

# A PharosThings Tutorial

Alex Oliveira

January 5, 2019

Copyright 2017 by Alex Oliveira.

The contents of this book are protected under the Creative Commons Attribution-ShareAlike 3.0 Unported license.

You are **free**:

- to **Share**: to copy, distribute and transmit the work,
- to **Remix**: to adapt the work,

Under the following conditions:

**Attribution.** You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).

**Share Alike.** If you alter, transform, or build upon this work, you may distribute the resulting work only under the same, similar or a compatible license.

For any reuse or distribution, you must make clear to others the license terms of this work. The best way to do this is with a link to this web page:

<http://creativecommons.org/licenses/by-sa/3.0/>

Any of the above conditions can be waived if you get permission from the copyright holder. Nothing in this license impairs or restricts the author's moral rights.



Your fair dealing and other rights are in no way affected by the above. This is a human-readable summary of the Legal Code (the full license):

<http://creativecommons.org/licenses/by-sa/3.0/legalcode>

# Contents

<b>Illustrations</b>	<b>ii</b>
<b>1 Lesson 5 - LED Flowing Lights using OOP</b>	<b>1</b>

# Illustrations



## Lesson 5 - LED Flowing Lights using OOP

Now we can play with the LEDs, turn them on, off, blink it and manipulate many at the same time. Let's use object-oriented programming, OOP to create methods and classes, to build a simple program, to control the LEDs flow like as we want.

```
leds := Flowing new.  
leds times: 2 delay: 0.1 direction: 'lrl'.  
leds flowStart.  
leds flowStop.  
leds turnOn.  
leds turnOff.
```

```
Object subclass: #Flowing  
  instanceVariableNames: 'ledArray flowProcess flowDirection  
    toggleDelay timesRepeat'  
  classVariableNames: ''  
  package: 'PharoThings-Lessons'
```

```
initialize  
  ledArray := {  
    (PotGPIOPin id: 17 number: 0).  
    (PotGPIOPin id: 18 number: 1).  
    (PotGPIOPin id: 27 number: 2).  
    (PotGPIOPin id: 22 number: 3).  
    (PotGPIOPin id: 23 number: 4).  
    (PotGPIOPin id: 24 number: 5).  
    (PotGPIOPin id: 25 number: 6).  
    (PotGPIOPin id: 4 number: 7)  
  }.  
..
```

```

[
    ledArray do: [ :item | item board: RpiBoardBRev2 current;
        beDigitalOutput; value:0 ].
    timesRepeat := 2.
    toggleDelay := 0.5.
    flowDirection := 'lr'.

[
    times: anInteger delay: aNumber direction: aString
    timesRepeat := anInteger.
    toggleDelay := aNumber.
    flowDirection := aString

[
    flowDirection
    ^flowDirection

[
    flowTimesRepeat
    ^timesRepeat

[
    toggleDelay
    ^toggleDelay

[
    flowStart
    flowProcess := [ (self flowTimesRepeat) timesRepeat: [
        self action
    ] ] forkNamed: 'FlowingProcess'.

[
    flowStop
    flowProcess terminate

[
    action
    flowDirection do: [ :character | character == $l ifTrue: [ ledArray
        do: self toggleLedArray ].
        character == $r ifTrue: [ ledArray
        reverseDdo: self toggleLedArray ] ]

[
    toggleLedArray
    ^[ :item | item toggleDigitalValue. (Delay forSeconds: self
        toggleDelay) wait ]

[
    turnOn
    ledArray do: [ :item | item value:1 ].

[
    turnOff
    ledArray do: [ :item | item value:0 ].

```