sparkfun_qwiic_led_stick

Release 0.0.1

SparkFun Electronics

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CONTENTS:

Python module for the SparkFun Qwiic LED Stick - APA102C

This python package is a port of the existing SparkFun Qwiic LED Stick Arduino Library

This package can be used in conjunction with the overall SparkFun qwiic Python Package

New to qwiic? Take a look at the entire SparkFun qwiic ecosystem.

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SUPPORTED PLATFORMS

The Qwiic LED Stick Python package currently supports the following platforms:

- Raspberry Pi

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DEPENDENCIES

This driver package depends on the qwiic I2C driver: Qwiic_I2C_Py

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DOCUMENTATION

The SparkFun Qwiic LED Stick module documentation is hosted at ReadTheDocs

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INSTALLATION

5.1 PyPi Installation

This repository is hosted on PyPi as the sparkfun-qwiic-led-stick package. On systems that support PyPi installation via pip, this library is installed using the following commands

For all users (note: the user must have sudo privileges):

```
sudo pip install sparkfun-qwiic-led-stick
```

For the current user:

```
pip install sparkfun-qwiic-led-stick
```

To install, make sure the setuptools package is installed on the system.

Direct installation at the command line:

```
python setup.py install
```

To build a package for use with pip:

```
python setup.py sdist
```

A package file is built and placed in a subdirectory called dist. This package file can be installed using pip.

```
cd dist
pip install sparkfun-qwiic-led-stick-<version>.tar.gz
```

CHAPTER

SIX

EXAMPLE USE

See the examples directory for more detailed use examples.

```
from __future__ import print_function
import qwiic_led_stick
import time
import sys

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 1")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the sytsem. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    my_stick.set_all_LED_brightness(15)

    while True:

        # Turn on all the LEDs to white
        my_stick.set_all_LED_color(50, 50, 50)
        time.sleep(1)
        # Turn off all LEDs
        my_stick.LED_off()
        time.sleep(1)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 1")
        sys.exit(0)
```

CHAPTER

SEVEN

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7.1 API Reference

7.1.1 qwiic_led_stick

Python module for the SparkFun Qwiic LED Stick - APA102C.

This package is a port of the existing [SparkFun Qwiic LED Stick Arduino Library](https://github.com/sparkfun/SparkFun_Qwiic_LED_Stick_Arduino_Library).

This package can be used in conjunction with the overall [SparkFun Qwiic Python Package](https://github.com/sparkfun/Qwiic_Py).

New to qwiic? Take a look at the entire [SparkFun Qwiic Ecoststem](https://www.sparkfun.com/qwiic).

class qwiic_led_stick.**QwiicLEDStick**(*address=None*, *i2c_driver=None*)

Parameters

- **address** – The I2C address to use for the device. If not provided, the default address is used.
- **i2c_driver** – An existing i2c driver object. If not provided a a driver is created.

Returns The GPIO device object.

Return type Object

LED_off()

Turn all LEDs off by setting color to 0

Returns true if the command was sent successfully, false otherwise.

Return type bool

begin()

Initialize the operation of the Qwiic LED Stick. Run is_connected()

Returns Returns true if an LED Stick is connected to the system False otherwise.

Return type bool

change_address(*new_address*)

Change the I2C address from one address to another.

Parameters **new_address** – the new address to be set to. Must be valid.

Returns Nothing

Return type Void

change_length(*new_length*)
Change the length of the LED string

Parameters **new_length** – the new length of the LED string

Returns true if the command was sent successfully, false otherwise.

Return type bool

is_connected()
Determine if a Qwiic SGP40 device is connected to the system.

Returns True if the device is connected, false otherwise.

Return type bool

set_all_LED_brightness(*brightness*)
Change the brightness of all LEDs while keeping their current color. To turn all LEDs off but remember their previous color, set brightness to 0

Parameters **brightness** – value of LED brightness between 0 and 31.

Returns true if the command was sent successfully, false otherwise.

Return type bool

set_all_LED_color(*red*, *green*, *blue*)
Set the color of all LEDs in the string. Each will be shining the same color. The color value must be between 0-255.

Parameters

- **red** – the red value to set all LEDs to. Between 0 and 255.
- **green** – the green value to set all LEDs to. Between 0 and 255.
- **blue** – the blue value to set all the LEDs to. Between 0 and 255.

