

dronePuppet

0.1

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# Chapter 1

## Hierarchical Index

### 1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

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CommMod . . . . .	18
Aodv . . . . .	5
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AodvComms . . . . .	13
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## Chapter 2

# Class Index

### 2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Aadv	5
Aadv_message	9
Aadv_rerr	10
Aadv_route	10
Aadv_rrep	11
Aadv_rreq	12
AadvComms	13
BaseStation	14
Basic	14
Basic_addressed	15
Basic_message	17
Basic_message_addressed	17
CommMod	18
Coord	19
Drone	19
Environment	20
IpAllocator	21
Message	21
Messageable	22
SensingBaseStation	23
SensingDrone	24
Test	25



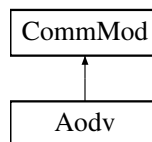


## Chapter 3

# Class Documentation

### 3.1 Aodv Class Reference

Inheritance diagram for Aodv:



#### Public Member Functions

- [Aodv](#) ([Environment](#) \*, `std::string`, `std::atomic_flag` \*, `bool`)  
*Implementation of the AODV routing protocol.*

#### Protected Member Functions

- `void` [comm\\_function](#) ()  
*The main communications loop which handles incoming and outgoing messages.*

#### Private Member Functions

- `Aodv_rreq` \* [create\\_hello](#) ()
- `Aodv_rreq` \* [create\\_rreq](#) (`std::string`, `std::string`, `int`)  
*Helper method for creating route requests.*
- `Aodv_rrep` \* [create\\_rrep](#) (`std::string`, `std::string`, `int`)
- `Aodv_rerr` \* [create\\_rerr](#) (`std::string`, `int`)  
*Helper method for creating route errors.*
- `void` [process\\_rreq](#) (`Aodv_rreq` \*)  
*Handle an RREQ that was received.*
- `void` [process\\_rrep](#) (`Aodv_rrep` \*)  
*Handle an RREP that was received.*
- `void` [process\\_rerr](#) (`Aodv_rerr` \*)

- *Handle an RERR that was received.*
- void `process_data` (std::string)
- *Handle an data packet that was received.*
- std::string `get_attribute` (std::string)
- *Attribute extraction for AODV messages.*
- bool `have_route` (std::string)
- *Checks if a route to the destination is known.*
- void `add_route` (std::string, int, int, std::string)
- *Creates a route in the routing table.*
- `Aodv_req` \* `deserialize_rreq` (std::string)
- *Deserialization for route requests.*
- `Aodv_rrep` \* `deserialize_rrep` (std::string)
- *Deserialization for route replies.*
- `Aodv_rerr` \* `deserialize_rerr` (std::string)
- *Deserialization for route errors.*
- void `log` (std::string)
- *Helper function to log internal information.*
- void `broadcast` (std::string)
- *Helper function to broadcast a message through the environment.*

## Private Attributes

- std::map< std::string, `Aodv_route` \* > `route_table`
- *Routing table for the communication module.*
- std::string `ip_address`
- *The IP address of the communication module.*
- double `HELLO_INTERVAL`
- *The interval at which hello messages are sent to discover nearby nodes.*
- int `SEQUENCE_NUMBER`
- *The AODV sequence number of the communication module.*
- double `ACTIVE_ROUTE_TIMEOUT`
- *The AODV active route timeout used to determine how long routes stay fresh for.*
- double `PATH_DISCOVERY_TIME`
- *How long to wait for relies to route requests.*
- int `BROADCAST_ID`
- *AODV broadcast ID used to prevent loops and ensure fresh information.*
- int `RANGE`
- *The amount of power used to broadcast messages.*
- int `TTL`
- *Default time to live for messages, dependent on network size.*
- double `last_hello`
- *The time at which the last hello message was sent.*
- std::pair< std::string, std::string > `current_message`
- int `state`
- *The internal state of the AODV implementation.*
- std::atomic\_flag \* `lock`
- *An atomic lock to regulate access to stdout.*
- bool `logging`
- *Switch to enable or disable logging.*

## Additional Inherited Members

### 3.1.1 Member Function Documentation

**3.1.1.1** `void Aodv::add_route ( std::string ip, int dest_seq, int hop_count, std::string next_hop )` `[private]`

Creates a route in the routing table.

