

SW-420 Vibration Sensor

1.0

Generated by Doxygen 1.9.8

| | |
|--|----------|
| 1 Class Index | 1 |
| 1.1 Class List | 1 |
| 2 File Index | 3 |
| 2.1 File List | 3 |
| 3 Class Documentation | 5 |
| 3.1 SW420VibrationSensor Class Reference | 5 |
| 3.1.1 Constructor & Destructor Documentation | 6 |
| 3.1.1.1 SW420VibrationSensor() | 6 |
| 3.1.1.2 ~SW420VibrationSensor() | 6 |
| 3.1.2 Member Function Documentation | 6 |
| 3.1.2.1 cleanupGPIO() | 6 |
| 3.1.2.2 configureGPIO() | 6 |
| 3.1.2.3 getDebounceTime() | 6 |
| 3.1.2.4 getSensorId() | 6 |
| 3.1.2.5 getStatusInfo() | 6 |
| 3.1.2.6 getTimeSinceLastVibration() | 6 |
| 3.1.2.7 getUnit() | 6 |
| 3.1.2.8 getVibrationCount() | 7 |
| 3.1.2.9 hasStateChanged() | 7 |
| 3.1.2.10 initialize() | 7 |
| 3.1.2.11 isInitialized() | 7 |
| 3.1.2.12 readRawValue() | 7 |
| 3.1.2.13 readVibration() | 7 |
| 3.1.2.14 resetVibrationCount() | 7 |
| 3.1.2.15 setDebounceTime() | 7 |
| 3.1.3 Member Data Documentation | 7 |
| 3.1.3.1 m_debounce_ms | 7 |
| 3.1.3.2 m_gpio_chip | 7 |
| 3.1.3.3 m_gpio_pin | 8 |
| 3.1.3.4 m_is_initialized | 8 |
| 3.1.3.5 m_last_change_time | 8 |
| 3.1.3.6 m_last_state | 8 |
| 3.1.3.7 m_last_vibration_time | 8 |
| 3.1.3.8 m_value_path | 8 |
| 3.1.3.9 m_vibration_count | 8 |
| 4 File Documentation | 9 |
| 4.1 src/main.cpp File Reference | 9 |
| 4.1.1 Function Documentation | 9 |
| 4.1.1.1 main() | 9 |
| 4.1.1.2 signalHandler() | 9 |

| | |
|--|-----------|
| 4.1.2 Variable Documentation | 10 |
| 4.1.2.1 running | 10 |
| 4.2 src/sw420.cpp File Reference | 10 |
| 4.3 src/sw420.h File Reference | 10 |
| 4.4 sw420.h | 10 |
| Index | 13 |

Chapter 1

Class Index

1.1 Class List

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

| | |
|--|---|
| SW420VibrationSensor | 5 |
|--|---|

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

| | |
|--------------------------------|----|
| src/ main.cpp | 9 |
| src/ sw420.cpp | 10 |
| src/ sw420.h | 10 |

Chapter 3

Class Documentation

3.1 SW420VibrationSensor Class Reference

```
#include <sw420.h>
```

Public Member Functions

- [SW420VibrationSensor](#) (int gpio_pin=4, int gpio_chip=0, unsigned int debounce_ms=50)
- [~SW420VibrationSensor](#) ()
- bool [initialize](#) ()
- bool [isInitialized](#) () const
- bool [readVibration](#) ()
- bool [hasStateChanged](#) ()
- unsigned long [getVibrationCount](#) () const
- long [getTimeSinceLastVibration](#) () const
- void [resetVibrationCount](#) ()
- void [setDebounceTime](#) (unsigned int debounce_ms)
- unsigned int [getDebounceTime](#) () const
- std::string [getStatusInfo](#) () const
- std::string [getSensorId](#) () const
- std::string [getUnit](#) () const

Private Member Functions

- bool [configureGPIO](#) ()
- bool [cleanupGPIO](#) ()
- int [readRawValue](#) ()

Private Attributes

- int [m_gpio_pin](#)
- int [m_gpio_chip](#)
- std::string [m_value_path](#)
- bool [m_is_initialized](#)
- bool [m_last_state](#)
- std::chrono::steady_clock::time_point [m_last_change_time](#)
- unsigned int [m_debounce_ms](#)
- unsigned long [m_vibration_count](#)
- std::chrono::steady_clock::time_point [m_last_vibration_time](#)

3.1.1 Constructor & Destructor Documentation

3.1.1.1 SW420VibrationSensor()

```
SW420VibrationSensor::SW420VibrationSensor (
    int  gpio_pin = 4,
    int  gpio_chip = 0,
    unsigned int  debounce_ms = 50 )  [explicit]
```

