

# A PharoThings Tutorial

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December 20, 2018

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# 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 = 'lr' ifTrue: [ ledArray do: self toggleLedArray ].
    flowDirection = 'rl' ifTrue: [ ledArray reverseDo: self
        toggleLedArray ].
    flowDirection = 'lrl' ifTrue: [ ledArray do: self toggleLedArray;
        reverseDo: self toggleLedArray ].
    flowDirection = 'rlr' ifTrue: [ ledArray reverseDo: self
        toggleLedArray; do: 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 ].

```