Here is a list of all modules:

- MIDDLEWARES
- MOTION_AW
  - MOTION_AW_Exported_Types
  - MOTION_AW_Exported_Functions

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# MotionAW Software Library

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<td>-------</td>
<td></td>
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</tr>
<tr>
<td>MOTION_AW</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>MIDDLEWARES</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Modules

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<thead>
<tr>
<th>Module Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOTION_AW_Exported_Types</td>
</tr>
<tr>
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</table>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Structures | Macros | Enumerations

MOTION_AW_Exported_Types
MIDDLEWARES » MOTION_AW
Data Structures

<table>
<thead>
<tr>
<th>struct</th>
<th>MAW_input_t</th>
</tr>
</thead>
</table>

| struct | MAW_output_t |
## Macros

```
#define NUM_ACTIVITIES 9
```
### Enumerations

```c
enum MAW_activity_t {
    MAW_NOACTIVITY = 0x00, MAW_STATIONARY = 0x01,
    MAW_STANDING = 0x02, MAW_SITTING = 0x03,
    MAW_LYING = 0x04, MAW_WALKING = 0x05,
    MAW_FASTWALKING = 0x06, MAW_JOGGING = 0x07,
    MAW_BIKING = 0x08
};
```
#define NUM_ACTIVITIES 9

Definition at line 62 of file motion_aw.h.
Enumeration Type Documentation

```c
enum MAW_activity_t
```

<table>
<thead>
<tr>
<th>Enumerator</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAW_NOACTIVITY</td>
</tr>
<tr>
<td>MAW_STATIONARY</td>
</tr>
<tr>
<td>MAW_STANDING</td>
</tr>
<tr>
<td>MAW_SITTING</td>
</tr>
<tr>
<td>MAW_LYING</td>
</tr>
<tr>
<td>MAW_WALKING</td>
</tr>
<tr>
<td>MAW_FASTWALKING</td>
</tr>
<tr>
<td>MAW_JOGGING</td>
</tr>
<tr>
<td>MAW_BIKING</td>
</tr>
</tbody>
</table>

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

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**MAW_input_t Struct Reference**

**MIDDLEWARES › MOTION_AW › MOTION_AW_Exported_Types**

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>float</td>
<td>AccX</td>
</tr>
<tr>
<td>float</td>
<td>AccY</td>
</tr>
<tr>
<td>float</td>
<td>AccZ</td>
</tr>
</tbody>
</table>
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_aw.h`

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# MAW_output_t Struct

**Reference**

MIDDLEWARES » MOTION_AW » MOTION_AW_Exported_Types

```c
#include <motion_aw.h>
```
<table>
<thead>
<tr>
<th>Data Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAW_activity_t current_activity</strong></td>
</tr>
<tr>
<td><strong>uint16_t confidence</strong></td>
</tr>
<tr>
<td><strong>uint32_t current_activity_duration</strong></td>
</tr>
<tr>
<td><strong>uint32_t activity_total_duration [NUM_ACTIVITIES]</strong></td>
</tr>
</tbody>
</table>
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.

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

- algorithms/Middlewares/ST/STM32_MotionAW_Library/Inc/motion_
# MotionAW Software Library

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</table>

**MOTION_AW_Exported_Functions**

MIDDLEWARES » MOTION_AW
### Functions

<table>
<thead>
<tr>
<th>Type</th>
<th>Function Name</th>
<th>Description</th>
<th>More</th>
</tr>
</thead>
<tbody>
<tr>
<td>void</td>
<td><code>MotionAW_Initialize</code> (void)</td>
<td>Initialize the MotionAW engine.</td>
<td>More</td>
</tr>
<tr>
<td>void</td>
<td><code>MotionAW_SetOrientation_Acc</code> (const char *acc_orientation)</td>
<td>Set the MotionAW accelerometer data orientation.</td>
<td>More</td>
</tr>
<tr>
<td>void</td>
<td><code>MotionAW_Update</code> (MAW_input_t *data_in, MAW_output_t *data_out)</td>
<td>Run activity recognition algorithm.</td>
<td>More</td>
</tr>
<tr>
<td>void</td>
<td><code>MotionAW_Reset</code> (void)</td>
<td>Resets activity recognition algorithm.</td>
<td>More</td>
</tr>
<tr>
<td>void</td>
<td><code>MotionAW_Reset_Activity_Duration</code> (void)</td>
<td>Resets total activity duration counters.</td>
<td>More</td>
</tr>
<tr>
<td>uint8_t</td>
<td><code>MotionAW_GetLibVersion</code> (char *version)</td>
<td>Get the library version.</td>
<td>More</td>
</tr>
</tbody>
</table>
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`
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**
Data Structures

