

## Sistema de Balanças Automotivo

Generated by Doxygen 1.9.2



<b>1 File Index</b>	<b>1</b>
1.1 File List	1
<b>2 File Documentation</b>	<b>3</b>
2.1 C:/Users/maure/Documents/GitHub/Sistema-de-Balancas-Automotivo/FirmwareRTOS/src/main.cpp File Reference	3
2.1.1 Function Documentation	3
2.1.1.1 loop()	3
2.1.1.2 setup()	3
2.1.2 Variable Documentation	4
2.1.2.1 LED_PIN	4
2.1.2.2 sem	4
2.2 C:/Users/maure/Documents/GitHub/Sistema-de-Balancas-Automotivo/FirmwareRTOS/src/main.h File Reference	4
2.2.1 Macro Definition Documentation	5
2.2.1.1 bitshift	5
2.2.1.2 BUFFER_SIZE	5
2.2.1.3 CAL_PIN	6
2.2.1.4 FD_PORT	6
2.2.1.5 FE_PORT	6
2.2.1.6 FUNC_PIN	6
2.2.1.7 T_PIN	6
2.2.1.8 TD_PORT	6
2.2.1.9 TE_PORT	6
2.2.1.10 UPDATE_LCD_HZ	6
2.2.2 Function Documentation	7
2.2.2.1 lcd()	7
2.2.3 Variable Documentation	7
2.2.3.1 calibrationFactorDd	7
2.2.3.2 calibrationFactorDe	7
2.2.3.3 calibrationFactorTd	7
2.2.3.4 calibrationFactorTe	7
2.2.3.5 calState	7
2.2.3.6 d4	8
2.2.3.7 d5	8
2.2.3.8 d6	8
2.2.3.9 d7	8
2.2.3.10 dataDd	8
2.2.3.11 dataDe	8
2.2.3.12 dataTd	8
2.2.3.13 dataTe	8
2.2.3.14 dd	9
2.2.3.15 de	9

2.2.3.16 en . . . . .	9
2.2.3.17 funcState . . . . .	9
2.2.3.18 latupdateTime . . . . .	9
2.2.3.19 rs . . . . .	9
2.2.3.20 state . . . . .	9
2.2.3.21 taraDd . . . . .	9
2.2.3.22 taraDe . . . . .	10
2.2.3.23 taraTd . . . . .	10
2.2.3.24 taraTe . . . . .	10
2.2.3.25 td . . . . .	10
2.2.3.26 te . . . . .	10
2.2.3.27 total . . . . .	10
2.2.3.28 tState . . . . .	10
2.3 main.h . . . . .	11
<b>Index</b>	<b>13</b>

# Chapter 1

## File Index

### 1.1 File List

Here is a list of all files with brief descriptions:

C:/Users/maure/Documents/GitHub/Sistema-de-Balancas-Automotivo/FirmwareRTOS/src/ <b>main.cpp</b>	. . .	3
C:/Users/maure/Documents/GitHub/Sistema-de-Balancas-Automotivo/FirmwareRTOS/src/ <b>main.h</b>	. . .	4



## Chapter 2

# File Documentation

### 2.1 C:/Users/maure/Documents/GitHub/Sistema-de-Balancas-Automotivo/FirmwareRTOS/src/main.cpp File Reference

```
#include <Arduino.h>
#include "main.h"
#include <FreeRTOS_AVR.h>
```

#### Functions

- void **setup** ()
- void **loop** ()

#### Variables

- const uint8\_t **LED\_PIN** = 13
- SemaphoreHandle\_t **sem**

#### 2.1.1 Function Documentation

##### 2.1.1.1 loop()

```
void loop ( )
```

##### 2.1.1.2 setup()

```
void setup ( )
```

## 2.1.2 Variable Documentation

### 2.1.2.1 LED\_PIN

```
const uint8_t LED_PIN = 13
```

### 2.1.2.2 sem

```
SemaphoreHandle_t sem
```

## 2.2 C:/Users/maure/Documents/GitHub/Sistema-de-Balancas-Automotivo/FirmwareRTOS/src/main.h File Reference

```
#include <LiquidCrystal.h>
```

### Macros

- #define **FE\_PORT** 0
- #define **FD\_PORT** 1
- #define **TE\_PORT** 2
- #define **TD\_PORT** 3
- #define **FUNC\_PIN** 2
- #define **T\_PIN** 3
- #define **CAL\_PIN** 4
- #define **BUFFER\_SIZE** 32
- #define **bitshift** 5
- #define **UPDATE\_LCD\_HZ** 25

### Functions

- LiquidCrystal **lcd** ( **rs**, **en**, **d4**, **d5**, **d6**, **d7**)



