
AdafruitminiQR Library Documentation

Release 1.0

ladyada

Mar 02, 2021

Contents

1	Dependencies	3
2	Installing from PyPI	5
3	Usage Example	7
4	Contributing	9
5	Documentation	11
6	Table of Contents	13
6.1	Simple test	13
6.2	adafruit_minqr	14
6.2.1	Implementation Notes	14
7	Indices and tables	17
	Python Module Index	19
	Index	21

A non-hardware dependant miniature QR generator library. All native Python!

CHAPTER 1

Dependencies

This driver depends on:

- [Adafruit CircuitPython](#)

Please ensure all dependencies are available on the CircuitPython filesystem. This is easily achieved by downloading the [Adafruit library and driver bundle](#).

CHAPTER 2

Installing from PyPI

On supported GNU/Linux systems like the Raspberry Pi, you can install the driver locally [from PyPI](#). To install for current user:

```
pip3 install adafruit-circuitpython-miniqr
```

To install system-wide (this may be required in some cases):

```
sudo pip3 install adafruit-circuitpython-miniqr
```

To install in a virtual environment in your current project:

```
mkdir project-name && cd project-name
python3 -m venv .env
source .env/bin/activate
pip3 install adafruit-circuitpython-miniqr
```


CHAPTER 3

Usage Example

```
import adafruit_miniqr

qr = adafruit_miniqr.QRCode()
qr.add_data(b'https://www.adafruit.com')
qr.make()
print(qr.matrix)
```


CHAPTER 4

Contributing

Contributions are welcome! Please read our [Code of Conduct](#) before contributing to help this project stay welcoming.

CHAPTER 5

Documentation

For information on building library documentation, please check out [this guide](#).

6.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/miniqr_simpletest.py

```
1 # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2 # SPDX-License-Identifier: MIT
3
4 import sys
5 import adafruit_miniqr
6
7 # For drawing filled rectangles to the console:
8 out = sys.stdout
9 WHITE = "\x1b[1;47m  \x1b[40m"
10 BLACK = "  "
11
12
13 def prettyprint_QR(matrix):
14     # white 4-pixel border at top
15     for _ in range(4):
16         for _ in range(matrix.width + 8):
17             out.write(WHITE)
18         print()
19     for y in range(matrix.height):
20         out.write(WHITE * 4) # 4-pixel border to left
21         for x in range(matrix.width):
22             if matrix[x, y]:
23                 out.write(BLACK)
24             else:
25                 out.write(WHITE)
26         out.write(WHITE * 4) # 4-pixel border to right
27     print()
```

(continues on next page)

(continued from previous page)

```

28     # white 4-pixel border at bottom
29     for _ in range(4):
30         for _ in range(matrix.width + 8):
31             out.write(WHITE)
32         print()
33
34
35 qr = adafruit_miniqr.QRCode(qr_type=3, error_correct=adafruit_miniqr.L)
36 qr.add_data(b"https://www.adafruit.com")
37 qr.make()
38 print(qr.matrix)
39 prettyprint_QR(qr.matrix)

```

6.2 adafruit_miniqr

A non-hardware dependant miniature QR generator library. All native Python!

- Author(s): ladyada

6.2.1 Implementation Notes

Hardware:

- Any!

Software and Dependencies:

- Python 3

class `adafruit_miniqr.QRBitBuffer`

Storage class for a length of individual bits

get (*index*)

The bit value at a location

get_length_bits ()

Size of bit buffer

put (*num, length*)

Add a number of bits from a single integer value

put_bit (*bit*)

Insert one bit at the end of the bit buffer

class `adafruit_miniqr.QRBitMatrix` (*width, height*)

A bit-packed storage class for matrices

class `adafruit_miniqr.QRCode` (*, *qr_type=None, error_correct=1*)

The generator class for QR code matrices

add_data (*data*)

Add more data to the QR code, must be bytestring stype

make (*, *test=False, mask_pattern=0*)

Perform the actual generation of the QR matrix. To keep things small and speedy we don't generate all 8 mask patterns and pick the best. Instead, please pass in a desired `mask_pattern`, the default mask is 0.

```
class adafruit_minigr.QRPolynomial (num, shift)  
    Structure for creating and manipulating error code polynomials  
  
    get (index)  
        The exponent at the index location  
  
    get_length ()  
        Length of the poly  
  
    multiply (e)  
        Multiply two polynomials, returns a new one  
  
class adafruit_minigr.QRUtil  
    A selection of bit manipulation tools for QR generation and BCH encoding  
  
    static get_BCH_digit (data)  
        Count digits in data  
  
    static get_BCH_type_info (data)  
        Encode with G15 BCH mask  
  
    static get_BCH_type_number (data)  
        Encode with G18 BCH mask  
  
    static get_error_correct_polynomial (ecc_length)  
        Generate a ecc polynomial  
  
    static get_mask (mask, i, j)  
        Perform matching calculation on two vals for given pattern mask  
  
    static get_pattern_position (qr_type)  
        The mask pattern position array for this QR type
```


CHAPTER 7

Indices and tables

- `genindex`
- `modindex`
- `search`

a

adafruit_minqr, 14

A

adafruit_minqr (*module*), 14
add_data() (*adafruit_minqr.QRCode method*), 14

G

get() (*adafruit_minqr.QRBitBuffer method*), 14
get() (*adafruit_minqr.QRPolynomial method*), 15
get_BCH_digit() (*adafruit_minqr.QRUtil static method*), 15
get_BCH_type_info() (*adafruit_minqr.QRUtil static method*), 15
get_BCH_type_number() (*adafruit_minqr.QRUtil static method*), 15
get_error_correct_polynomial() (*adafruit_minqr.QRUtil static method*), 15
get_length() (*adafruit_minqr.QRPolynomial method*), 15
get_length_bits() (*adafruit_minqr.QRBitBuffer method*), 14
get_mask() (*adafruit_minqr.QRUtil static method*), 15
get_pattern_position() (*adafruit_minqr.QRUtil static method*), 15

M

make() (*adafruit_minqr.QRCode method*), 14
multiply() (*adafruit_minqr.QRPolynomial method*), 15

P

put() (*adafruit_minqr.QRBitBuffer method*), 14
put_bit() (*adafruit_minqr.QRBitBuffer method*), 14

Q

QRBitBuffer (*class in adafruit_minqr*), 14
QRBitMatrix (*class in adafruit_minqr*), 14
QRCode (*class in adafruit_minqr*), 14

QRPolynomial (*class in adafruit_minqr*), 14
QRUtil (*class in adafruit_minqr*), 15