Returns Returns true if command is written successfully, false otherwise

Return type bool

set_all_LED_unique_color(*red_list*, *green_list*, *blue_list*, *length*)
Change the color of all LEDs at once to individual values.

Parameters

- **red_list** – a list of red values for the LEDs. Index 0 of red_list corresponds to the red value of LED 0.
- **blue_list** – a list of blue values for the LEDs.
- **green_list** – a list of green values for the LEDs.
- **length** – the length of the LED string.

Returns True if commands are written successfully, false otherwise

Return type bool

set_single_LED_brightness(*number*, *brightness*)
Change the brightness of a specific LED while keeping their current color. To turn LEDs off but remember their previous color, set brightness to 0.

Parameters

- **number** – number of LED to change brightness. LEDs indexed starting at 1.

- **brightness** – value of LED brightness between 0 and 31.

Returns true if the command was sent successfully, false otherwise.

Return type bool

set_single_LED_color(*number*, *red*, *green*, *blue*)
Change the color of a specific LED.

Parameters

- **number** – the number of LED. Indexing starts at 1.
- **red** – the red value between 0 and 255
- **green** – the green value between 0 and 255
- **blue** – the blue value between 0 and 255

Returns Returns true if command written successfully, false otherwise

Return type bool

7.2 Example One - Blink

Listing 1: examples/qwiic_led_stick_ex1_blink.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex1_blink.py
#
# This example blinks the entire LED stick.
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
# board ecosystem on a Raspberry Pi (and compatible) board computers.
#
# More information on qwiic is at https://www.sparkfun.com/qwiic
#
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#
```

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#==================================================================================
# Example 1

from __future__ import print_function
import qwiic_led_stick
import time
import sys

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 1")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the sytsem. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    my_stick.set_all_LED_brightness(15)

    while True:

        # Turn on all the LEDs to white
        my_stick.set_all_LED_color(50, 50, 50)
        time.sleep(1)
        # Turn off all LEDs
        my_stick.LED_off()
        time.sleep(1)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 1")
        sys.exit(0)
```

7.3 Example Two - Single Pixel

Listing 2: examples/qwiic_led_stick_ex2_single_pixel.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex2_single_pixel.py
#
# This example will alternate blinking two single LEDs on the LED Stick.
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
# board ecosystem on a Raspberry Pi (and compatible) board computers.
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#===============================================================================
# Example 2

from __future__ import print_function
import qwiic_led_stick
import time
import sys

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 2")
    my_stick = qwiic_led_stick.QwiicLEDStick()
```

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```

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    while True:

        # Turn all LEDs off
        my_stick.LED_off()
        # TODO: make sure this numbering matches up with the silkscreen
        # Turn on LED #4, red
        my_stick.set_single_LED_color(4, 255, 0, 0)
        time.sleep(1)
        # Turn all LEDs off
        my_stick.LED_off()
        # Turn on LED #6, red
        my_stick.set_single_LED_color(6, 255, 0, 0)
        time.sleep(1)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 2")
        sys.exit(0)
```

7.4 Example Three - Unique Pixels

Listing 3: examples/qwiic_led_stick_ex3_single_pixel2.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex3_single_pixel2.py
#
# This example changes each LED of the LED Stick to an arbitrary color.
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
# board ecosystem on a Raspberry Pi (and compatible) board computers.
#
# More information on qwiic is at https://www.sparkfun.com/qwiic
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#
#==============================================================================
```

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#==============================================================================
# Example 3

from __future__ import print_function
import qwiic_led_stick
import time
import sys

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 3")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    # Create 3 lists of the same length as the LED Stick, initialize with arbitrary␣
↪values
    # Pixel_list = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
    red_list = [214, 78, 183, 198, 59, 134, 15, 209, 219, 186]
    green_list = [59, 216, 170, 21, 114, 63, 226, 92, 155, 175]
    blue_list = [214, 147, 25, 124, 153, 163, 188, 33, 175, 221]

    my_stick.set_all_LED_unique_color(red_list, green_list, blue_list, 10)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
```

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```
        print("\nEnding Example 3")
        sys.exit(0)
```

7.5 Example Four - Set Brightness

Listing 4: examples/qwiic_led_stick_ex4_set_brightness.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex3_set_brightness.py
#
# This example changes brightness of the LED Stick in different ways, then stops
# through each available brightness setting.
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
# board ecosystem on a Raspberry Pi (and compatible) board computers.
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#==============================================================================
# Example 4

from __future__ import print_function
import qwiic_led_stick
import time
```

