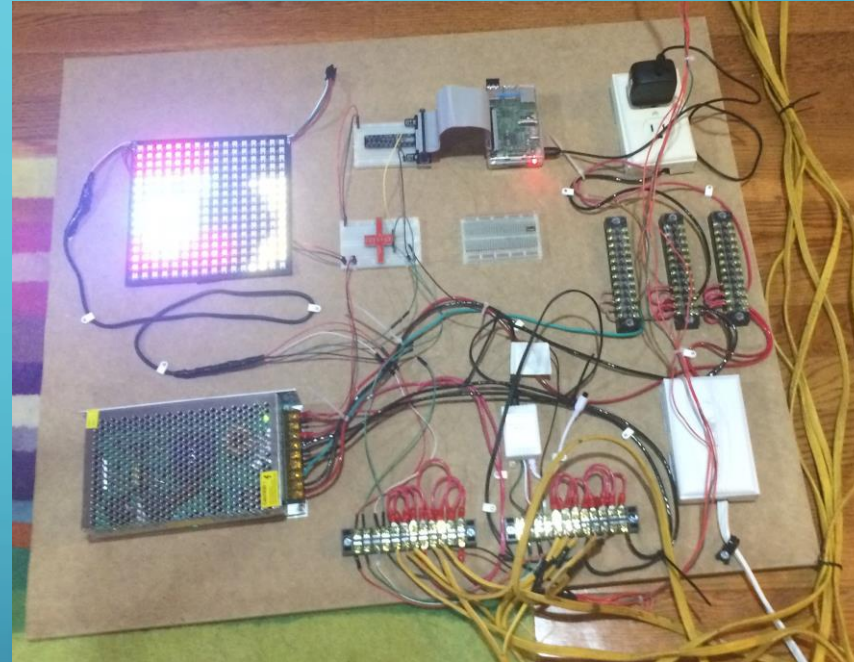


A decorative graphic on the left side of the page, consisting of white lines and circles on a blue gradient background, resembling a circuit board or data flow diagram.

# RASPBERRY PI

UTILIZING A RASPBERRY PI 3 TO CONTROL WS2811 NEOPIXELS

## LEVERAGING PI 3 TO CONTROL MATRIX



<https://www.raspberrypi.org/blog/tag/andrew-oakley/>

## USING WS 2811 BULLET PIXELS



ALITOVE  
ALITOVE WS2811 12mm Diffused Digital RGB LED pixel string light Individually Addressable round LED module 50pcs/string IP68 Waterproof DC 5V

★★★★★ 19 customer reviews | 16 answered questions

Price: ~~\$25.99~~  
Sale: \$15.99 Prime  
You Save: \$10.00 (38%)

Your \$30.03 Amazon.com Gift Card balance can cover the cost of this item. [Learn More.](#)

**In Stock.**  
Sold by ALITOVE and Fulfilled by Amazon. Gift-wrap available.

Size: **5V Round**

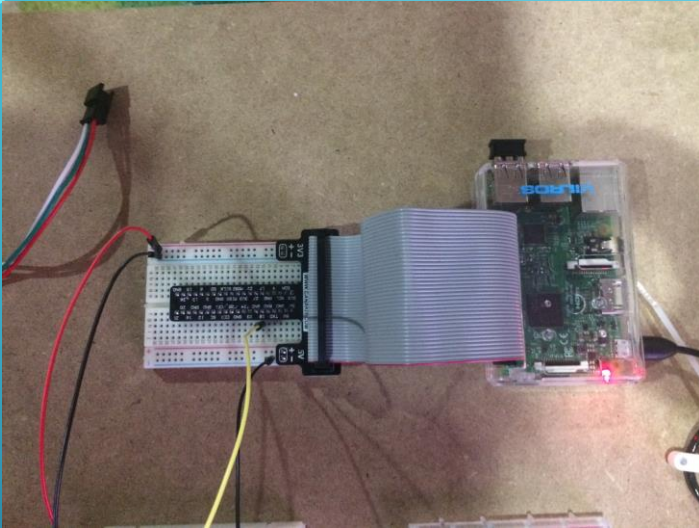
<b>5V Round</b> \$15.99 Prime	5V Square \$21.99 Prime	12V Round \$19.79 Prime	12V Square \$24.99 Prime
----------------------------------	----------------------------	----------------------------	-----------------------------

- 256 brightness display and full 24-bit color display. Each LED can have its own color and brightness. You can control each LED individually and set it to any color or animation you want.
- The WS2811 LED pixel string work great with Arduino, FastLED library, Adafruit NeoPixel Library and Raspberry Pi. It is easy to program.
- Each pixel can be cut off without damaging the rest pixels. So you can shorten

