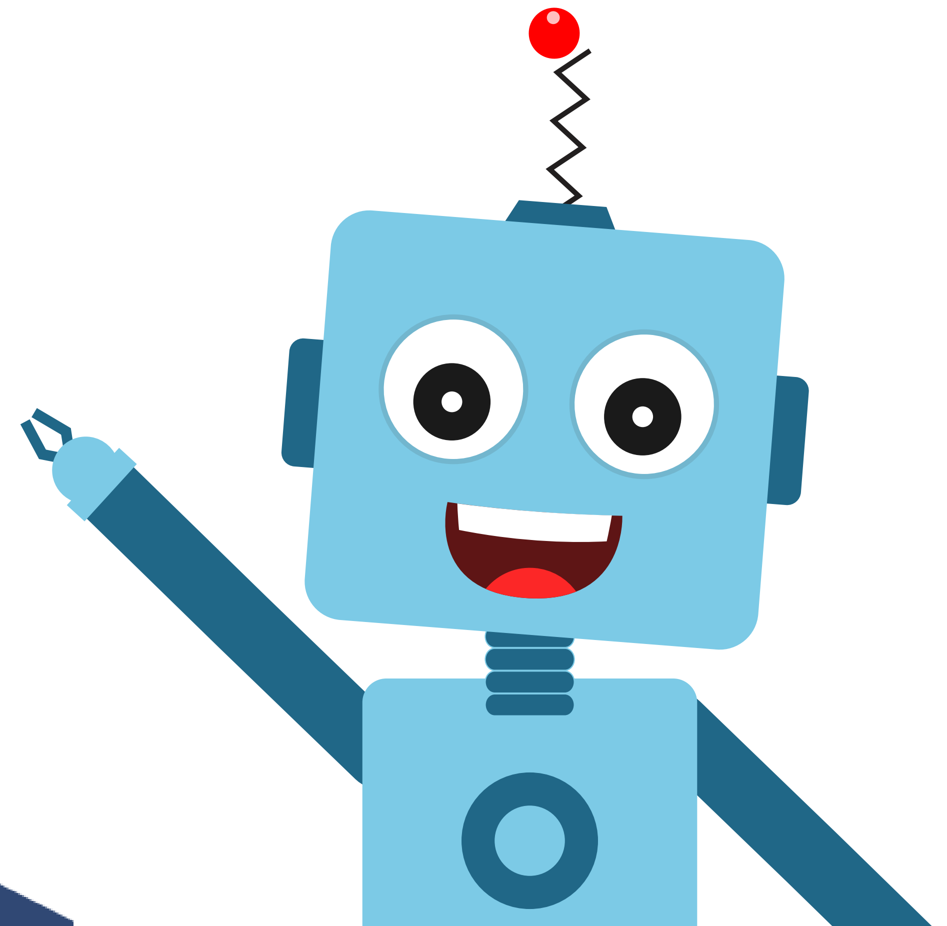
Basic of Robotics

Session 18



Introduction

A ***robot***, in simple words, is any machine designed to carry out a task. This would make you say, “So, a calculator, a PC, a vacuum cleaner – all these are also robots?” Not exactly. Robots are machines that use programming to make decisions and carry out tasks. For e.g. a screwdriver is a machine because it carries out the task of fastening a screw, and reduces human effort (who knew defining a machine could be this simple?!). But it is not a robot. If we combine it with a robotic arm, then the entire thing can be called a robot.

Understanding the logic

Logic

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Wonder! You can now control your Quarky wireless with your mobile too!

1. Using the **up-arrow** key, we will make Quarky move **forward**.
2. Using the **down-arrow** key, we will make it move **backward**.
3. Using the **right-arrow** key, it will move **right**.
4. Using the **left-arrow** key, it will move **left**.

When none of the arrow keys is pressed, Quarky should stop moving.