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```
import sys

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 3")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    # Initialize LEDs as a rainbow followed by 1 white pixel
    red_list = [255, 255, 170, 0, 0, 0, 0, 170, 255, 255]
    green_list = [0, 170, 255, 255, 255, 170, 0, 0, 0, 255]
    blue_list = [0, 0, 0, 0, 170, 255, 255, 255, 170, 255]

    # Turn on the LED Stick according to the 3 arrays
    my_stick.set_all_LED_unique_color(red_list, green_list, blue_list, 10)

    while True:

        # This will step through each available brightness setting
        # Brightness values can be from 0 - 31
        for i in range(0, 32):
            my_stick.set_all_LED_brightness(i)

            print("\nBrightness level: " + str(i))
            time.sleep(1)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 4")
        sys.exit(0)
```

7.6 Example Five - Binary Counter

Listing 5: examples/qwiic_led_stick_ex5_binary_counter.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex5_binary_counter.py
#
# This example counts up from 0 to 1023 and displays the number in binary on the
# LED Stick.
# ------------------------------------------------------------------------------
```

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```
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
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#===================================================================================
# Example 5

from __future__ import print_function
import qwiic_led_stick
import time
import sys

def binary_LED_display(LED_stick, count, LED_length):
    # Create color arrays because we want to turn on whole string of LEDs at one time
    red_list = [0] * LED_length
    green_list = [0] * LED_length
    blue_list = [0] * LED_length

    # This for loop will repeat for each pixel of the LED Stick
    for i in range(0, LED_length):
        # For ith_bit, we use the bitshift operator. count >> i takes the binary
        # representation of count and shifts it to the right i times. For example,
        # if count was 10, 0b1010, and i was 2, we get 0b10. This aligns with the
        # ith bit of count to the 0th bit of ith_bit
        ith_bit = count >> i
        # This will resolve to the oth bit of ith_bit
```

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```
        ith_bit_true = ith_bit & 0b1
        # Write the color red to the current LED if the ith_bit_true
        # LED_stick.set_single_LED_color(10 - i, 255 * ith_bit_true, 0, 0)
        red_list[LED_length - i - 1] = 255 * ith_bit_true

    LED_stick.set_all_LED_unique_color(red_list, green_list, blue_list, LED_length)

def binary_serial_display(count, bit_length):
    print(str(count) + "\t" + str(bin(count)))

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 5")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    # Reset the state of LEDs
    my_stick.LED_off()

    while True:
        # This loop counts from 0 to 1023 and displays the binary over the
        # serial port and the LED stick
        for i in range(0, 1024):
            binary_LED_display(my_stick, i, 10)
            binary_serial_display(i, 10)
            time.sleep(1)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 5")
        sys.exit(0)
```

7.7 Example Six - Color Gradient

Listing 6: examples/qwiic_led_stick_ex6_color_gradient.py

```
# !/usr/bin/env python
# -----------------------------------------------------------------------------
# qwiic_led_stick_ex6_color_gradient.py
#
# This example will display a linear gradient from one color to another on the LED
# Stick.
```

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```
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
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# board ecosystem on a Raspberry Pi (and compatible) board computers.
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#==============================================================================
# Example 6

from __future__ import print_function
import qwiic_led_stick
import time
import sys

def color_gradient(LED_stick, r1, b1, g1, r2, g2, b2, LED_length):
    # Subtract 1 from LED_length because there is one less transition color
    # than length of LEDs
    LED_length = LED_length - 1
    # Calculate the slope of the line between r/g/b1 and r/g/b2
    r_slope = (r2 - r1) / LED_length
    g_slope = (g2 - g1) / LED_length
    b_slope = (b2 - b1) / LED_length
    # Set the color for each pixel on your LED Stick
    for i in range(0, LED_length):
        # Evaluate the ith point on the line between r/g/b1 and r/g/b2
        r_value = r1 + r_slope * i
        g_value = g1 + g_slope * i
```

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```
        b_value = b1 + b_slope * i
        # Set the pixel to the calculated color
        LED_stick.set_single_LED_color(i + 1, r_value, g_value, b_value)

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 6")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    # Set the colors for the gradient
    # These are for the first color
    r1 =238
    g1 = 49
    b1 = 36
    # These are for the last color
    r2 = 66
    g2 = 235
    b2 = 23

    color_gradient(my_stick, r1, g1, b1, r2, g2, b2, 10)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 6")
        sys.exit(0)
```