Adds in the standard route timeout and ensures that all variables are set to prevent memory issues later

**3.1.1.2** `void Aodv::broadcast ( std::string message )` `[private]`

Helper function to broadcast a message through the environment.

Broadcast requires the coordinates of the broadcasting unit which can be unwieldy to do every time This process is simplified by wrapping it in a helper function

**3.1.1.3** `void Aodv::comm_function ( )` `[protected],[virtual]`

The main communications loop which handles incoming and outgoing messages.

Every loop we check to see if we should send a hello, based on the hello interval Next, any incoming messages are deserialized and handled appropriately If our messageable told us to shut down, the communications module exits Next, any outgoing messages are either immediately sent (if we have a route to the destination already) or a route request is distributed (if we do not have a route)

Implements [CommMod](#).

**3.1.1.4** `Aodv_req * Aodv::create_hello ( )` `[private]`

Creates a special route request for a route to this node, with TTL 1

**3.1.1.5** `Aodv_rerr * Aodv::create_rerr ( std::string dst_ip, int tvl )` `[private]`

Helper method for creating route errors.

Abstracts away the destination sequence number lookup for convenience

**3.1.1.6** `Aodv_rrep * Aodv::create_rrep ( std::string dst_ip, std::string src_ip, int tvl )` `[private]`

Abstracts away next hop lookup for convenience

**3.1.1.7** `Aodv_req * Aodv::create_rreq ( std::string dst_ip, std::string src_ip, int tvl )` `[private]`

Helper method for creating route requests.

Abstracts away the destination sequence number lookup for convenience

### 3.1.1.8 `Aodv_rerr * Aodv::deserialize_rerr ( std::string message ) [private]`

Deserialization for route errors.

Takes a raw message string of a route error message and returns an AODV object representing that message

### 3.1.1.9 `Aodv_rrep * Aodv::deserialize_rrep ( std::string message ) [private]`

Deserialization for route replies.

Takes a raw message string of a route reply message and returns an AODV object representing that message

### 3.1.1.10 `Aodv_rreq * Aodv::deserialize_rreq ( std::string message ) [private]`

Deserialization for route requests.

Takes a raw message string of a route request message and returns an AODV object representing that message

### 3.1.1.11 `std::string Aodv::get_attribute ( std::string message ) [private]`

Attribute extraction for AODV messages.

Takes in a message string and returns the first field of that message (semicolon delimited)

### 3.1.1.12 `bool Aodv::have_route ( std::string ip ) [private]`

Checks if a route to the destination is known.

Determines if a route to the destination is known, and if that route is fresh

### 3.1.1.13 `void Aodv::log ( std::string log_message ) [private]`

Helper function to log internal information.

Makes use of the stdout lock we were passed on creation to make sure that only one thread is printing at any one time Also prints the ip of the communications module and the current environment time to help with debugging

### 3.1.1.14 `void Aodv::process_data ( std::string message ) [private]`

Handle an data packet that was received.

First we check if the message was for us, and if so we deliver the contents to our messageable If the message is destined for another node and we are specified as the next hop, then we forward that packet to the next hop according to our own routing table Note that messages destined for other nodes that we are not specified as a next hop for will be dropped

### 3.1.1.15 void Aodv::process\_rerr ( Aodv\_rerr \* message ) [private]

Handle an RERR that was received.

This functionality os not yet implemented

### 3.1.1.16 void Aodv::process\_rrep ( Aodv\_rrep \* message ) [private]

Handle an RREP that was received.

First we check if the message contains new information about other nodes, and if so we always update our routing table. If the message was a response to a request we initiated, then we should send our data packet. If the message was a response to a request we forwarded for another node, then we should pass it on. Note that nodes will only act as a middle hop for one message at a time (other responses will be dropped).

### 3.1.1.17 void Aodv::process\_rreq ( Aodv\_rreq \* message ) [private]

Handle an RREQ that was received.