Understanding the logic

Forward Motion

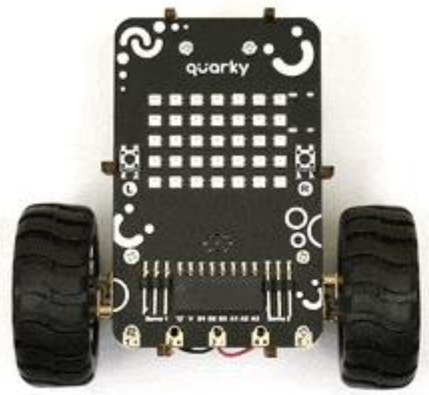
Left - Forward
Right - Forward

Backward Motion

Left - Backward
Right - Backward

Left Motion

Left Motor - Stop
Right Motor - Forward



Right Motion

Left Motor - Forward
Right Motor - Backward

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Activity: Move Robot in Square

Make a Square

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- Select The Bluetooth Port from the Connect option. Make sure that the quarky is running and the Pictoblox Link software is running on the device. Select the Quarky and connect it by clicking on connect.
- Now, select the Tobi.py file from the Project Files section and by default, the syntax will be written in sprite as an object.
- We will use in this activity and write -related functions. We need to define an object for Quarky, like we did for the sprite.
- We need to use the Python time module to have a certain time gap between the display of two emotions on Quarky. Quarky We must import it before starting.

Make Square with Robot

Forward Motion

```
sprite = Sprite('Tobi')
quarky = Quarky()
import time
## Forward Motion
quarky.runmotor("L", "FORWARD", 80)
quarky.runmotor("R", "FORWARD", 80)
time.sleep(1)

quarky.stopmotor("L")
quarky.stopmotor("R")
```

Robot Forward Motion

Backward Motion

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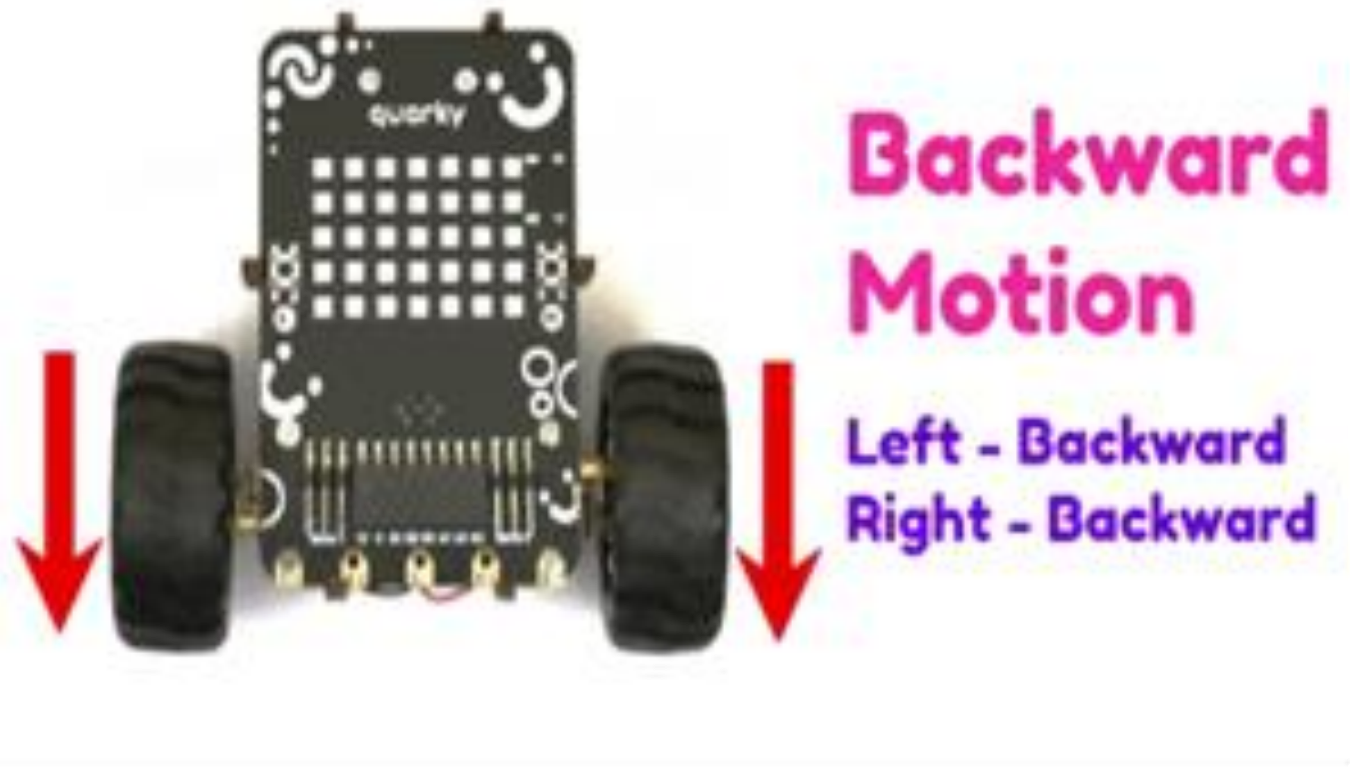
```
sprite = Sprite('Tobi')
quarky = Quarky()
import time

## Backward Motion
quarky.runmotor("L", "BACKWARD", 80)
quarky.runmotor("R", "BACKWARD", 80)
time.sleep(1)

quarky.stopmotor("L")
quarky.stopmotor("R")
```