[HTTPS://WWW.AMAZON.COM/GP/PRODUCT/B01AG923GI/REF=OH\\_AUI\\_DETAILPAGE\\_000\\_S00?IE=UTF8&PSC=1](https://www.amazon.com/gp/product/B01AG923GI/ref=OH_AUI_DETAILPAGE_000_S00?ie=UTF8&psc=1)



## CONNECT PI TO CANAKIT EXPANDER



**CanaKit**  
**CanaKit Raspberry Pi GPIO Breakout Board / Cobbler Bundle (40-Pin T-Shaped - Assembled)**  
★★★★★ 79 customer reviews | 7 answered questions

Price: **\$18.95** ✓Prime

📌 Your **\$30.03** Amazon.com Gift Card balance can cover the cost of this item. [Learn More.](#)

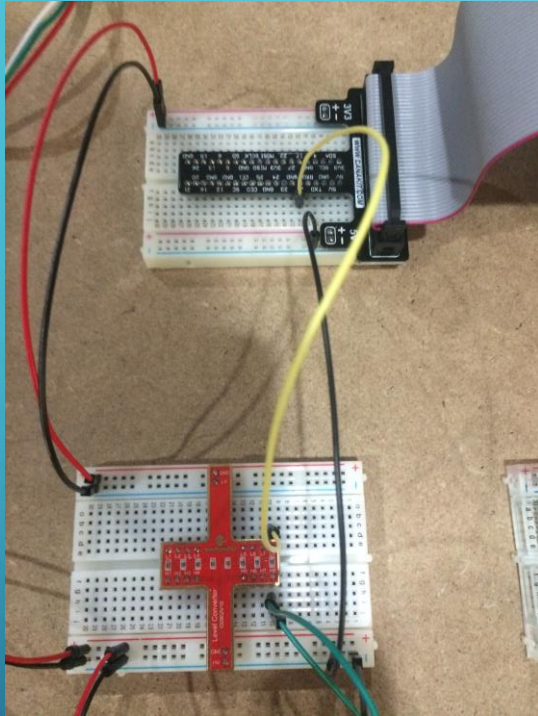
**In Stock.**  
Sold by **CanaKit** and Fulfilled by Amazon. Gift-wrap available.

- Includes CanaKit 40-Pin T-Shaped (Assembled) Cobbler and 40 pin Ribbon Cable
- Includes GPIO Quick Reference Card
- Includes Jumper Wires, Breadboard
- Includes RGB LED, 8 x LEDs (Blue/Red/Yellow/Green), 15 x Resistors, 2 x Push Button Switches, CanaKit General Guide for Beginners to Electronic Component
- Compatible with the Raspberry Pi 1 Model A+, B+ and the new Raspberry Pi 2!

Roll over image to zoom in

[https://www.amazon.com/gp/product/B011D06Y4G/ref=oh\\_aui\\_detailpage\\_o06\\_s00?ie=UTF8&psc=1](https://www.amazon.com/gp/product/B011D06Y4G/ref=oh_aui_detailpage_o06_s00?ie=UTF8&psc=1)

## CONNECT PI GPIO 18 TO LEVEL SHIFTER



Roll over image to zoom in

SunFounder

### SunFounder 8 Channel Logic Level Converter Bi-Directional Shifter Module 5V to 3.3V for Raspberry Pi and Arduino

★★★★☆ 2 customer reviews

Price: \$5.99 Prime

Your \$30.03 Amazon.com Gift Card balance can cover the cost of this item. [Learn More.](#)

**Only 1 left in stock.**

Sold by [SunFounderUS](#) and [Fulfilled by Amazon](#). Gift-wrap available.

- It is a mini bidirectional logical level converter , micro size in 32.58mm x 53.26mm.
- Designed in a distinct cross shape, it can be inserted into the pin sockets of a MB102 bread board.
- With 8 channels, it can convert between high level and low level.
- Working with 5V-3.3V or 2.8V -1.8V devices.
- HV inputs high level, LV inputs low level and GND is connected to the common ground wire.

[https://www.amazon.com/gp/product/B01JZ6SBWI/ref=oh\\_aui\\_detailpage\\_o06\\_s02?ie=UTF8&psc=1](https://www.amazon.com/gp/product/B01JZ6SBWI/ref=oh_aui_detailpage_o06_s02?ie=UTF8&psc=1)

CONNECT WS 2811 RED (5V) & BLUE (GND) WIRES TO POWER SUPPLY




uxcell

uxcell Switching Power Supply Converter AC 110/220V to 5V 40A 200W for LED Strip Light Converter



59 customer reviews | 8 answered questions

Price: \$21.15 

 Your \$30.03 Amazon.com Gift Card balance can cover the cost of this item. [Learn More.](#)

**In Stock.**

Sold by **uxcell** and **Fulfilled by Amazon**. Gift-wrap available.

