

MotionAW Software Library

MotionAW Software Library Documentation

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Modules

Here is a list of all modules:

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▼ **MIDDLEWARES**

 ▼ **MOTION_AW**

MOTION_AW_Exported_Types

MOTION_AW_Exported_Functions

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MOTION_AW

Detailed Description

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MOTION_AW

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MOTION_AW_Exported_Types

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MOTION_AW_Exported_Types

[MIDDLEWARES](#) » [MOTION_AW](#)

Data Structures

```
struct MAW_input_t
```

```
struct MAW_output_t
```

Macros

```
#define NUM_ACTIVITIES 9
```

Enumerations

```
MAW_activity_t {  
    MAW_NOACTIVITY = 0x00, MAW_STATIONARY = 0x01,  
    MAW_STANDING = 0x02, MAW_SITTING = 0x03,  
enum   MAW LYING = 0x04, MAW_WALKING = 0x05,  
        MAW_FASTWALKING = 0x06, MAW_JOGGING = 0x07,  
        MAW_BIKING = 0x08  
}
```

Detailed Description

Macro Definition Documentation

#define NUM_ACTIVITIES 9

Definition at line [62](#) of file [motion_aw.h](#).

Enumeration Type Documentation

enum MAW_activity_t

Enumerator
MAW_NOACTIVITY
MAW_STATIONARY
MAW_STANDING
MAW_SITTING
MAW LYING
MAW_WALKING
MAW_FASTWALKING
MAW_JOGGING
MAW_BIKING

Definition at line **72** of file **motion_aw.h**.

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MAW_input_t Struct Reference				

MAW_input_t Struct Reference

MIDDLEWARES » **MOTION_AW** » **MOTION_AW_Exported_Types**

```
#include <motion_aw.h>
```

Data Fields

float **AccX**

float **AccY**

float **AccZ**

Detailed Description

Definition at line **65** of file [motion_aw.h](#).

Field Documentation

float AccX

Definition at line **67** of file **[motion_aw.h](#)**.

float AccY

Definition at line **68** of file **[motion_aw.h](#)**.

float AccZ

Definition at line **69** of file **[motion_aw.h](#)**.

The documentation for this struct was generated from the following file:

- [algorithms/Middlewares/ST/STM32_MotionAW_Library/Inc/motion_](#)
-

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MAW_output_t Struct Reference				
MIDDLEWARES » MOTION_AW » MOTION_AW_Exported_Types				

```
#include <motion_aw.h>
```

Data Fields

MAW_activity_t current_activity

uint16_t confidence

uint32_t current_activity_duration

uint32_t activity_total_duration [NUM_ACTIVITIES]

Detailed Description

Definition at line **85** of file [motion_aw.h](#).

Field Documentation

uint32_t activity_total_duration[[NUM_ACTIVITIES](#)]

Definition at line [89](#) of file [motion_aw.h](#).

uint16_t confidence

Definition at line [87](#) of file [motion_aw.h](#).

[MAW_activity_t](#) current_activity

Definition at line [86](#) of file [motion_aw.h](#).

uint32_t current_activity_duration

Definition at line [88](#) of file [motion_aw.h](#).

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MOTION_AW_Exported_Functions

[MIDDLEWARES](#) » [MOTION_AW](#)

Functions

void **MotionAW_Initialize** (void)

Initialize the MotionAW engine. [More...](#)

void **MotionAW_SetOrientation_Acc** (const char

*acc_orientation)

Set the MotionAW accelerometer data orientation. [More...](#)

void **MotionAW_Update** (**MAW_input_t** *data_in, **MAW_output_t**

*data_out)

Run activity recognition algorithm. [More...](#)

void **MotionAW_Reset** (void)

Resets activity recognition algorithm. [More...](#)

void **MotionAW_Reset_Activity_Duration** (void)

Resets total activity duration counters. [More...](#)

uint8_t **MotionAW_GetLibVersion** (char *version)

Get the library version. [More...](#)

Detailed Description

Function Documentation

uint8_t MotionAW_GetLibVersion (char * **version)**

Get the library version.

Parameters

version pointer to an array of 35 char

Return values

Number of characters in the version string

void MotionAW_Initialize (void)

Initialize the MotionAW engine.

Parameters

none

Return values

none

void MotionAW_Reset (void)

Resets activity recognition algorithm.