Robot Backward Motion

Left Motion

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```
sprite = Sprite('Tobi')
quarky = Quarky()
import time

## Left Motion
quarky.runmotor("L", "BACKWARD", 80)
quarky.runmotor("R", "FORWARD", 80)
time.sleep(1)

quarky.stopmotor("L")
quarky.stopmotor("R")
```

Robot Left Motion

Right Motion


```
sprite = Sprite('Tobi')
quarky = Quarky()
import time

## Right Motion
quarky.runmotor("L", "FORWARD", 80)
quarky.runmotor("R","BACKWARD",80)
time.sleep(1)

quarky.stopmotor("L")
quarky.stopmotor("R")
```

Robot Right Motion

Right & Left Motion

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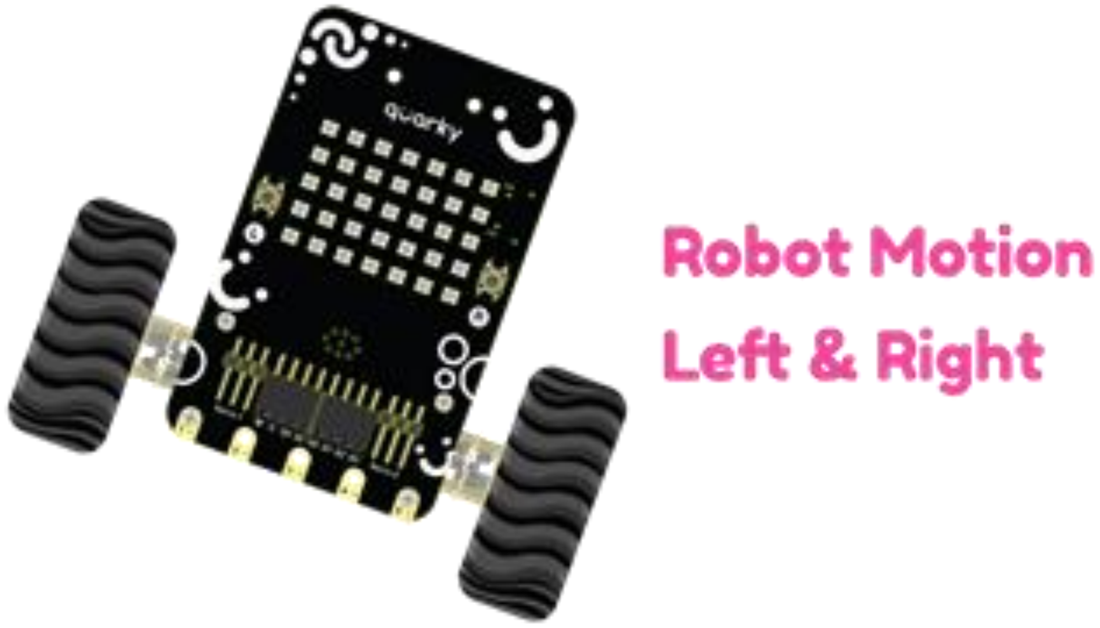
