WS2812_Demo

V1.0

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Chapter 1

File Index

1.1 File List

Here is a list of all files with brief descriptions:

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Chapter 2

File Documentation

2.1 F:/Functions/WS2812.c File Reference

This file provides information about the WS2812 firmware functions.

```
#include "WS2812.h"
```

Functions

- void HAL_TIM_PWM_PulseFinishedCallback (TIM_HandleTypeDef *htim)
- void WS_Work (void)

  Teansmit WS2812 Data of designated channel.
- void WS_CloseAll (void)

  Close all WS2812.
- uint32_t WS281x_Color (uint8_t red, uint8_t green, uint8_t blue, uint8_t brightness)

  Change RGB data to WS2812 data.
- void WS_WriteAll_RGB (uint8_t n_R, uint8_t n_G, uint8_t n_B, uint8_t brightness)

  Open all WS2812.
- void WS_WriteOne_RGB (uint8_t n, uint8_t n_R, uint8_t n_G, uint8_t n_B, uint8_t brightness)

  Choice Open which WS2812.

Variables

- uint16_t ws2812_data [BUFFER_NUM]
- uint8_t ws2812_brightness =10

2.1.1 Detailed Description

This file provides information about the WS2812 firmware functions.

Author

Emotion_Thorn

Version

V1.0

Date

2023-05-23

2.1.2 Function Documentation

2.1.2.1 HAL_TIM_PWM_PulseFinishedCallback()

```
void HAL_TIM_PWM_PulseFinishedCallback (
            TIM_HandleTypeDef * htim )
```

2.1.2.2 WS281x_Color()

```
uint32_t WS281x_Color (
            uint8_t red,
            uint8_t green,
            uint8_t blue,
            uint8_t brightness )
```

Change RGB data to WS2812 data.

Parameters

red	0∼255
green	0∼255
blue	0∼255
brightness	0∼100

Returns

WS2812 data

2.1.2.3 WS_CloseAll()

```
void WS_CloseAll (
            void  )
```

Close all WS2812.

Note

The number of closures depends on Device_Number

2.1.2.4 WS_Work()

```
void WS_Work (
             void  )
```

Teansmit WS2812 Data of designated channel.

2.1.2.5 WS_WriteAll_RGB()

```
void WS_WriteAll_RGB (
             uint8_t n_R,
             uint8_t n_G,
             uint8_t n_B,
             uint8_t brightness )
```

Open all WS2812.

Parameters

n_R	0∼255
n_G	0∼255
n_B	0∼255
brightness	0∼100

2.1.2.6 WS_WriteOne_RGB()

```
void WS_WriteOne_RGB (
             uint8_t n,
             uint8_t n_R,
             uint8_t n_G,
             uint8_t n_B,
             uint8_t brightness )
```

Choice Open which WS2812.

Parameters

n	choice Open device number
n_R	0∼255
n_G	0∼255
n_B	0∼255
brightness	0∼100

Note

n must be less than "Device_Number"

2.1.3 Variable Documentation

2.1.3.1 ws2812_brightness

```
uint8_t ws2812_brightness =10
```

2.1.3.2 ws2812_data

```
uint16_t ws2812_data[BUFFER_NUM]
```

2.2 F:/Functions/WS2812.h File Reference

This file provides information about the WS2812 firmware functions.

```
#include "main.h"
#include "tim.h"
```

Macros

- #define Device_Number 10
- #define BUFFER_NUM (24∗Device_Number + 1000)
- #define WS2812_BIT0 (40)
- #define WS2812_BIT1 (136)

Functions

- void WS_CloseAll (void)

  Close all WS2812.
- void WS_WriteAll_RGB (uint8_t n_R, uint8_t n_G, uint8_t n_B, uint8_t brightness)

  Open all WS2812.
- void WS_WriteOne_RGB (uint8_t n, uint8_t n_R, uint8_t n_G, uint8_t n_B, uint8_t brightness)

  Choice Open which WS2812.

2.2.1 Detailed Description

This file provides information about the WS2812 firmware functions.

Author

Emotion_Thorn

Version

V1.0

Date

2023-05-23

2.2.2 Macro Definition Documentation

2.2.2.1 BUFFER_NUM

```
#define BUFFER_NUM (24*Device_Number + 1000)
```

2.2.2.2 Device_Number

```
#define Device_Number 10
```

2.2.2.3 WS2812_BIT0

```
#define WS2812_BIT0 (40)
```

2.2.2.4 WS2812_BIT1

```
#define WS2812_BIT1 (136)
```

2.2.3 Function Documentation

2.2.3.1 WS_CloseAll()

```
void WS_CloseAll (
            void  )
```

Close all WS2812.

Note

The number of closures depends on Device_Number

2.2.3.2 WS_WriteAll_RGB()

```
void WS_WriteAll_RGB (
            uint8_t n_R,
            uint8_t n_G,
            uint8_t n_B,
            uint8_t brightness )
```

Open all WS2812.

Parameters

n_R	0∼255
n_G	0∼255
n_B	0∼255
brightness	0∼100

2.2.3.3 WS_WriteOne_RGB()

```
void WS_WriteOne_RGB (
              uint8_t n,
              uint8_t n_R,
              uint8_t n_G,
              uint8_t n_B,
              uint8_t brightness )
```

Choice Open which WS2812.

Parameters

n	choice Open device number
n_R	0∼255
n_G	0∼255
n_B	0∼255
brightness	0∼100

Note

n must be less than "Device_Number"

2.3 WS2812.h

Go to the documentation of this file.

```
00001
00010 #ifndef WS2812_H_
00011 #define WS2812_H_
00012
00013 #include "main.h"
00014 #include "tim.h"
00015
00016
00017 #define Device_Number   10
00018 #define BUFFER_NUM      (24*Device_Number + 1000)
00019 #define WS2812_BIT0     (40)
00020 #define WS2812_BIT1     (136)
00021
00022 void WS_CloseAll(void);
00023 void WS_WriteAll_RGB(uint8_t n_R, uint8_t n_G, uint8_t n_B,uint8_t brightness);
00024 void WS_WriteOne_RGB(uint8_t n,uint8_t n_R, uint8_t n_G, uint8_t n_B,uint8_t brightness);
00025 #endif /* WS2812_H_ */
```

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