Parameters

none

Return values

none

void MotionAW_Reset_Activity_Duration (void)

Resets total activity duration counters.

Parameters

none

Return values

none

void MotionAW_SetOrientation_Acc (const char * acc_orientation)

Set the MotionAW accelerometer data orientation.

Parameters

***acc_orientation** reference system of the accelerometer raw data (for instance: south west up became "swu", north east up became "ned")

Return values

none

void MotionAW_Update (MAW_input_t * data_in, MAW_output_t * data_out)

Run activity recognition algorithm.

Parameters

data_in pointer to acceleration in [g]

data_out pointer to output activity structure

Return values

none

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Data Structures

Here are the data structures with brief descriptions:

- [!\[\]\(21836c01843165e8dc035337f541a17f_img.jpg\) MAW_input_t](#)
- [!\[\]\(e411cb55f5ec6217252f076861c8cda1_img.jpg\) MAW_output_t](#)

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Data Structure Index

M

M

[MAW_output_t](#)

[MAW_input_t](#)

M

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All	Variables		

Here is a list of all struct and union fields with links to the structures/unions they belong to:

- AccX : [MAW_input_t](#)
- AccY : [MAW_input_t](#)
- AccZ : [MAW_input_t](#)
- activity_total_duration : [MAW_output_t](#)
- confidence : [MAW_output_t](#)
- current_activity : [MAW_output_t](#)
- current_activity_duration : [MAW_output_t](#)

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All	Variables		

- AccX : [MAW_input_t](#)
- AccY : [MAW_input_t](#)
- AccZ : [MAW_input_t](#)
- activity_total_duration : [MAW_output_t](#)
- confidence : [MAW_output_t](#)
- current_activity : [MAW_output_t](#)
- current_activity_duration : [MAW_output_t](#)

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File List

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[detail level [1](#) [2](#) [3](#) [4](#) [5](#) [6](#)]

 algorithms	
 Middlewares	
 ST	
 STM32_MotionAW_Library	
 Inc	
 motion_aw.h	Header for motion_aw module

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directory **Middlewares**

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Middlewares Directory Reference

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directory **ST**

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ST Directory Reference

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directory **STM32_MotionAW_Library**

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STM32_MotionAW_Library

STM32_MotionAW_Library Directory Reference

Directories

directory **Inc**

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[STM32_MotionAW_Library](#)

[Inc](#)

Inc Directory Reference

Files

file [**motion_aw.h**](#) [code]

Header for motion_aw module.

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algorithms	Middlewares	ST	STM32_MotionAW_Library
Inc			
		Data Structures	Macros Enumerations Functions

motion_aw.h File Reference

Header for motion_aw module. [More...](#)

#include <stdint.h>

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

Data Structures

```
struct MAW_input_t
```

```
struct MAW_output_t
```

Macros

```
#define NUM_ACTIVITIES 9
```

Enumerations

```
MAW_activity_t {  
    MAW_NOACTIVITY = 0x00, MAW_STATIONARY = 0x01,  
    MAW_STANDING = 0x02, MAW_SITTING = 0x03,  
enum   MAW LYING = 0x04, MAW_WALKING = 0x05,  
        MAW_FASTWALKING = 0x06, MAW_JOGGING = 0x07,  
        MAW_BIKING = 0x08  
}
```

Functions

void **MotionAW_Initialize** (void)

Initialize the MotionAW engine. [More...](#)

void **MotionAW_SetOrientation_Acc** (const char

*acc_orientation)

Set the MotionAW accelerometer data orientation. [More...](#)

void **MotionAW_Update** (**MAW_input_t** *data_in, **MAW_output_t**

*data_out)

Run activity recognition algorithm. [More...](#)

void **MotionAW_Reset** (void)

Resets activity recognition algorithm. [More...](#)

void **MotionAW_Reset_Activity_Duration** (void)

Resets total activity duration counters. [More...](#)

uint8_t **MotionAW_GetLibVersion** (char *version)

Get the library version. [More...](#)

Detailed Description

Header for motion_aw module.

Author

MEMS Application Team

Version

V2.0.0

Date

01-May-2017

Attention

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Definition in file [motion_aw.h](#).