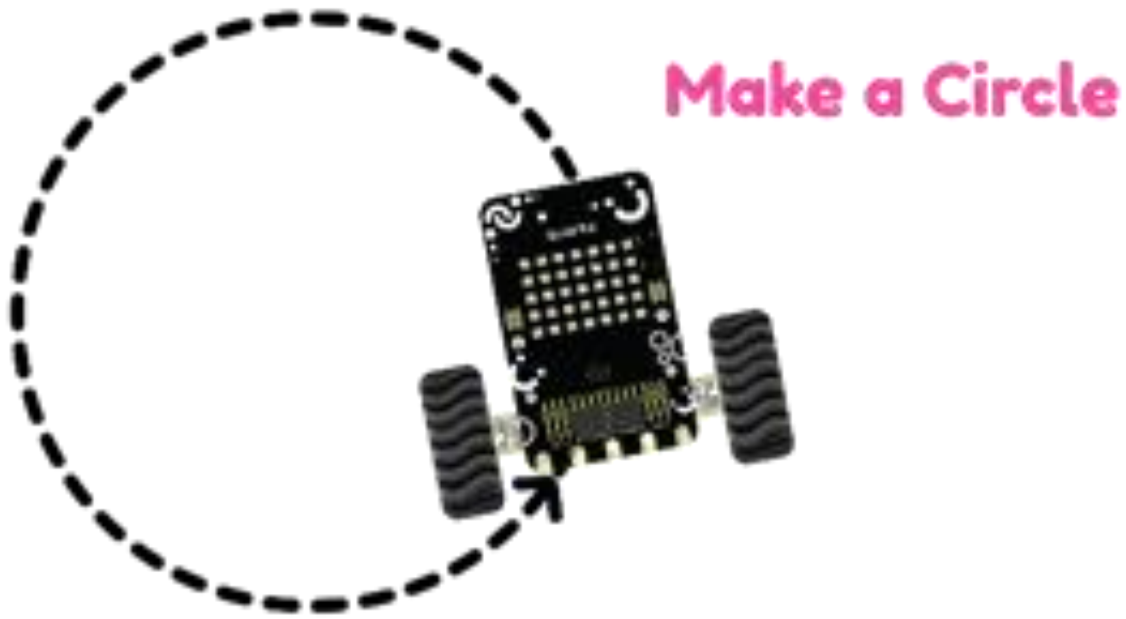
```
sprite = Sprite('Tobi')
quarky = Quarky()
import time
while True:
  quarky.runmotor("L", "FORWARD", 50)
  time.sleep(1)
  quarky.stopmotor("L")
  time.sleep(0.5)
  quarky.runmotor("R", "FORWARD", 50)
  time.sleep(1)
  quarky.stopmotor("R")
  time.sleep(0.5)
```



Robot Left & Right Motion

Circle Motion


```
sprite = Sprite('Tobi')

quarky = Quarky()

import time


## Circle Motion

quarky.runmotor("L", "FORWARD", 80)

quarky.runmotor("R", "FORWARD", 25)
```



Robot Circle Motion

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