Code\_generator

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# **Chapter 1**

# Namespace Index

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Here are the packages with brief descriptions (if available):

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configurator .																								Ę
framework																								6
microcontrolle	r																							6
xmlCreator .																								7
xmlParser			 						 													 		7

2 Namespace Index

# **Chapter 2**

# **Class Index**

# 2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

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mon.ErrorCode	10
mon.Features	11
ocontroller.Microcontroller	13
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igurator.GPIO.OutType	16
ocontroller.Pin	17
igurator.PinConf	
igurator.GPIO.Pull	41
igurator.GPIO.Speed	42
Parser.TestMain	42
Parser.XmlOpener	43

4 Class Index

# **Chapter 3**

# **Namespace Documentation**

# 3.1 Package common

#### **Classes**

- enum ErrorCode
- class Features

# 3.1.1 Detailed Description

Common information that needs to be accessed across all the project

**Author** 

Miguel Diaz

Version

0.1

# 3.2 Package configurator

### **Classes**

· class PinConf

# 3.2.1 Detailed Description

Configuration classes

**Author** 

Miguel Diaz

Version

0.1

# 3.3 Package framework

# 3.3.1 Detailed Description

Framework information

Author

H112943

Version

0.1

# 3.4 Package microcontroller

#### Classes

- · class Microcontroller
- class Pin

# 3.4.1 Detailed Description

Microcontroller related classes

Author

Miguel Diaz

Version

0.1

# 3.5 Package xmlCreator

#### Classes

class ConfXmlWriter

# 3.5.1 Detailed Description

Create configuration XML

**Author** 

Miguel Diaz

Version

0.1

# 3.6 Package xmlParser

#### Classes

- class TestMain
- class XmlOpener

# 3.6.1 Detailed Description

XML parser for microcontroller information and project settings

Author

Miguel Diaz

Version

0.1

# **Chapter 4**

# **Class Documentation**

# 4.1 xmlCreator.ConfXmlWriter Class Reference

# **Public Member Functions**

- ConfXmlWriter (int pins)
- void addPin (PinConf pin, int pinNum)
- void writeXml (String fileName)

# 4.1.1 Detailed Description

Write a XML file

Author

Miguel Diaz

Version

0.1

# 4.1.2 Constructor & Destructor Documentation

#### 4.1.2.1 ConfXmlWriter()

```
 \begin{tabular}{ll} xmlCreator.ConfXmlWriter.ConfXmlWriter (\\ int pins ) \end{tabular}
```

Create configuration file

#### **Parameters**

pins	Total number of GPIO pins to save
------	-----------------------------------

# 4.1.3 Member Function Documentation

#### 4.1.3.1 addPin()

Add a pin configuration to the file

#### **Parameters**

pin	Pin configuration							
pinNum	Number of GPIO pin							

# 4.1.3.2 writeXml()

```
\begin{tabular}{ll} \beg
```

Write the XMI file

# **Parameters**

fileName	Name of XML configuration file

The documentation for this class was generated from the following file:

• src/xmlCreator/ConfXmlWriter.java

# 4.2 common.ErrorCode Enum Reference

# **Public Attributes**

NO\_ERROR

# 4.2.1 Detailed Description

Error codes enum

**Author** 

Miguel Diaz

Version

0.1

#### 4.2.2 Member Data Documentation

#### 4.2.2.1 NO\_ERROR

common.ErrorCode.NO\_ERROR

No error message

The documentation for this enum was generated from the following file:

· src/common/ErrorCode.java

# 4.3 common. Features Class Reference

#### **Static Public Member Functions**

- static void verbosePrint (String verboseMessage)
- static void debugPrint (String debugMessage)

# **Static Public Attributes**

- static final boolean DEBUG = false
- static final boolean VERBOSE = true
- static final String VERBOSE\_STR = "# "
- static final String DEBUG\_STR = "#\$"

### 4.3.1 Detailed Description

Class that includes all project features

**Author** 

Miguel Diaz

Version

0.1

#### 4.3.2 Member Function Documentation

# 4.3.2.1 debugPrint()

Print Debug message to console

#### **Parameters**

# 4.3.2.2 verbosePrint()

Print Verbose message to console

#### **Parameters**

verboseMessage   Message to displa	y	
------------------------------------	---	--