Here are the data structures with brief descriptions:

- `MAW_input_t`
- `MAW_output_t`
# Data Structure Index

<table>
<thead>
<tr>
<th>M</th>
<th>MAW_output_t</th>
</tr>
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<tbody>
<tr>
<td>MAW_input_t</td>
<td></td>
</tr>
</tbody>
</table>

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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`
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
### File List

Here is a list of all files with brief descriptions:

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<th>File Path</th>
<th>Description</th>
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<td>ST</td>
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</tr>
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<td>4</td>
<td>STM32_MotionAW_Library</td>
<td></td>
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<tr>
<td>5</td>
<td>Inc</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>motion_aw.h</td>
<td>Header for motion_aw module</td>
</tr>
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</table>

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<tr>
<td>algorithms</td>
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</tbody>
</table>

**algorithms Directory Reference**
Directories

directory  Middlewares
Middlewares Directory Reference
| directory | ST |

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## ST Directory Reference
| directory | STM32_MotionAW_Library |

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# STM32_MotionAW_Library Directory Reference

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<th>Files</th>
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</thead>
<tbody>
<tr>
<td>algorithms</td>
<td>Middlewares</td>
<td>ST</td>
<td>STM32_MotionAW_Library</td>
</tr>
</tbody>
</table>

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| directory | Inc |

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# MotionAW Software Library

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<tbody>
<tr>
<td>algorithms</td>
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<td>ST</td>
<td>STM32_MotionAW_Library</td>
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</tbody>
</table>

**Inc Directory Reference**
<table>
<thead>
<tr>
<th>file</th>
<th>motion_aw.h [code]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Header for motion_aw module.</td>
</tr>
</tbody>
</table>

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# motion_aw.h File

Header for motion_aw module. More...

```c
#include <stdint.h>
```

Go to the source code of this file.
Data Structures

<table>
<thead>
<tr>
<th>struct</th>
<th>MAW_input_t</th>
</tr>
</thead>
<tbody>
<tr>
<td>struct</td>
<td>MAW_output_t</td>
</tr>
</tbody>
</table>
Macros

#define NUM_ACTIVITIES 9
## Enumerations

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Function Name</th>
<th>Description</th>
<th>More...</th>
</tr>
</thead>
<tbody>
<tr>
<td>void</td>
<td><strong>MotionAW_Initialize</strong> (void)</td>
<td>Initialize the MotionAW engine.</td>
<td></td>
</tr>
<tr>
<td>void</td>
<td><strong>MotionAW_SetOrientation_Acc</strong> (const char *acc_orientation)</td>
<td>Set the MotionAW accelerometer data orientation.</td>
<td></td>
</tr>
<tr>
<td>void</td>
<td><strong>MotionAW_Update</strong> (MAW_input_t *data_in, MAW_output_t *data_out)</td>
<td>Run activity recognition algorithm.</td>
<td></td>
</tr>
<tr>
<td>void</td>
<td><strong>MotionAW_Reset</strong> (void)</td>
<td>Resets activity recognition algorithm.</td>
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</tr>
<tr>
<td>void</td>
<td><strong>MotionAW_Reset_Activity_Duration</strong> (void)</td>
<td>Resets total activity duration counters.</td>
<td></td>
</tr>
<tr>
<td>uint8_t</td>
<td><strong>MotionAW_GetLibVersion</strong> (char *version)</td>
<td>Get the library version.</td>
<td></td>
</tr>
</tbody>
</table>
Detailed Description

Header for motion_aw module.

Author
MEMS Application Team

Version
V2.0.0

Date
01-May-2017

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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
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`
• NUM_ACTIVITIES : motion_aw.h
motion_aw.h

Go to the documentation of this file.

```c
/* Define to prevent recursive inclusion --------------------------*/
#ifndef _MOTION_AW_H_
#define _MOTION_AW_H_

#ifdef __cplusplus
extern "C" {
#endif

/* Includes --------------------------------------------------------*/
#include <stdint.h>

/* Exported constants ---------------------------------------------*/
#define NUM_ACTIVITIES 9

/* Exported types -------------------------------------------------*/
typedef struct {
  float AccX; /* Acceleration in X axis in [g] */
  float AccY; /* Acceleration in Y */
};
```

```
```
float AccZ;              /* Acceleration in Z axis in [g] */
void MotionAW_Update(MAW_input_t *data_in, MAW_output_t *data_out);

void MotionAW_Reset(void);

void MotionAW_Reset_Activity_Duration(void);

uint8_t MotionAW_GetLibVersion(char *version);

#ifdef __cplusplus
#endif /* _MOTION_AW_H_ */

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