7.8 Example Seven - Cycle Rainbow

Listing 7: examples/qwiic_led_stick_ex7_cycle_rainbow.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex7_cycle_rainbow.py
#
# This example ake the LED Stick smoothly change through the colors of the rainbow.
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
# board ecosystem on a Raspberry Pi (and compatible) board computers.
```

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```
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#===============================================================================
# Example 7

from __future__ import print_function
import qwiic_led_stick
import time
import sys

def cycle_rainbow(LED_stick, delay):
    # Red to yellow
    for g in range(0, 255):
        LED_stick.set_all_LED_color(255, g, 0)
        time.sleep(delay)

    # Yellow to green
    for r in range(255, 0, -1):
        LED_stick.set_all_LED_color(r, 255, 0)
        time.sleep(delay)

    # Green to cyan
    for b in range(0, 255):
        LED_stick.set_all_LED_color(0, 255, b)
        time.sleep(delay)

    # Cyan to blue
    for g in range(255, 0, -1):
        LED_stick.set_all_LED_color(0, g, 255)
```

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```
        time.sleep(delay)

    # Blue to magenta
    for r in range(0, 255):
        LED_stick.set_all_LED_color(r, 0, 255)
        time.sleep(delay)

    # Magenta to red
    for b in range(255, 0, -1):
        LED_stick.set_all_LED_color(255, 0, b)
        time.sleep(delay)

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 7")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    while True:
        cycle_rainbow(my_stick, 0.01)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 7")
        sys.exit(0)
```

7.9 Example Eight - Walking Rainbow

Listing 8: examples/qwiic_led_stick_ex8_walking_rainbow.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex8_walking_rainbow.py
#
# This example makes a moving rainbow on the LED Stick.
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
# board ecosystem on a Raspberry Pi (and compatible) board computers.
#
```

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```
# More information on qwiic is at https://www.sparkfun.com/qwiic
#
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#===============================================================================
# Example 8

from __future__ import print_function
import qwiic_led_stick
import math
import time
import sys

def walking_rainbow(LED_stick, rainbow_length, LED_length, delay):
    red_array = [None] * LED_length
    blue_array = [None] * LED_length
    green_array = [None] * LED_length

    for j in range(0, rainbow_length):

        for i in range(0, LED_length):
            # There are n colors generated for the rainbow
            # The value of n determins which color is generated at each pixel
            n = i + 1 - j

            # Loop n so that it is always between 1 and rainbow_length
            if n <= 0:
                n = n + rainbow_length

            # The nth color is between red and yellow
            if n <= math.floor(rainbow_length / 6):
                red_array[i] = 255
```

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```
                green_array[i] = int(math.floor(6 * 255 / rainbow_length * n))
                blue_array[i] = 0

            # The nth color is between yellow and green
            elif n <= math.floor(rainbow_length / 3):
                red_array[i] = int(math.floor(510 - 6 * 255 / rainbow_length * n))
                green_array[i] = 255
                blue_array[i] = 0

            # The nth color is between green and cyan
            elif n <= math.floor(rainbow_length / 2):
                red_array[i] = 0
                green_array[i] = 255
                blue_array[i] = int(math.floor(6 * 255 / rainbow_length * n - 510))

            # The nth color is between blue and magenta
            elif n <= math.floor(5 * rainbow_length / 6):
                red_array[i] = int(math.floor(6 * 255 / rainbow_length * n - 1020))
                green_array[i] = 0
                blue_array[i] = 255

            # The nth color is between magenta and red
            else:
                red_array[i] = 255
                green_array[i] = 0
                blue_array[i] = int(math.floor(1530 - (6 *255 / rainbow_length * n)))

        # Set all the LEDs to the color values accordig to the arrays
        LED_stick.set_all_LED_unique_color(red_array, green_array, blue_array, LED_
↪length)
        time.sleep(delay)

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 1")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    while True:
        walking_rainbow(my_stick, 20, 10, 0.3)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 8")
```

