AdafruitDS18X20 Library Documentation

Release 1.0

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Mar 20, 2020

Contents

CircuitPython driver for Dallas 1-Wire temperature sensor.

CHAPTER 1

Dependencies

This driver depends on:

- Adafruit CircuitPython
- Adafruit OneWire

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-ds18x20
```

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

```
sudo pip3 install adafruit-circuitpython-ds18x20
```

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-ds18x20
```

CHAPTER 3

Usage Example

```
import board
from adafruit_onewire.bus import OneWireBus
from adafruit_ds18x20 import DS18X20
ow_bus = OneWireBus(board.D2)
ds18 = DS18X20(ow_bus, ow_bus.scan()[0])
ds18.temperature
```

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.

CHAPTER 6

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6.1 Simple test

Ensure your device works with these simple tests.

Listing 1: examples/ds18x20_simpletest.py

```
# Simple demo of printing the temperature from the first found DS18x20 sensor every
↪second.
# Author: Tony DiCola

# A 4.7Kohm pullup between DATA and POWER is REQUIRED!

import time
import board
from adafruit_onewire.bus import OneWireBus
from adafruit_ds18x20 import DS18X20


# Initialize one-wire bus on board pin D5.
ow_bus = OneWireBus(board.D5)

# Scan for sensors and grab the first one found.
ds18 = DS18X20(ow_bus, ow_bus.scan()[0])

# Main loop to print the temperature every second.
while True:
    print("Temperature: {0:0.3f}C".format(ds18.temperature))
    time.sleep(1.0)
```

Listing 2: examples/ds18x20_asynctest.py

```
# Simple demo of printing the temperature from the first found DS18x20 sensor every second.
# Using the asynchronous functions start_temperature_read() and
# read_temperature() to allow the main loop to keep processing while
# the conversion is in progress.
# Author: Louis Bertrand, based on original by Tony DiCola

# A 4.7Kohm pullup between DATA and POWER is REQUIRED!

import time
import board
from adafruit_onewire.bus import OneWireBus
from adafruit_ds18x20 import DS18X20


# Initialize one-wire bus on board pin D1.
ow_bus = OneWireBus(board.D1)

# Scan for sensors and grab the first one found.
ds18 = DS18X20(ow_bus, ow_bus.scan()[0])
ds18.resolution = 12

# Main loop to print the temperature every second.
while True:
    conversion_delay = ds18.start_temperature_read()
    conversion_ready_at = time.monotonic() + conversion_delay
    print("waiting", end="")
    while time.monotonic() < conversion_ready_at:
        print(".", end="")
        time.sleep(0.1)
    print("\nTemperature: {0:0.3f}C\n".format(ds18.read_temperature()))
    time.sleep(1.0)
```

6.2 adafruit_ds18x20

Driver for Dallas 1-Wire temperature sensor.

- Author(s): Carter Nelson

class adafruit_ds18x20.**DS18X20**(*bus*, *address*)

Class which provides interface to DS18X20 temperature sensor.

read_temperature()

Read the temperature. No polling of the conversion busy bit (assumes that the conversion has completed).

resolution

The programmable resolution. 9, 10, 11, or 12 bits.

start_temperature_read()

Start asynchronous conversion, returns immediately. Returns maximum conversion delay [seconds] based on resolution.

temperature

The temperature in degrees Celsius.

CHAPTER 7

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