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Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

- MAW_activity_t : [motion_aw.h](#)
- MAW_BIKING : [motion_aw.h](#)
- MAW_FASTWALKING : [motion_aw.h](#)
- MAW_JOGGING : [motion_aw.h](#)
- MAW LYING : [motion_aw.h](#)
- MAW_NOACTIVITY : [motion_aw.h](#)
- MAW_SITTING : [motion_aw.h](#)
- MAW_STANDING : [motion_aw.h](#)
- MAW_STATIONARY : [motion_aw.h](#)
- MAW_WALKING : [motion_aw.h](#)
- MotionAW_GetLibVersion() : [motion_aw.h](#)
- MotionAW_Initialize() : [motion_aw.h](#)
- MotionAW_Reset() : [motion_aw.h](#)
- MotionAW_Reset_Activity_Duration() : [motion_aw.h](#)
- MotionAW_SetOrientation_Acc() : [motion_aw.h](#)
- MotionAW_Update() : [motion_aw.h](#)
- NUM_ACTIVITIES : [motion_aw.h](#)

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- MotionAW_GetLibVersion() : [motion_aw.h](#)
- MotionAW_Initialize() : [motion_aw.h](#)
- MotionAW_Reset() : [motion_aw.h](#)
- MotionAW_Reset_Activity_Duration() : [motion_aw.h](#)
- MotionAW_SetOrientation_Acc() : [motion_aw.h](#)
- MotionAW_Update() : [motion_aw.h](#)

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- MAW_activity_t : [motion_aw.h](#)

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- MAW_BIKING : [motion_aw.h](#)
- MAW_FASTWALKING : [motion_aw.h](#)
- MAW_JOGGING : [motion_aw.h](#)
- MAW LYING : [motion_aw.h](#)
- MAW_NOACTIVITY : [motion_aw.h](#)
- MAW_SITTING : [motion_aw.h](#)
- MAW_STANDING : [motion_aw.h](#)
- MAW_STATIONARY : [motion_aw.h](#)
- MAW_WALKING : [motion_aw.h](#)

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- NUM_ACTIVITIES : [motion_aw.h](#)

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motion_aw.h

Go to the documentation of this file.

```
1
38 /* Define to prevent recursive inclusion ---
   *-----*/
39 #ifndef _MOTION_AW_H_
40 #define _MOTION_AW_H_
41
42 #ifdef __cplusplus
43 extern "C" {
44 #endif
45
46 /* Includes -
   *-----*/
47 #include <stdint.h>
48
61 /* Exported constants -
   *-----*/
62 #define NUM_ACTIVITIES 9
63
64 /* Exported types -
   *-----*/
65 typedef struct
66 {
67     float AccX;          /* Acceleration in X
   axis in [g] */
68     float AccY;          /* Acceleration in Y
```

```

    axis in [g] */
69     float AccZ;           /* Acceleration in Z
    axis in [g] */
70 } MAW_input_t;
71
72 typedef enum
73 {
74     MAW_NOACTIVITY      = 0x00,
75     MAW_STATIONARY       = 0x01,
76     MAW_STANDING         = 0x02,
77     MAW_SITTING          = 0x03,
78     MAW LYING            = 0x04,
79     MAW_WALKING          = 0x05,
80     MAW_FASTWALKING      = 0x06,
81     MAW_JOGGING          = 0x07,
82     MAW_BIKING           = 0x08
83 } MAW_activity_t;
84
85 typedef struct {
86     MAW_activity_t current_activity;
87     uint16_t confidence;
88     uint32_t current_activity_duration;
89     uint32_t
90         activity_total_duration[NUM_ACTIVITIES];
91 } MAW_output_t;
92
96 /* Exported variables -----
97 *-----*/
97 /* Exported macro -----
98 *-----*/
98
103 /* Exported functions -----
104 *-----*/
104
110 void MotionAW_Initialize(void);
111
117 void MotionAW_SetOrientation_Acc(const char

```

```
    *acc_orientation);
118
125 void MotionAW_Update(MAW_input_t *data_in,
    MAW_output_t *data_out);
126
132 void MotionAW_Reset(void);
133
139 void MotionAW_Reset_Activity_Duration(void);
140
146 uint8_t MotionAW_GetLibVersion(char
    *version);
147
148
161 #ifdef __cplusplus
162 }
163#endif
164
165#endif /* _MOTION_AW_H_ */
166
167 /***** (C) COPYRIGHT
    STMicroelectronics *****END OF FILE****/
```