## Variables

- const int **rs** = 13
- const int **en** = 12
- const int **d4** = 11
- const int **d5** = 10
- const int **d6** = 9
- const int **d7** = 8
- const double **calibrationFactorDe** = 0.48481
- const double **calibrationFactorDd** = 0.48481
- const double **calibrationFactorTe** = 0.48481
- const double **calibrationFactorTd** = 0.48481
- unsigned long **latupdateTime** = 0
- byte **state** = 0
- boolean **funcState** = false
- boolean **tState** = false
- boolean **calState** = false
- int32\_t **dataDe** [ **BUFFER\_SIZE**]
- int32\_t **dataDd** [ **BUFFER\_SIZE**]
- int32\_t **dataTe** [ **BUFFER\_SIZE**]
- int32\_t **dataTd** [ **BUFFER\_SIZE**]
- double **taraDe** = 0
- double **taraDd** = 0
- double **taraTe** = 0
- double **taraTd** = 0
- double **total** = 0
- double **de** = 0
- double **dd** = 0
- double **te** = 0
- double **td** = 0

## 2.2.1 Macro Definition Documentation

### 2.2.1.1 bitshift

```
#define bitshift 5
```

### 2.2.1.2 BUFFER\_SIZE

```
#define BUFFER_SIZE 32
```

### 2.2.1.3 CAL\_PIN

```
#define CAL_PIN 4
```

### 2.2.1.4 FD\_PORT

```
#define FD_PORT 1
```

### 2.2.1.5 FE\_PORT

```
#define FE_PORT 0
```

### 2.2.1.6 FUNC\_PIN

```
#define FUNC_PIN 2
```

### 2.2.1.7 T\_PIN

```
#define T_PIN 3
```

### 2.2.1.8 TD\_PORT

```
#define TD_PORT 3
```

### 2.2.1.9 TE\_PORT

```
#define TE_PORT 2
```

### 2.2.1.10 UPDATE\_LCD\_HZ

```
#define UPDATE_LCD_HZ 25
```

## 2.2.2 Function Documentation

### 2.2.2.1 lcd()

```
LiquidCrystal lcd (  
    rs ,  
    en ,  
    d4 ,  
    d5 ,  
    d6 ,  
    d7 )
```

## 2.2.3 Variable Documentation

### 2.2.3.1 calibrationFactorDd

```
const double calibrationFactorDd = 0.48481
```

### 2.2.3.2 calibrationFactorDe

```
const double calibrationFactorDe = 0.48481
```

### 2.2.3.3 calibrationFactorTd

```
const double calibrationFactorTd = 0.48481
```

### 2.2.3.4 calibrationFactorTe

```
const double calibrationFactorTe = 0.48481
```

### 2.2.3.5 calState

```
boolean calState = false
```

#### 2.2.3.6 d4

```
const int d4 = 11
```

#### 2.2.3.7 d5

```
const int d5 = 10
```

#### 2.2.3.8 d6

```
const int d6 = 9
```

#### 2.2.3.9 d7

```
const int d7 = 8
```

#### 2.2.3.10 dataDd

```
int32_t dataDd[ BUFFER_SIZE]
```

#### 2.2.3.11 dataDe

```
int32_t dataDe[ BUFFER_SIZE]
```

#### 2.2.3.12 dataTd

```
int32_t dataTd[ BUFFER_SIZE]
```

#### 2.2.3.13 dataTe

```
int32_t dataTe[ BUFFER_SIZE]
```

#### 2.2.3.14 dd

```
double dd = 0
```

#### 2.2.3.15 de

```
double de = 0
```

#### 2.2.3.16 en

```
const int en = 12
```

#### 2.2.3.17 funcState

```
boolean funcState = false
```

#### 2.2.3.18 latupdateTime

```
unsigned long latupdateTime = 0
```

#### 2.2.3.19 rs

```
const int rs = 13
```

#### 2.2.3.20 state

```
byte state = 0
```

#### 2.2.3.21 taraDd

```
double taraDd = 0
```

**2.2.3.22 taraDe**

```
double taraDe = 0
```

**2.2.3.23 taraTd**

```
double taraTd = 0
```

**2.2.3.24 taraTe**

```
double taraTe = 0
```

**2.2.3.25 td**

```
double td = 0
```

**2.2.3.26 te**

```
double te = 0
```

**2.2.3.27 total**

```
double total = 0
```

**2.2.3.28 tState**

```
boolean tState = false
```

## 2.3 main.h

Go to the documentation of this file.

```
1 //
2 // Created by eugen on 26/08/2021.
3 //
4
5 #ifndef FIRMWARERTOS_MAIN_H
6 #define FIRMWARERTOS_MAIN_H
7 #endif FIRMWARERTOS_MAIN_H
8
9 // include the library code:
10 #include <LiquidCrystal.h>
