RelativeKinematicsComputationsModel

5.0

Generated by Doxygen 1.8.14

Contents

Chapter 1

Module Index

1.1 Modules

Here is a list of all modules:

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Chapter 3

Data Structure Index

3.1 Data Structures

Here are the data structures with brief descriptions:

Chapter 4

File Index

4.1 File List

Here is a list of all files with brief descriptions:

Chapter 5

Module Documentation

5.1 Models

Modules

- Dynamics

5.1.1 Detailed Description

5.2 Dynamics

Modules

- RelKin

5.2.1 Detailed Description

5.3 RelKin

Files

- file rel_kin_messages.hh

  Define the class RelKinMessages, the class that specifies the message IDs used in the relative kinematics model.
- file relative_kinematics.hh

  Define the class RelativeKinematics, the class used for calculating the state of some point(s) of interest associated with the subject DynBody relative to some other reference frame.
- file rel_kin_messages.cc

  Implement the class RelKinMessages.
- file relative_kinematics.cc

  Define methods for the RelativeKinematics class.

Namespaces

- jeod

  Namespace jeod.

Macros

- #define PATH "dynamics/rel_kin/"

5.3.1 Detailed Description

5.3.2 Macro Definition Documentation

5.3.2.1 PATH

```
#define PATH "dynamics/rel_kin/"
```

Definition at line 37 of file rel_kin_messages.cc.

Chapter 6

Namespace Documentation

6.1 jeod Namespace Reference

Namespace jeod.

Data Structures

- class RelativeKinematics

  Encapsulates functionality for computing relative states.
- class RelKinMessages

  Specifies the message IDs used in the orbital elements model.

6.1.1 Detailed Description

Namespace jeod.

Chapter 7

Data Structure Documentation

7.1 jeod::RelativeKinematics Class Reference

Encapsulates functionality for computing relative states.

`#include <relative_kinematics.hh>`

Public Member Functions

- RelativeKinematics ()

  Construct a RelativeKinematics object.
- ~RelativeKinematics ()

  Destruct a RelativeKinematics object.
- void add_relstate (RelativeDerivedState &relstate)

  Add a relative state to the list of ones maintained by this model.
- void remove_relstate (RelativeDerivedState &relstate)

  Remove a relative state from the list of ones maintained by this model.
- RelativeDerivedState * find_relstate (const char *relstate_name)

  Find a specific relative state maintained by this model.
- void activate_relstate (RelativeDerivedState &relstate, bool raf)

  Set flag for a relative state to be activated or deactivated by the RelKin manager.
- void update_single (const char *relstate_name)

  Update a single relative state maintained by this model.
- void update_all (void)

  Update all relative states maintained by this model.

Data Fields

- unsigned int num_rel_states

  Length of above list of relative states being maintained by this.
- JeodPointerVector< RelativeDerivedState >::type relative_states

  List of relative states to be computed and maintained by this model.

Private Member Functions

- RelativeKinematics (const RelativeKinematics &)
- RelativeKinematics & operator= (const RelativeKinematics &)

Friends

- class InputProcessor
- void init_attrjeod__RelativeKinematics ()

7.1.1 Detailed Description

Encapsulates functionality for computing relative states.

Definition at line 87 of file relative_kinematics.hh.

7.1.2 Constructor & Destructor Documentation

7.1.2.1 RelativeKinematics() [1/2]

```
jeod::RelativeKinematics::RelativeKinematics (
            const RelativeKinematics &  )  [private]
```

7.1.2.2 RelativeKinematics() [2/2]

```
jeod::RelativeKinematics::RelativeKinematics (
            void  )
```

Construct a RelativeKinematics object.

Definition at line 56 of file relative_kinematics.cc.

References relative_states.

7.1.2.3 ~RelativeKinematics()

```
jeod::RelativeKinematics::~RelativeKinematics (
            void  )
```

Destruct a RelativeKinematics object.

Definition at line 70 of file relative_kinematics.cc.

References relative_states.

7.1.3 Member Function Documentation

7.1.3.1 activate_relstate()

```
void jeod::RelativeKinematics::activate_relstate (
            RelativeDerivedState & relstate,
            bool raf )
```

Set flag for a relative state to be activated or deactivated by the RelKin manager.