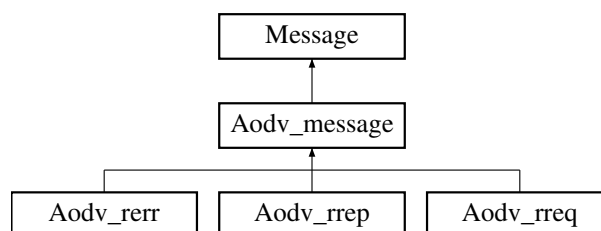
First we check if the message was a hello message, and if so we always respond to it. If the message was a normal request, then we either answer it (if we have the info) or forward it if we do not. Note that non-hello RREQs will be dropped if we are currently trying to send a message.

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

- /home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv.hpp
- /home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv.cpp

## 3.2 Aodv\_message Class Reference

Inheritance diagram for Aodv\_message:



### Public Member Functions

- [Aodv\\_message](#) (std::string, int, int)  
*Base class for all AODV message types.*
- std::string [get\\_dest\\_ip](#) ()  
*Getter method for the IP address of the destination node.*
- std::string [serialize](#) ()  
*Returns a string representation of the message.*
- int [get\\_dest\\_seq](#) ()  
*Getter method for the sequence number of the destination node.*
- int [get\\_ttl](#) ()  
*Getter method for the time to live.*

### Private Attributes

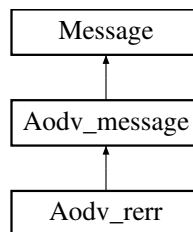
- `std::string dest_ip`  
*The IP address of the detination node.*
- `int dest_seq`  
*The sequence number of the destination node.*
- `int ttl`  
*The time to live of the message.*

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

- `/home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv_message.hpp`
- `/home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv_message.cpp`

## 3.3 Aodv\_rerr Class Reference

Inheritance diagram for Aodv\_rerr:



### Public Member Functions

- `Aodv_rerr (std::string dst_ip, int dst_seq, int ttl)`  
*AODV route error message.*
- `std::string to_string ()`  
*Returns a string representation of the message.*

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

- `/home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv_rerr.hpp`
- `/home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv_rerr.cpp`

## 3.4 Aodv\_route Class Reference

### Public Member Functions

- `Aodv_route (int, int, std::string, int)`  
*Entry in ann AODV routing table.*
- `int get_seq ()`  
*Getter method for the sequence number of the route destination.*
- `int get_hop ()`  
*Getter method for the route hop count.*
- `std::string get_next_hop ()`  
*Getter method for the next hop on this route.*
- `int get_life ()`  
*Getter method for the route life time.*

## Private Attributes

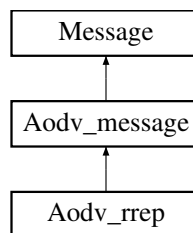
- `int dst_seq`  
*Sequence number of the route destination.*
- `int hop_count`  
*Number of hops required to get to the destination node.*
- `std::string next_hop`  
*Next hop on this route.*
- `int life_time`  
*Lifetime of this route.*

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

- `/home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv_route.hpp`
- `/home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv_route.cpp`

## 3.5 Aodv\_rrep Class Reference

Inheritance diagram for Aodv\_rrep:



## Public Member Functions

- `Aodv_rrep (int, std::string, std::string, std::string, int, int, int, std::string)`  
*Aodv route reply message.*
- `int get_hop_count ()`  
*Getter method for the hop count of the message.*
- `std::string get_source_ip ()`  
*Getter method for the IP address of the sending node.*
- `std::string to_string ()`  
*Returns a string representation of the message.*
- `int get_life_time ()`  
*Getter method for the life time of the route.*
- `std::string get_last_hop ()`  
*Getter method for the last hop on this route.*
- `std::string get_next_hop ()`  
*Getter method for the next hop on this route.*

## Private Attributes

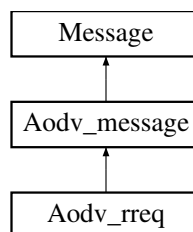
- `int m_hop_count`  
*Number of hops required to get from the source to the destination of the route.*
- `std::string m_source_ip`  
*IP address of the node at which the route terminates.*
- `int m_life_time`  
*Time for which this route is valid.*
- `std::string m_last_hop`  
*The last node which forwarded this reply.*
- `std::string m_next_hop`  
*The next node to which this reply will be forwarded.*