3.1.1.2 ~SW420VibrationSensor()

```
SW420VibrationSensor::~~SW420VibrationSensor ( )
```

3.1.2 Member Function Documentation

3.1.2.1 cleanupGPIO()

```
bool SW420VibrationSensor::cleanupGPIO ( )  [private]
```

3.1.2.2 configureGPIO()

```
bool SW420VibrationSensor::configureGPIO ( )  [private]
```

3.1.2.3 getDebounceTime()

```
unsigned int SW420VibrationSensor::getDebounceTime ( ) const
```

3.1.2.4 getSensorId()

```
std::string SW420VibrationSensor::getSensorId ( ) const
```

3.1.2.5 getStatusInfo()

```
std::string SW420VibrationSensor::getStatusInfo ( ) const
```

3.1.2.6 getTimeSinceLastVibration()

```
long SW420VibrationSensor::getTimeSinceLastVibration ( ) const
```

3.1.2.7 getUnit()

```
std::string SW420VibrationSensor::getUnit ( ) const
```

3.1.2.8 getVibrationCount()

```
unsigned long SW420VibrationSensor::getVibrationCount ( ) const
```

3.1.2.9 hasStateChanged()

```
bool SW420VibrationSensor::hasStateChanged ( )
```

3.1.2.10 initialize()

```
bool SW420VibrationSensor::initialize ( )
```

3.1.2.11 isInitialized()

```
bool SW420VibrationSensor::isInitialized ( ) const
```

3.1.2.12 readRawValue()

```
int SW420VibrationSensor::readRawValue ( ) [private]
```

3.1.2.13 readVibration()

```
bool SW420VibrationSensor::readVibration ( )
```

3.1.2.14 resetVibrationCount()

```
void SW420VibrationSensor::resetVibrationCount ( )
```

3.1.2.15 setDebounceTime()

```
void SW420VibrationSensor::setDebounceTime (
    unsigned int debounce_ms )
```

3.1.3 Member Data Documentation

3.1.3.1 m_debounce_ms

```
unsigned int SW420VibrationSensor::m_debounce_ms [private]
```

3.1.3.2 m_gpio_chip

```
int SW420VibrationSensor::m_gpio_chip [private]
```

3.1.3.3 m_gpio_pin

```
int SW420VibrationSensor::m_gpio_pin [private]
```

3.1.3.4 m_is_initialized

```
bool SW420VibrationSensor::m_is_initialized [private]
```

3.1.3.5 m_last_change_time

```
std::chrono::steady_clock::time_point SW420VibrationSensor::m_last_change_time [private]
```

3.1.3.6 m_last_state

```
bool SW420VibrationSensor::m_last_state [private]
```

3.1.3.7 m_last_vibration_time

```
std::chrono::steady_clock::time_point SW420VibrationSensor::m_last_vibration_time [private]
```

3.1.3.8 m_value_path

```
std::string SW420VibrationSensor::m_value_path [private]
```

3.1.3.9 m_vibration_count

```
unsigned long SW420VibrationSensor::m_vibration_count [private]
```

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

- [src/sw420.h](#)
- [src/sw420.cpp](#)

Chapter 4

File Documentation

4.1 src/main.cpp File Reference

```
#include "sw420.h"  
#include <iostream>  
#include <chrono>  
#include <thread>  
#include <signal.h>
```

Functions

- void [signalHandler](#) (int signal)
- int [main](#) ()

Variables

- volatile bool [running](#) = true

4.1.1 Function Documentation

4.1.1.1 main()

```
int main ( )
```

4.1.1.2 signalHandler()

```
void signalHandler (  
    int signal )
```

4.1.2 Variable Documentation

4.1.2.1 running

```
volatile bool running = true
```

4.2 src/sw420.cpp File Reference

```
#include "sw420.h"  
#include <iostream>  
#include <fstream>  
#include <sstream>  
#include <unistd.h>  
#include <thread>
```

4.3 src/sw420.h File Reference

```
#include <string>  
#include <chrono>  
#include <fstream>  
#include <cstdint>
```

Classes

- class [SW420VibrationSensor](#)