Parameters

in	*relstate*	Relstate to activate/deactivate
in	*raf*	bool Relstate activation flag

Definition at line 166 of file relative_kinematics.cc.

References jeod::RelKinMessages::entry_not_found, find_relstate(), and jeod::RelKinMessages::invalid_entry.

7.1.3.2 add_relstate()

```
void jeod::RelativeKinematics::add_relstate (
            RelativeDerivedState & relstate )
```

Add a relative state to the list of ones maintained by this model.

Parameters

in	*relstate*	Relstate to add

Definition at line 83 of file relative_kinematics.cc.

References jeod::RelKinMessages::duplicate_entry, find_relstate(), num_rel_states, and relative_states.

7.1.3.3 find_relstate()

```
RelativeDerivedState * jeod::RelativeKinematics::find_relstate (
            const char * relstate_name )
```

Find a specific relative state maintained by this model.

Returns

Void

Parameters

in	*relstate_name*	Relstate to find

Definition at line 142 of file relative_kinematics.cc.

References num_rel_states, and relative_states.

Referenced by activate_relstate(), add_relstate(), and update_single().

7.1.3.4 operator=()

```
RelativeKinematics& jeod::RelativeKinematics::operator= (
            const RelativeKinematics &  )  [private]
```

7.1.3.5 remove_relstate()

```
void jeod::RelativeKinematics::remove_relstate (
            RelativeDerivedState & relstate )
```

Remove a relative state from the list of ones maintained by this model.

Parameters

in	*relstate*	Relstate to remove

Definition at line 115 of file relative_kinematics.cc.

References jeod::RelKinMessages::entry_not_found, num_rel_states, and relative_states.

7.1.3.6 update_all()

```
void jeod::RelativeKinematics::update_all (
            void  )
```

Update all relative states maintained by this model.

relstates that have been deactivated from RelKin will not be update.

Definition at line 222 of file relative_kinematics.cc.

References num_rel_states, and relative_states.

7.1.3.7 update_single()

```
void jeod::RelativeKinematics::update_single (
            const char * relstate_name )
```

Update a single relative state maintained by this model.

Parameters

in	*relstate_name*	Relstate to update

Definition at line 205 of file relative_kinematics.cc.

References find_relstate().

7.1.4 Friends And Related Function Documentation

7.1.4.1 init_attrjeod__RelativeKinematics

```
void init_attrjeod__RelativeKinematics ( )  [friend]
```

7.1.4.2 InputProcessor

```
friend class InputProcessor  [friend]
```

Definition at line 89 of file relative_kinematics.hh.

7.1.5 Field Documentation

7.1.5.1 num_rel_states

```
unsigned int jeod::RelativeKinematics::num_rel_states
```

Length of above list of relative states being maintained by this.

trick_units(–)

Definition at line 98 of file relative_kinematics.hh.

Referenced by add_relstate(), find_relstate(), remove_relstate(), and update_all().

7.1.5.2 relative_states

```
JeodPointerVector<RelativeDerivedState>::type jeod::RelativeKinematics::relative_states
```

List of relative states to be computed and maintained by this model.

Note that this list is not restricted to be relative states associated with only a single DynBody.trick_io(∗∗)

Definition at line 105 of file relative_kinematics.hh.

Referenced by add_relstate(), find_relstate(), RelativeKinematics(), remove_relstate(), update_all(), and ∼↩ RelativeKinematics().

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

- relative_kinematics.hh
- relative_kinematics.cc

7.2 jeod::RelKinMessages Class Reference

Specifies the message IDs used in the orbital elements model.

```
#include <rel_kin_messages.hh>
```

Static Public Attributes

- static char const ∗ duplicate_entry

  Issued when a duplicate entry is found.
- static char const ∗ entry_not_found

  Issued when an entry is not found.
- static char const ∗ invalid_entry

  Issued when function input is invalid.

Private Member Functions

- RelKinMessages (void)
- RelKinMessages (const RelKinMessages &)
- RelKinMessages & operator= (const RelKinMessages &)

Friends

- class InputProcessor
- void init_attrjeod__RelKinMessages ()

7.2.1 Detailed Description

Specifies the message IDs used in the orbital elements model.

Definition at line 83 of file rel_kin_messages.hh.