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

- `/home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv_rrep.hpp`
- `/home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv_rrep.cpp`

## 3.6 Aodv\_rreq Class Reference

Inheritance diagram for Aodv\_rreq:



## Public Member Functions

- `Aodv_rreq (int hop, std::string src_ip, std::string dst_ip, int src_seq, int dst_seq, int ttl)`  
*AODV route request message.*
- `int get_hop_count ()`  
*Getter method for the hop count of the message.*
- `std::string get_source_ip ()`  
*Getter method for the IP address of the sending node.*
- `std::string to_string ()`  
*Returns a string representation of the message.*
- `int get_source_seq ()`  
*Getter method for the sequence number of the sending node.*



### Private Attributes

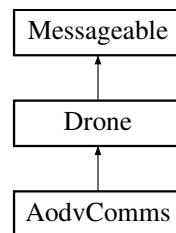
- int `hop_count`  
*The number of hops taken towards the destination.*
- std::string `source_ip`  
*The IP address of the sending node.*
- int `source_seq`  
*The sequence number of the sending node.*

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

- /home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv\_rreq.hpp
- /home/will/Documents/effacious-octo-weasel/code/communication/aodv/Aodv\_rreq.cpp

## 3.7 AodvComms Class Reference

Inheritance diagram for AodvComms:



### Public Member Functions

- **AodvComms** (`CommMod *`, double, double, double, double, `Environment *`, int, int \*, std::atomic\_flag \*)
- bool **message\_callback** (`Message *`)
- void **run** ()

### Private Attributes

- int **m\_task**
- int \* **m\_flag**
- std::atomic\_flag \* **m\_lock**
- `Environment *` **m\_env**

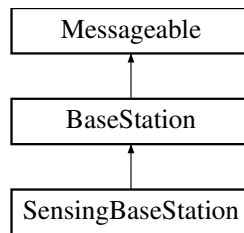
### Additional Inherited Members

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

- /home/will/Documents/effacious-octo-weasel/code/programs/AodvComms.hpp
- /home/will/Documents/effacious-octo-weasel/code/programs/AodvComms.cpp

### 3.8 BaseStation Class Reference

Inheritance diagram for BaseStation:



#### Public Member Functions

- **BaseStation** ([CommMod](#) \*cm, double xp, double yp, double zp)

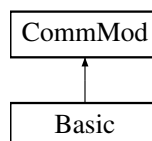
#### Additional Inherited Members

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

- /home/will/Documents/effacious-octo-weasel/code/simulator/BaseStation.hpp
- /home/will/Documents/effacious-octo-weasel/code/simulator/BaseStation.cpp

### 3.9 Basic Class Reference

Inheritance diagram for Basic:



#### Public Member Functions

- **Basic** ([Environment](#) \*, std::atomic\_flag \*)  
*Basic* messaging protocol for testing where nodes receive all messages sent if they are within range.

#### Protected Member Functions

- void **comm\_function** ()  
*The main communications loop which handles incoming and outgoing messages.*

## Private Member Functions

- void [log](#) (std::string)  
*Helper function to log internal information.*

## Private Attributes

- double [RANGE](#)  
*The amount of power used to broadcast messages.*
- std::atomic\_flag \* [lock](#)  
*An atomic lock to regulate access to stdout.*

## Additional Inherited Members

### 3.9.1 Member Function Documentation

#### 3.9.1.1 void Basic::comm\_function ( ) [protected],[virtual]

The main communications loop which handles incoming and outgoing messages.

Every loop we send any messages that are waiting to be sent Then we deliver any messages that we have received

Implements [CommMod](#).

#### 3.9.1.2 void Basic::log ( std::string *log\_message* ) [private]

Helper function to log internal information.