Size: **DC 5V 40A 200W**

DC 5V 2A 10W

DC 5V 3A 15W

DC 5V 5A 25W

DC 5V 8A 40W

DC 5V 10A 50W

DC 5V 12A 60W

[https://www.amazon.com/gp/product/B01HTM53W6/ref=oh\\_aui\\_detailpage\\_o02\\_s00?ie=UTF8&psc=1](https://www.amazon.com/gp/product/B01HTM53W6/ref=oh_aui_detailpage_o02_s00?ie=UTF8&psc=1)



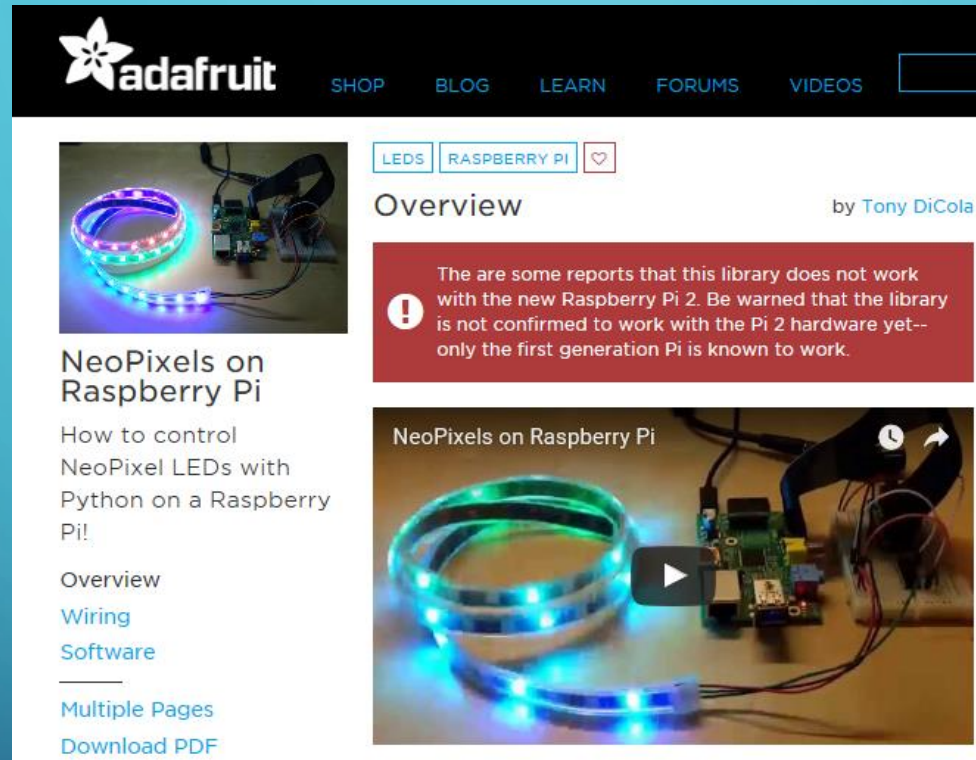
## MY GRID IS MADE FROM LIGHT DIFFUSER PANELS & PVC TUBING



The screenshot shows the Home Depot website interface. At the top, there's a navigation bar with the Home Depot logo, a location selector for 'Freehold', a search bar with the text 'What can we help you find today?', and links for 'My Account' and 'Cart | 0 items'. Below the navigation bar, there are category links: 'All Departments', 'DIY Projects & Ideas', 'Home Services', 'Local Ad', and 'Specials & Offers'. The main content area shows the breadcrumb trail: 'Home / Lighting & Ceiling Fans / Indoor Lighting Parts & Accessories / Fluorescent Lighting Accessories / Parts & Accessories'. Below this, the product details are displayed: 'Model # L2GT PLTS R5', 'Internet #100579509', and 'Store SKU #381358'. The product name is 'Lithonia Lighting White Eggcrate T12 Troffer Replacement Diffuser'. It has a 4.5-star rating from 11 reviews and options to 'Write a Review' and 'Questions & Answers (7)'. The product features are listed: 'Egg crate louver design', '21.88 in. W and 45.84 in. L', and 'Replacement troffer lens for 2GT 4 40-series fixtures'. The price is '\$12.97 /each'. A small image of the diffuser panel is shown on the left, and a larger image of the panel is shown on the right.