7.2.2 Constructor & Destructor Documentation

7.2.2.1 RelKinMessages() [1/2]

```
jeod::RelKinMessages::RelKinMessages (
            void  )  [private]
```

7.2.2.2 RelKinMessages() [2/2]

```
jeod::RelKinMessages::RelKinMessages (
            const RelKinMessages &  )  [private]
```

7.2.3 Member Function Documentation

7.2.3.1 operator=()

```
RelKinMessages& jeod::RelKinMessages::operator= (
            const RelKinMessages &  )  [private]
```

7.2.4 Friends And Related Function Documentation

7.2.4.1 init_attrjeod__RelKinMessages

```
void init_attrjeod__RelKinMessages ( )  [friend]
```

7.2.4.2 InputProcessor

```
friend class InputProcessor  [friend]
```

Definition at line 86 of file rel_kin_messages.hh.

7.2.5 Field Documentation

7.2.5.1 duplicate_entry

```
char const * jeod::RelKinMessages::duplicate_entry  [static]
```

Initial value:

```
=
    "dynamics/rel_kin/"  "duplicate_entry"
```

Issued when a duplicate entry is found.

trick_units(–)

Definition at line 95 of file rel_kin_messages.hh.

Referenced by jeod::RelativeKinematics::add_relstate().

7.2.5.2 entry_not_found

```
char const * jeod::RelKinMessages::entry_not_found  [static]
```

Initial value:

```
=
    "dynamics/rel_kin/"  "entry_not_found"
```

Issued when an entry is not found.

trick_units(–)

Definition at line 100 of file rel_kin_messages.hh.

Referenced by jeod::RelativeKinematics::activate_relstate(), and jeod::RelativeKinematics::remove_relstate().

7.2.5.3 invalid_entry

```
char const * jeod::RelKinMessages::invalid_entry  [static]
```

Initial value:

```
=
    "dynamics/rel_kin/"  "invalid_entry"
```

Issued when function input is invalid.

trick_units(–)

Definition at line 105 of file rel_kin_messages.hh.

Referenced by jeod::RelativeKinematics::activate_relstate().

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

- rel_kin_messages.hh
- rel_kin_messages.cc

Chapter 8

File Documentation

8.1 rel_kin_messages.cc File Reference

Implement the class RelKinMessages.

```
#include "../include/rel_kin_messages.hh"
```

Namespaces

- jeod

  Namespace jeod.

Macros

- #define PATH "dynamics/rel_kin/"

8.1.1 Detailed Description

Implement the class RelKinMessages.

8.2 rel_kin_messages.hh File Reference

Define the class RelKinMessages, the class that specifies the message IDs used in the relative kinematics model.

```
#include "utils/sim_interface/include/jeod_class.hh"
```

Data Structures

- class jeod::RelKinMessages

  Specifies the message IDs used in the orbital elements model.

Namespaces

- jeod

  Namespace jeod.

8.2.1 Detailed Description

Define the class RelKinMessages, the class that specifies the message IDs used in the relative kinematics model.

8.3 relative_kinematics.cc File Reference

Define methods for the RelativeKinematics class.

```
#include <cstddef>
#include <algorithm>
#include "dynamics/derived_state/include/relative_derived_state.hh"
#include "utils/memory/include/jeod_alloc.hh"
#include "utils/message/include/message_handler.hh"
#include "utils/named_item/include/named_item.hh"
#include "../include/relative_kinematics.hh"
#include "../include/rel_kin_messages.hh"
```

Namespaces

- jeod

  Namespace jeod.

8.3.1 Detailed Description

Define methods for the RelativeKinematics class.

8.4 relative_kinematics.hh File Reference

Define the class RelativeKinematics, the class used for calculating the state of some point(s) of interest associated with the subject DynBody relative to some other reference frame.

```
#include "dynamics/derived_state/include/class_declarations.hh"
#include "utils/container/include/pointer_vector.hh"
#include "utils/sim_interface/include/jeod_class.hh"
```

Data Structures

- class jeod::RelativeKinematics

  Encapsulates functionality for computing relative states.

Namespaces

- jeod

  Namespace jeod.

8.4.1 Detailed Description

Define the class RelativeKinematics, the class used for calculating the state of some point(s) of interest associated with the subject DynBody relative to some other reference frame.

Index