# 4.3.3 Member Data Documentation

#### 4.3.3.1 DEBUG

```
final boolean common.Features.DEBUG = false [static]
```

Enables debug functions

#### 4.3.3.2 DEBUG\_STR

```
final String common.Features.DEBUG_STR = "#$ " [static]
```

Debug messages indicator on system console

#### 4.3.3.3 VERBOSE

```
final boolean common.Features.VERBOSE = true [static]
```

Enables console messages

#### 4.3.3.4 VERBOSE\_STR

```
final String common.Features.VERBOSE_STR = "# " [static]
```

Verbose messages indicator on system console

The documentation for this class was generated from the following file:

· src/common/Features.java

# 4.4 microcontroller.Microcontroller Class Reference

# **Public Member Functions**

- Microcontroller (Document ucDoc)
- ErrorCode processDocument ()
- Pin getPin (int pinNum)
- String getUc\_model ()
- String getUc\_manufacturer ()
- int getUc\_pinNum ()
- int getUc\_gpioNum ()

# 4.4.1 Detailed Description

Microcontroller related methods

Author

Miguel Diaz

Version

0.1

#### 4.4.2 Constructor & Destructor Documentation

#### 4.4.2.1 Microcontroller()

```
\label{eq:microcontroller} \mbox{\tt microcontroller.Microcontroller} \ \mbox{\tt (} \\ \mbox{\tt Document} \ \ \mbox{\tt $ucDoc$} \mbox{\tt )}
```

Constructor

#### **Parameters**

ucDoc	Document obtained from XML file
40200	Doddinon obtained nom xivie me

#### 4.4.3 Member Function Documentation

#### 4.4.3.1 getPin()

Get a pin's characteristics

#### **Parameters**

pinNum	Number of pin
--------	---------------

#### Returns

Pin's characteristics

# 4.4.3.2 getUc\_gpioNum()

```
int microcontroller.Microcontroller.getUc_gpioNum ( )
```

Get the number of GPIOs in the microcontroller

#### Returns

Number of GPIOs

# 4.4.3.3 getUc\_manufacturer()

```
String microcontroller.Microcontroller.getUc_manufacturer ( )
```

Get the microcontroller's manufacturer

#### Returns

Microcontroller's manufacturer

# 4.4.3.4 getUc\_model()

String microcontroller.Microcontroller.getUc\_model ()

Get the microcontroller's model

#### Returns

Microcontroller's model

#### 4.4.3.5 getUc\_pinNum()

int microcontroller.Microcontroller.getUc\_pinNum ( )

Get the microcontroller's pins number

#### Returns

Number of pins

#### 4.4.3.6 processDocument()

 ${\tt ErrorCode} \ {\tt microcontroller.Microcontroller.processDocument} \ \ (\ )$ 

Process the document obtained from XML file

#### Returns

Error status

The documentation for this class was generated from the following file:

• src/microcontroller/Microcontroller.java

# 4.5 configurator.GPIO.Mode Enum Reference

# **Public Attributes**

- MODE\_INPUT
- MODE\_OUTPUT
- MODE\_ALTERNATE\_FUNCTION
- MODE\_ANALOG

# 4.5.1 Detailed Description

**GPIO** modes

**Author** 

Miguel Diaz

Version

0.1

The documentation for this enum was generated from the following file:

• src/configurator/GPIO/Mode.java

# 4.6 configurator.GPIO.OutType Enum Reference

**Public Attributes** 

- · OTYPE\_PUSH\_PULL
- OTYPE\_OPEN\_DRAIN
- · OTYPE\_NOT\_AVAILABLE

# 4.6.1 Detailed Description

Pin's output type

**Author** 

Miguel Diaz

Version

0.1

The documentation for this enum was generated from the following file:

· src/configurator/GPIO/OutType.java

### 4.7 microcontroller.Pin Class Reference

#### **Public Member Functions**

- Pin ()
- void setFunc\_vcc (boolean funcState)
- boolean getFunc\_vcc ()
- void setFunc\_gnd (boolean funcState)
- boolean getFunc\_gnd ()
- void setFunc\_gpio (boolean funcState)
- boolean getFunc\_gpio ()
- void setFeat\_int (boolean featState)
- boolean getFeat\_int ()
- void setFeat\_adc (boolean featState)
- boolean getFeat\_adc ()
- void setFeat\_uart (boolean featState)
- boolean getFeat\_uart ()
- void setFeat\_i2c (boolean featState)
- boolean getFeat\_i2c ()
- void setFeat\_spi (boolean featState)
- boolean getFeat\_spi ()
- void setFeat\_clock (boolean featState)
- boolean getFeat\_clock ()
- void setFeat\_timer (boolean featState)
- boolean getFeat\_timer ()
- void setFeat\_reset (boolean featState)
- boolean getFeat\_reset ()
- void setInt (String feature)
- · String getInt ()
- void setAdc (String feature)
- String getAdc ()
- void setUart (String feature)
- String getUart ()
- void setI2c (String feature)
- String getI2c ()
- void setSpi (String feature)
- String getSpi ()
- void setClock (String feature)
- String getClock ()
- void setReset (String feature)
- String getReset ()
- void setTimer (String feature)
- String getTimer ()
- void setName (String pinName)
- · String getName ()
- void setNumber (int pinNum)
- int getNumber ()
- void setPort (String pinPort)
- String getPort ()
- · boolean isValid ()

### 4.7.2 Constructor & Destructor Documentation

```
4.7.2.1 Pin()
microcontroller.Pin.Pin ( )
Initialize all pin's characteristics and features to their default values
4.7.3 Member Function Documentation
4.7.3.1 getAdc()
String microcontroller.Pin.getAdc ( )
Get the pin's ADC name
Returns
     Pin's ADC
4.7.3.2 getClock()
String microcontroller.Pin.getClock ( )
Get the pin's clock name
Returns
     Pin's clock
4.7.3.3 getFeat_adc()
boolean microcontroller.Pin.getFeat_adc ( )
See if the pin has an ADC
```

# Returns

Feature availability

```
4.7.3.4 getFeat_clock()
boolean microcontroller.Pin.getFeat_clock ( )
See if the pin supports a clock
Returns
     Feature availability
4.7.3.5 getFeat_i2c()
boolean microcontroller.Pin.getFeat_i2c ( )
See if the pin has I2C
Returns
     Feature availability
4.7.3.6 getFeat_int()
boolean microcontroller.Pin.getFeat_int ( )
See if the pin has an interruption
Returns
     Feature availability
4.7.3.7 getFeat_reset()
boolean microcontroller.Pin.getFeat_reset ( )
See if the pin has a reset feature
Returns
```

Feature availability

```
4.7.3.8 getFeat_spi()
boolean microcontroller.Pin.getFeat_spi ( )
See if the pin has SPI
Returns
     Feature availability
4.7.3.9 getFeat_timer()
boolean microcontroller.Pin.getFeat_timer ( )
See if the pin supports a timer
Returns
     Feature availability
4.7.3.10 getFeat_uart()
boolean microcontroller.Pin.getFeat_uart ( )
See if the pin has a UART
Returns
     Feature availability
4.7.3.11 getFunc_gnd()
boolean microcontroller.Pin.getFunc_gnd ( )
See if the pin is GND
Returns
     Function availability
```

```
4.7.3.12 getFunc_gpio()
boolean microcontroller.Pin.getFunc_gpio ( )
See if the pin is GPIO
Returns
     Function availability
4.7.3.13 getFunc_vcc()
boolean microcontroller.Pin.getFunc_vcc ( )
See if the pin is Vcc
Returns
     Function availability
4.7.3.14 getl2c()
String microcontroller.Pin.getI2c ( )
Get the pin's I2C name
Returns
     Pin's I2C
4.7.3.15 getInt()
String microcontroller.Pin.getInt ( )
Get the pin's interruption name
Returns
```