<http://www.homedepot.com/p/Lithonia-Lighting-White-Eggcrate-T12-Troffer-Replacement-Diffuser-L2GT-PLTS-R5/100579509>

# ADAFRUIT NEOPIXEL WIRING INSTRUCTION

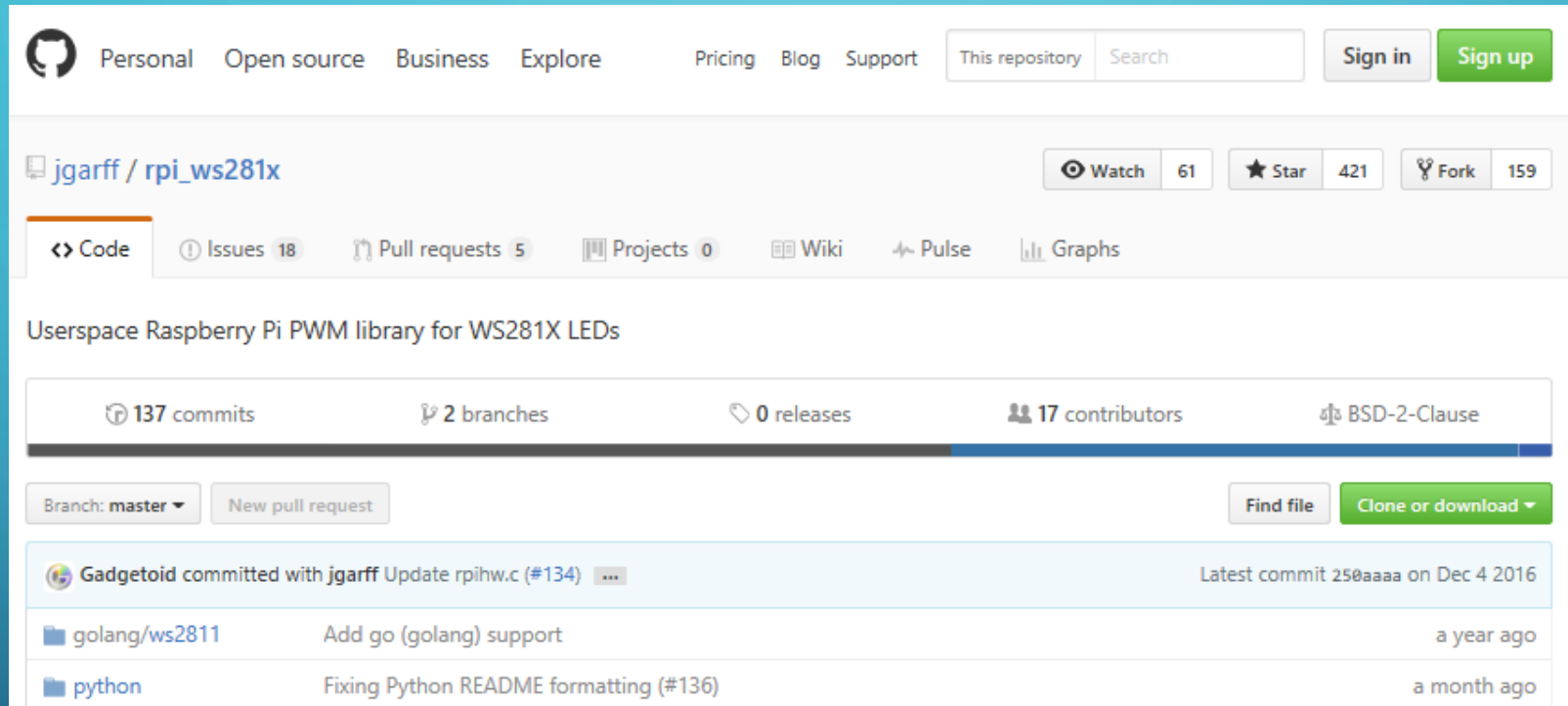


The screenshot shows the Adafruit website interface. At the top is the Adafruit logo and navigation links: SHOP, BLOG, LEARN, FORUMS, VIDEOS. Below the navigation is a search bar. The main content area features a title 'NeoPixels on Raspberry Pi' with a sub-header 'How to control NeoPixel LEDs with Python on a Raspberry Pi!'. To the right of the title are tags for 'LEDS' and 'RASPBERRY PI', and a heart icon. Below the title is a list of links: Overview, Wiring, Software, Multiple Pages, and Download PDF. A red warning box contains the text: 'There are some reports that this library does not work with the new Raspberry Pi 2. Be warned that the library is not confirmed to work with the Pi 2 hardware yet--only the first generation Pi is known to work.' Below the warning box is a video player with the title 'NeoPixels on Raspberry Pi' and a play button icon. The video player shows a close-up of a Raspberry Pi board connected to a strip of NeoPixel LEDs.