11 //#define DEBUG_TIME
12 #define FE_PORT 0
13 #define FD_PORT 1
14 #define TE_PORT 2
15 #define TD_PORT 3
16
17 #define FUNC_PIN 2
18 #define T_PIN 3
19 #define CAL_PIN 4
20
21 #define BUFFER_SIZE 32
22 #define bitshift 5
23 #define UPDATE_LCD_HZ 25
24 // initialize the library by associating any needed LCD interface pin
25 // with the arduino pin number it is connected to
26 const int rs = 13, en = 12, d4 = 11, d5 = 10, d6 = 9, d7 = 8;
27 LiquidCrystal lcd(rs, en, d4, d5, d6, d7);
28
29 const double calibrationFactorDe = 0.48481;
30 const double calibrationFactorDd = 0.48481;
31 const double calibrationFactorTe = 0.48481;
32 const double calibrationFactorTd = 0.48481;
33
34 unsigned long latupdateTime = 0;
35
36 byte state = 0;
37 boolean funcState = false;
38 boolean tState = false;
39 boolean calState = false;
40
41 int32_t dataDe[BUFFER_SIZE];
42 int32_t dataDd[BUFFER_SIZE];
43 int32_t dataTe[BUFFER_SIZE];
44 int32_t dataTd[BUFFER_SIZE];
45
46 double taraDe = 0;
47 double taraDd = 0;
48 double taraTe = 0;
49 double taraTd = 0;
50
51 double total = 0;
52 double de = 0;
53 double dd = 0;
54 double te = 0;
55 double td = 0;
56
57 //void printScales();
58 //void printLong();
59 //void printLat();
60 //void printTotal();
61 //void tara();
62 //void calibracao();
63 //
64 //void readButtons();
65 //void readData();
66 //void processData();
67 //int32_t mediaMovel(int32_t *array);
```





# Index

bitshift  
    main.h, 5  
BUFFER\_SIZE  
    main.h, 5  
  
C:/Users/maure/Documents/GitHub/Sistema-de-Balancas-latupdateTime  
    Automotivo/FirmwareRTOS/src/main.cpp, 3  
C:/Users/maure/Documents/GitHub/Sistema-de-Balancas-lcd  
    Automotivo/FirmwareRTOS/src/main.h, 4, 11  
CAL\_PIN  
    main.h, 5  
calibrationFactorDd  
    main.h, 7  
calibrationFactorDe  
    main.h, 7  
calibrationFactorTd  
    main.h, 7  
calibrationFactorTe  
    main.h, 7  
calState  
    main.h, 7  
  
d4  
    main.h, 7  
d5  
    main.h, 8  
d6  
    main.h, 8  
d7  
    main.h, 8  
dataDd  
    main.h, 8  
dataDe  
    main.h, 8  
dataTd  
    main.h, 8  
dataTe  
    main.h, 8  
dd  
    main.h, 8  
de  
    main.h, 9  
  
en  
    main.h, 9  
  
FD\_PORT  
    main.h, 6  
FE\_PORT  
    main.h, 6  
  
FUNC\_PIN  
    main.h, 6  
funcState  
    main.h, 9  
  
main.cpp  
    LED\_PIN, 4  
    loop, 3  
    sem, 4  
    setup, 3  
main.h  
    bitshift, 5  
    BUFFER\_SIZE, 5  
    CAL\_PIN, 5  
    calibrationFactorDd, 7  
    calibrationFactorDe, 7  
    calibrationFactorTd, 7  
    calibrationFactorTe, 7  
    calState, 7  
    d4, 7  
    d5, 8  
    d6, 8  
    d7, 8  
    dataDd, 8  
    dataDe, 8  
    dataTd, 8  
    dataTe, 8  
    dd, 8  
    de, 9  
    en, 9  
    FD\_PORT, 6  
    FE\_PORT, 6  
    FUNC\_PIN, 6  
    funcState, 9  
    latupdateTime, 9  
    lcd, 7  
    rs, 9  
    state, 9  
    T\_PIN, 6  
    taraDd, 9  
    taraDe, 9

- taraTd, 10
- taraTe, 10
- td, 10
- TD\_PORT, 6
- te, 10
- TE\_PORT, 6
- total, 10
- tState, 10
- UPDATE\_LCD\_HZ, 6
  
- rs
  - main.h, 9
  
- sem
  - main.cpp, 4
- setup
  - main.cpp, 3
- state
  - main.h, 9
  
- T\_PIN
  - main.h, 6
- taraDd
  - main.h, 9
- taraDe
  - main.h, 9
- taraTd
  - main.h, 10
- taraTe
  - main.h, 10
- td
  - main.h, 10
- TD\_PORT
  - main.h, 6
- te
  - main.h, 10
- TE\_PORT
  - main.h, 6
- total
  - main.h, 10
- tState
  - main.h, 10
  
- UPDATE\_LCD\_HZ
  - main.h, 6