4.4 sw420.h

[Go to the documentation of this file.](#)

```
00001 #ifndef SW420_H  
00002 #define SW420_H  
00003  
00004 #include <string>  
00005 #include <chrono>  
00006 #include <fstream>  
00007 #include <cstdint>  
00008  
00009  
00010 class SW420VibrationSensor {  
00011 private:  
00012     int m_gpio_pin;  
00013     int m_gpio_chip;  
00014     std::string m_value_path;  
00015     bool m_is_initialized;  
00016     bool m_last_state;  
00017  
00018     std::chrono::steady_clock::time_point m_last_change_time;  
00019     unsigned int m_debounce_ms;  
00020  
00021     unsigned long m_vibration_count;  
00022     std::chrono::steady_clock::time_point m_last_vibration_time;  
00023  
00024     bool configureGPIO();  
00025  
00026     bool cleanupGPIO();
```

```
00027
00028     int readRawValue();
00029
00030 public:
00031     explicit SW420VibrationSensor(int gpio_pin = 4, int gpio_chip = 0, unsigned int debounce_ms = 50);
00032
00033     ~SW420VibrationSensor();
00034
00035     bool initialize();
00036
00037     bool isInitialized() const;
00038
00039     bool readVibration();
00040
00041     bool hasStateChanged();
00042
00043     unsigned long getVibrationCount() const;
00044
00045     long getTimeSinceLastVibration() const;
00046
00047     void resetVibrationCount();
00048
00049     void setDebounceTime(unsigned int debounce_ms);
00050
00051     unsigned int getDebounceTime() const;
00052
00053     std::string getStatusInfo() const;
00054
00055     std::string getSensorId() const;
00056
00057     std::string getUnit() const;
00058 };
00059
00060 #endif // SW420_H
```


Index

- ~SW420VibrationSensor
 - SW420VibrationSensor, [6](#)
- cleanupGPIO
 - SW420VibrationSensor, [6](#)
- configureGPIO
 - SW420VibrationSensor, [6](#)
- getDebounceTime
 - SW420VibrationSensor, [6](#)
- getSensorId
 - SW420VibrationSensor, [6](#)
- getStatusInfo
 - SW420VibrationSensor, [6](#)
- getTimeSinceLastVibration
 - SW420VibrationSensor, [6](#)
- getUnit
 - SW420VibrationSensor, [6](#)
- getVibrationCount
 - SW420VibrationSensor, [6](#)
- hasStateChanged
 - SW420VibrationSensor, [7](#)
- initialize
 - SW420VibrationSensor, [7](#)
- isInitialized
 - SW420VibrationSensor, [7](#)
- m_debounce_ms
 - SW420VibrationSensor, [7](#)
- m_gpio_chip
 - SW420VibrationSensor, [7](#)
- m_gpio_pin
 - SW420VibrationSensor, [7](#)
- m_is_initialized
 - SW420VibrationSensor, [8](#)
- m_last_change_time
 - SW420VibrationSensor, [8](#)
- m_last_state
 - SW420VibrationSensor, [8](#)
- m_last_vibration_time
 - SW420VibrationSensor, [8](#)
- m_value_path
 - SW420VibrationSensor, [8](#)
- m_vibration_count
 - SW420VibrationSensor, [8](#)
- main
 - main.cpp, [9](#)
- main.cpp
 - main, [9](#)
- running, [10](#)
- signalHandler, [9](#)
- readRawValue
 - SW420VibrationSensor, [7](#)
- readVibration
 - SW420VibrationSensor, [7](#)
- resetVibrationCount
 - SW420VibrationSensor, [7](#)
- running
 - main.cpp, [10](#)
- setDebounceTime
 - SW420VibrationSensor, [7](#)
- signalHandler
 - main.cpp, [9](#)
- src/main.cpp, [9](#)
- src/sw420.cpp, [10](#)
- src/sw420.h, [10](#)
- SW420VibrationSensor, [5](#)
 - ~SW420VibrationSensor, [6](#)
 - cleanupGPIO, [6](#)
 - configureGPIO, [6](#)
 - getDebounceTime, [6](#)
 - getSensorId, [6](#)
 - getStatusInfo, [6](#)
 - getTimeSinceLastVibration, [6](#)
 - getUnit, [6](#)
 - getVibrationCount, [6](#)
 - hasStateChanged, [7](#)
 - initialize, [7](#)
 - isInitialized, [7](#)
 - m_debounce_ms, [7](#)
 - m_gpio_chip, [7](#)
 - m_gpio_pin, [7](#)
 - m_is_initialized, [8](#)
 - m_last_change_time, [8](#)
 - m_last_state, [8](#)
 - m_last_vibration_time, [8](#)
 - m_value_path, [8](#)
 - m_vibration_count, [8](#)
 - readRawValue, [7](#)
 - readVibration, [7](#)
 - resetVibrationCount, [7](#)
 - setDebounceTime, [7](#)
 - SW420VibrationSensor, [6](#)