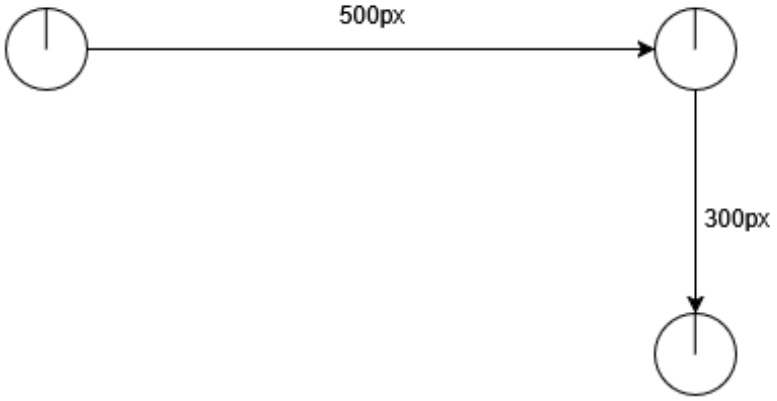
3. Controlling Robot Speed

rSpeed value

- Larger value = **slower movement** (easier to observe).
- Smaller value = **faster movement**.

Example



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4. Drawing Obstacles / Shapes

Circle

circle x1, y1, x2, y2, [outlineColor, fillColor]

- (x1, y1) and (x2, y2) define the **bounding rectangle** of the circle/ellipse.
- Optional: outline color and fill color.

Rectangle

rectangle x1, y1, x2, y2, [outlineColor, fillColor]

- (x1, y1) = upper-left corner.
- (x2, y2) = lower-right corner.
- Optional: outline color and fill color.