Pin's interruption

```
4.7.3.16 getName()
String microcontroller.Pin.getName ( )
Get the pin's name
Returns
     Pin's name
4.7.3.17 getNumber()
int microcontroller.Pin.getNumber ( )
Get the pin's number
Returns
     Pin's number
4.7.3.18 getPort()
String microcontroller.Pin.getPort ( )
Get the pin's port
Returns
     Pin's port
4.7.3.19 getReset()
String microcontroller.Pin.getReset ( )
Get the pin's reset name
Returns
     Pin's reset
```

```
4.7.3.20 getSpi()
String microcontroller.Pin.getSpi ( )
Get the pin's SPI name
Returns
     Pin's SPI
4.7.3.21 getTimer()
String microcontroller.Pin.getTimer ( )
Get the pin's timer name
Returns
     Pin's timer
4.7.3.22 getUart()
String microcontroller.Pin.getUart ( )
Get the pin's UART name
Returns
     Pin's UART
4.7.3.23 isValid()
boolean microcontroller.Pin.isValid ( )
Check if the pin is correctly initialized
Returns
     True if the pin is correctly initialized
4.7.3.24 setAdc()
void microcontroller.Pin.setAdc (
              String feature )
```

Set the pin's ADC

#### **Parameters**

feature Pin's ADC

#### 4.7.3.25 setClock()

Set the pin's clock

#### **Parameters**

feature Pin's clock

#### 4.7.3.26 setFeat\_adc()

Set the pin's ADC feature

#### **Parameters**

featState Feature availability

#### 4.7.3.27 setFeat\_clock()

Set the pin's Clock feature

### **Parameters**

featState Feature availability

# 4.7.3.28 setFeat\_i2c()

Set the pin's I2C feature

#### **Parameters**

featState Feature availability	/
--------------------------------	---

#### 4.7.3.29 setFeat\_int()

Set the pin's interruption feature

#### **Parameters**

featState	Feature availability
-----------	----------------------

# 4.7.3.30 setFeat\_reset()

Set the pin's reset feature

#### **Parameters**

featState	Feature availability
Toutotato	i catale availability

#### 4.7.3.31 setFeat\_spi()

Set the pin's SPI feature

# **Parameters**

featState	Feature availability

#### 4.7.3.32 setFeat\_timer()

Set the pin's timer feature

featState Feature availability	1
--------------------------------	---

#### 4.7.3.33 setFeat\_uart()

Set the pin's UART feature

#### **Parameters**

featState	Feature availability
-----------	----------------------

# 4.7.3.34 setFunc\_gnd()

```
void microcontroller.Pin.setFunc_gnd (
                boolean funcState )
```

Set the pin to GND status

#### **Parameters**

```
funcState Function availability
```

# 4.7.3.35 setFunc\_gpio()

Set the pin to GPIO status

# **Parameters**

funcState	Function availability

# 4.7.3.36 setFunc\_vcc()

Set the pin to Vcc status

funcState Function av	ailability
-----------------------	------------

#### 4.7.3.37 setl2c()

Set the pin's I2C

#### **Parameters**

```
feature Pin's I2C
```

# 4.7.3.38 setInt()

```
void microcontroller.Pin.setInt ( String\ \textit{feature}\ )
```

Set the pin's interruption

#### **Parameters**

```
feature Pin's interruption
```

# 4.7.3.39 setName()

```
void microcontroller.Pin.setName ( {\tt String} \ pinName \ )
```

Set the pin's name

#### **Parameters**

```
pinName Pin's name
```

#### 4.7.3.40 setNumber()

```
void microcontroller.Pin.setNumber ( int \ pinNum \ )
```

Set the pin's number

pinNum | Pin's number

#### 4.7.3.41 setPort()

Set the pin's port

#### **Parameters**

pinPort | Pin's port

# 4.7.3.42 setReset()

Set the pin's reset

#### **Parameters**

feature | Pin's reset

# 4.7.3.43 setSpi()

Set the pin's SPI

#### **Parameters**

feature Pin's SPI

# 4.7.3.44 setTimer()

```
void microcontroller.Pin.setTimer ( String\ \textit{feature}\ )