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```
        sys.exit(0)
```

7.10 Example Nine - Change Length

Listing 9: examples/qwiic_led_stick_ex9_change_length.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex9_change_length.py
#
# This example changes the length of the attached LED strip and shows the results
# by writing the whole strip white. Length will not reset on restart, change back
# to 10 if necessary with my_stick.change_length(10);
# If you add LEDs to the end of the sitck, you must change the length to be able to
# use them.
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
# board ecosystem on a Raspberry Pi (and compatible) board computers.
#
# More information on qwiic is at https://www.sparkfun.com/qwiic
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#==================================================================================
# Example 9

from __future__ import print_function
```

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```
import qwiic_led_stick
import time
import sys

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 9")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    # First, turn all LEDs off
    my_stick.LED_off()
    # Give stick time to turn all LEDs off
    time.sleep(0.5)

    # Change LED length to 5
    # This will allow you to write to a maximum of 5 LEDs
    my_stick.change_length(5)
    # Set all LEDs to dim white, notice only 5 are lit.
    my_stick.set_all_LED_color(10, 10, 10)

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 1")
        sys.exit(0)
```

7.11 Example Ten - Change Address

Listing 10: examples/qwiic_led_stick_ex10_change_address.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex10_change_address.py
#
# This example changes the address of the LED stick and shows the results by writing
# the whole strip white. Address will not reset on restart. Change the address back
# to default with my_stick.change_address(0x23).
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
```

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```
# board ecosystem on a Raspberry Pi (and compatible) board computers.
#
# More information on qwiic is at https://www.sparkfun.com/qwiic
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#===============================================================================
# Example 10

from __future__ import print_function
import qwiic_led_stick
import time
import sys

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 10")
    my_stick = qwiic_led_stick.QwiicLEDStick()

    if my_stick.begin() == False:
        print("\nThe Qwiic LED Stick isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick ready!")

    print("\nEnter a new I2C address for the Qwiic LED Stick to use.")
    print("\nDon't use the 0x prefix. For instance, if you wanted to")
    print("\nchange the address to 0x5B, you would type 5B and hit enter.")

    new_address = raw_input("\nNew address: ")
    new_address = int(new_address, 16)
```

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```

    # Check if the user entered a valid address
    if new_address > 0x08 and new_address < 0x77:
        print("\nCharacters received and new address is valid!")
        print("\nAttempting to set Qwiic LED Stick address...")

        if my_stick.change_address(new_address) == True:
            print("\nAddress successfully changed!")
        # Check that the Qwiic LED Stick acknowledges on the new address
        time.sleep(0.02)
        if my_stick.begin() == False:
            print("\nThe Qwiic LED Stick isn't connected to the system. Please check␣
↪your connection", \
            file=sys.stderr)
        else:
            print("\nLED Stick acknowledged on new address!")
    else:
        print("\nAddress entered not a valid I2C address.")

if __name__ == '__main__':
    try:
        run_example()
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 10")
        sys.exit(0)
```

7.12 Example Eleven - 2 LED Sticks

Listing 11: examples/qwiic_led_stick_ex11_2_led_sticks.py

```
# !/usr/bin/env python
# ------------------------------------------------------------------------------
# qwiic_led_stick_ex11_2_led_sticks.py
#
# This example shows how to use two LED Sticks on the same I2C bus.
# ------------------------------------------------------------------------------
#
# Written by Priyanka Makin @ SparkFun Electronics, June 2021
#
# This python library supports the SpakrFun Electronics qwiic sensor/
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#==============================================================================
# Example 11

from __future__ import print_function
import qwiic_led_stick
import time
import sys

def run_example():

    print("\nSparkFun Qwiic LED Stick Example 11")
    my_stick1 = qwiic_led_stick.QwiicLEDStick()
    my_stick2 = qwiic_led_stick.QwiicLEDStick(0x29)

    if my_stick1.begin() == False:
        print("\nThe Qwiic LED Stick 1 isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick 1 ready!")

    if my_stick2.begin() == False:
        print("\nThe Qwiic LED Stick 2 isn't connected to the system. Please check your␣
↪connection", \
            file=sys.stderr)
        return
    print("\nLED Stick 2 ready!")

    # Set all of LED Stick 1 to white
    my_stick1.set_all_LED_color(10, 10, 10)
    # Set all of LED Stick 2 to red
    my_stick2.set_all_LED_color(255, 0, 0)

if __name__ == '__main__':
    try:
        run_example()
```

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```
    except (KeyboardInterrupt, SystemExit) as exErr:
        print("\nEnding Example 11")
        sys.exit(0)
```

CHAPTER

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