<https://learn.adafruit.com/neopixels-on-raspberry-pi?view=all>



## LEVERAGING JEREMY GARFF'S GITHUB LIBRARY



The screenshot shows the GitHub interface for the repository `jgarff / rpi_ws281x`. At the top, there are navigation links for Personal, Open source, Business, and Explore, along with Pricing, Blog, and Support. A search bar is present with the text "This repository" and a "Search" button. There are also "Sign in" and "Sign up" buttons. Below the repository name, there are statistics: 61 Watch, 421 Star, and 159 Fork. A navigation bar includes links for Code, Issues (18), Pull requests (5), Projects (0), Wiki, Pulse, and Graphs. The repository description is "Userspace Raspberry Pi PWM library for WS281X LEDs". Below this, there are statistics: 137 commits, 2 branches, 0 releases, 17 contributors, and BSD-2-Clause license. There are buttons for "Branch: master", "New pull request", "Find file", and "Clone or download". The commit history shows a commit by Gadgetoid with the message "Update rpihw.c (#134)" from Dec 4, 2016. Below the commit history, there are two folders listed: `golang/ws2811` with the message "Add go (golang) support" and `python` with the message "Fixing Python README formatting (#136)".

Personal Open source Business Explore Pricing Blog Support This repository Search Sign in Sign up

jgarff / rpi\_ws281x Watch 61 Star 421 Fork 159

Code Issues 18 Pull requests 5 Projects 0 Wiki Pulse Graphs

Userspace Raspberry Pi PWM library for WS281X LEDs

137 commits 2 branches 0 releases 17 contributors BSD-2-Clause

Branch: master New pull request Find file Clone or download

Gadgetoid committed with jgarff Update rpihw.c (#134) Latest commit 250aaaa on Dec 4 2016

golang/ws2811 Add go (golang) support a year ago


python Fixing Python README formatting (#136) a month ago

[https://github.com/jgarff/rpi\\_ws281x](https://github.com/jgarff/rpi_ws281x)

## AND ANDREW OAKLEY'S .PNG CONVERTER

### The Matrix Program

Skip to the chase - here's my program:

- [ledmatrix.zip](#) - complete archive with program, Christmas and Hallowe'en sample files
- [ledmatrix.py - download program only](#)
- [ledmatrix.py - view in browser](#)
- [christmas.png](#) - sample image, which looks like this:  

- [christmas.txt](#) - instructions to animate the image

As well as the `rpi_ws281x` library, you will need to install Python imaging:

```
sudo apt-get install python-imaging
```

You can use the program as follows:

```
sudo python ledmatrix.py christmas.png
```

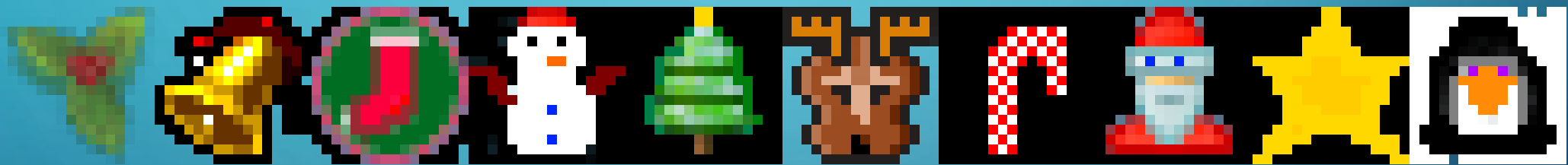
...where:

- `sudo` is optional if you are running Raspbian Jessie or newer
- `python` is probably Python 2.7. Feel free to email me with a Python 3 version - [andrew@aoakley.com](mailto:andrew@aoakley.com)
- `christmas.png` is your image file. Minimum 12 pixels wide by 8 pixels high. Wider images will be scrolled from right to left. The program will attempt to resize taller images to fit (often with amusingly/artistically blurry results) but the aspect ratio must be landscape (wider than they are tall). If you want to animate the image by providing an accompanying `.txt` file, then you want it to be *exactly* 8 pixels high.

The program *should* be adaptable to a matrix of any size. In theory. Do let me know how you get on, if you try that.

<http://www.aoakley.com/articles/2015-11-18-raspberry-pi-christmas-led-matrix.php>

AND PAINT.NET TO CREATE THE IMAGE



<http://www.getpaint.net/download.html>