```

Set the pin's timer

feature	Pin's timer
---------	-------------

# 4.7.3.45 setUart()

Set the pin's UART

#### **Parameters**

feature Pin's UART

# 4.7.4 Member Data Documentation

#### 4.7.4.1 DEF\_FEATURE

```
final String microcontroller.Pin.DEF_FEATURE = DEF_STRING [static]
```

Default value for pin's feature as not available

# 4.7.4.2 DEF\_FEATURE\_AV

```
final boolean microcontroller.Pin.DEF_FEATURE_AV = DEF_BOOLEAN [static]
```

Default value for pin's feature availability as not available

# 4.7.4.3 DEF\_FUNCTION

```
final boolean microcontroller.Pin.DEF_FUNCTION = DEF_BOOLEAN [static]
```

Default value for pin's function as not enabled

#### 4.7.4.4 DEF\_NAME

```
final String microcontroller.Pin.DEF_NAME = DEF_STRING [static]
```

Default value for pin's name

# 4.7.4.5 DEF\_NUMBER

```
final int microcontroller.Pin.DEF_NUMBER = DEF_INT [static]
```

Default value for pin's number

#### 4.7.4.6 DEF\_PORT

```
final String microcontroller.Pin.DEF_PORT = DEF_STRING [static]
```

Default value for pin's port

#### 4.7.4.7 DISABLE

```
final boolean microcontroller.Pin.DISABLE = false [static]
```

Disable value for features and functions

#### 4.7.4.8 ENABLE

```
final boolean microcontroller.Pin.ENABLE = true [static]
```

Enable value for features and functions

The documentation for this class was generated from the following file:

· src/microcontroller/Pin.java

# 4.8 configurator.PinConf Class Reference

#### **Public Member Functions**

- PinConf (Pin gpioPin)
- · boolean is Valid ()
- String getPort ()
- String getPin ()
- · Mode getMode ()
- void setMode (Mode mode)
- OutType getOutType ()
- void setOutType (OutType outType)
- Speed getSpeed ()
- void setSpeed (Speed speed)
- · Pull getPull ()
- void setPull (Pull pull)
- boolean isAv\_Adc ()
- boolean isAv\_altFunc ()

#### **Static Public Attributes**

- static final Mode DF\_MODE = Mode.MODE\_INPUT
- static final Speed DF\_SPEED = Speed.SPEED\_FAST
- static final OutType DF\_OUTTYPE = OutType.OTYPE\_PUSH\_PULL
- static final Pull DF\_PULL = Pull.PULL\_NOT\_AVAILABLE

# 4.8.1 Detailed Description

GPIO pin configuration

Author

Miguel Diaz

Version

0.1

# 4.8.2 Constructor & Destructor Documentation

# 4.8.2.1 PinConf()

Constructor

# **Parameters**

```
gpioPin Pin information
```

# 4.8.3 Member Function Documentation

# 4.8.3.1 getMode()

```
Mode configurator.PinConf.getMode ( )
```

Get the pin's mode configuration

Returns

Mode

```
4.8.3.2 getOutType()
OutType configurator.PinConf.getOutType ( )
Get the pin's output configuration
Returns
     Output configuration
4.8.3.3 getPin()
String configurator.PinConf.getPin ( )
Get the pin's number
Returns
     Pin's number
4.8.3.4 getPort()
String configurator.PinConf.getPort ( )
Get the pin's port
Returns
     Port
4.8.3.5 getPull()
Pull configurator.PinConf.getPull ( )
Get the pin's pull resistor configuration
Returns
```

Pull Resistor configuration

```
4.8.3.6 getSpeed()
Speed configurator.PinConf.getSpeed ( )
Get the pin's speed
Returns
     Speed
4.8.3.7 isAv_Adc()
boolean configurator.PinConf.isAv_Adc ( )
Check availability of ADC
Returns
     True if ADC is available
4.8.3.8 isAv_altFunc()
boolean configurator.PinConf.isAv_altFunc ( )
Check the availability of alternate function
Returns
     True if alternate function is available
4.8.3.9 isValid()
boolean configurator.PinConf.isValid ( )
Check if the GPIO pin is valid
Returns
     True if valid
4.8.3.10 setMode()
void configurator.PinConf.setMode (
              Mode mode )
```

Generated by Doxygen

Set the pin's mode configuration

#### **Parameters**

# 4.8.3.11 setOutType()

Set the pin's output configuration

#### **Parameters**

outType	Output configuration
---------	----------------------

# 4.8.3.12 setPull()

```
void configurator.PinConf.setPull ( \label{eq:pull} \texttt{Pull} \ \texttt{pull} \ \texttt{)}
```

Set the pull resistor configuration

# **Parameters**

```
pull Resistor configuration
```

# 4.8.3.13 setSpeed()

```
\begin{tabular}{ll} \begin{tabular}{ll} void & configurator.PinConf.setSpeed ( \\ & Speed & speed ) \end{tabular}
```

Set the pin's speed

#### **Parameters**

```
speed Speed
```

# 4.8.4 Member Data Documentation

# 4.8.4.1 DF\_MODE

```
final Mode configurator.PinConf.DF_MODE = Mode.MODE_INPUT [static]
```

Default Pin mode

#### 4.8.4.2 DF\_OUTTYPE

```
final OutType configurator.PinConf.DF_OUTTYPE = OutType.OTYPE_PUSH_PULL [static]
```

Default pin's output type

# 4.8.4.3 DF\_PULL

```
final Pull configurator.PinConf.DF_PULL = Pull.PULL_NOT_AVAILABLE [static]
```

Default pin'r pull resistor

#### 4.8.4.4 DF\_SPEED

```
final Speed configurator.PinConf.DF_SPEED = Speed.SPEED_FAST [static]
```

Default pin's speed

The documentation for this class was generated from the following file:

· src/configurator/PinConf.java

# 4.9 configurator.GPIO.Pull Enum Reference

**Public Attributes** 

- · PULL\_UP
- PULL\_DOWN
- · PULL NOT AVAILABLE

# 4.9.1 Detailed Description

Pin's pull resistor

**Author** 

Miguel Diaz

Version

0.1

The documentation for this enum was generated from the following file:

• src/configurator/GPIO/Pull.java

# 4.10 configurator.GPIO.Speed Enum Reference

# **Public Attributes**

- · SPEED\_FAST
- · SPEED\_MEDIUM
- · SPEED\_HIGH
- · SPEED\_NOT\_AVAILABLE

# 4.10.1 Detailed Description

Pin's speed

**Author** 

Miguel Diaz

Version

0.1

The documentation for this enum was generated from the following file:

• src/configurator/GPIO/Speed.java

# 4.11 xmlParser.TestMain Class Reference

# **Static Public Member Functions**

• static void main (String[] openOption)

# 4.11.1 Detailed Description

Dummy main class for testing the other classes

**Author** 

Miguel Diaz

# 4.11.2 Member Function Documentation

```
4.11.2.1 main()
```

Main without GUI

openOption	Options
	include:

The documentation for this class was generated from the following file:

• src/xmlParser/TestMain.java

# 4.12 xmlParser.XmlOpener Class Reference

#### **Public Member Functions**

- · XmlOpener ()
- ErrorCode OpenFile (String fileName)
- Document getParsedDoc ()

# 4.12.1 Detailed Description

Open and process XML files

**Author** 

H112943

Version

0.1

# 4.12.2 Constructor & Destructor Documentation

# 4.12.2.1 XmlOpener()

```
xmlParser.XmlOpener.XmlOpener ( )
```

Constructor

# 4.12.3 Member Function Documentation

# 4.12.3.1 getParsedDoc()

```
Document xmlParser.XmlOpener.getParsedDoc ( )
```

Get the parsed document AFTER opening the file

Returns

Parsed document

# 4.12.3.2 OpenFile()

Open the XML file

fileName   Complete path and	name of XML file
------------------------------	------------------

# Returns

Error code

The documentation for this class was generated from the following file:

• src/xmlParser/XmlOpener.java

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