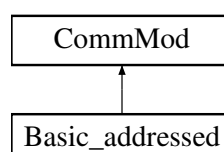
Makes use of the stdout lock we were passed on creation to make sure that only one thread is printing at any one time

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

- /home/will/Documents/effacious-octo-weasel/code/communication/basic/Basic.hpp
- /home/will/Documents/effacious-octo-weasel/code/communication/basic/Basic.cpp

## 3.10 Basic\_addressed Class Reference

Inheritance diagram for Basic\_addressed:



## Public Member Functions

- [Basic\\_addressed](#) ([Environment](#) \*, std::atomic\_flag \*, std::string ip)  
*Basic messaging protocol with addressing for testing, where nodes receive all messages sent if they are within range and addressed to them.*

## Protected Member Functions

- void [comm\\_function](#) ()  
*The main communications loop which handles incoming and outgoing messages.*

## Private Member Functions

- void **log** (std::string)
- std::string **get\_attribute** (std::string)

## Private Attributes

- double [RANGE](#)  
*The amount of power used to broadcast messages.*
- std::atomic\_flag \* [lock](#)  
*An atomic lock to regulate access to stdout.*
- std::string [ip\\_address](#)  
*The IP address of the communication module.*

## Additional Inherited Members

### 3.10.1 Member Function Documentation

#### 3.10.1.1 void [Basic\\_addressed::comm\\_function](#) ( ) [protected],[virtual]

The main communications loop which handles incoming and outgoing messages.

Every loop any incoming messages are deserialized and delivered if they match our IP address Next, any outgoing messages are sent Note that received messages not addressed to this IP address will be dropped

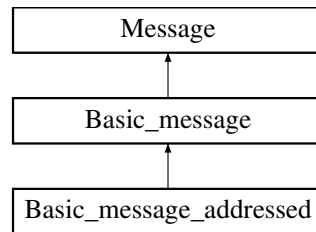
Implements [CommMod](#).

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

- /home/will/Documents/effacious-octo-weasel/code/communication/basic\_addressed/Basic\_addressed.hpp
- /home/will/Documents/effacious-octo-weasel/code/communication/basic\_addressed/Basic\_addressed.cpp

## 3.11 Basic\_message Class Reference

Inheritance diagram for Basic\_message:



### Public Member Functions

- [Basic\\_message](#) (std::string)  
*A basic message containing a payload with no addressing information.*
- std::string [to\\_string](#) ()  
*Returns a string representation of the message.*

### Private Attributes

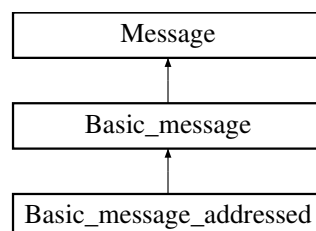
- std::string [message](#)  
*The contents of the message.*

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

- /home/will/Documents/effacious-octo-weasel/code/communication/basic/Basic\_message.hpp
- /home/will/Documents/effacious-octo-weasel/code/communication/basic/Basic\_message.cpp

## 3.12 Basic\_message\_addressed Class Reference

Inheritance diagram for Basic\_message\_addressed:



## Public Member Functions

- **Basic\_message\_addressed** (std::string, std::string, std::string)  
*Basic message with addressing information.*
- std::string **to\_string** ()  
*Returns a string representation of the message.*
- std::string **get\_message** ()  
*Getter method for the message content.*
- std::string **get\_destination** ()  
*Getter method for the IP address of the node this message is destined for.*
- std::string **get\_source** ()  
*Getter method for the IP address of the node which sent this message.*

## Private Attributes

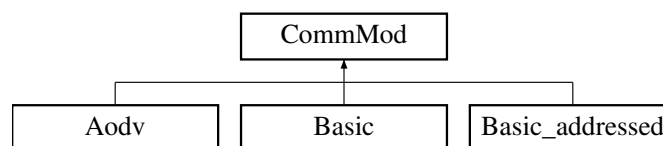
- std::string **message**  
*The contents of the message.*
- std::string **destination**  
*The IP address of the messages destination.*
- std::string **source**  
*The IP address of the node which sent the message.*

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

- /home/will/Documents/effacious-octo-weasel/code/communication/basic\_addressed/Basic\_message\_↔addressed.hpp
- /home/will/Documents/effacious-octo-weasel/code/communication/basic\_addressed/Basic\_message\_↔addressed.cpp

## 3.13 CommMod Class Reference

Inheritance diagram for CommMod:



## Public Member Functions

- **CommMod** (Environment \*env)
- void **set\_messageable** (Messageable \*msg)
- void **broadcast** (std::string message, double xPos, double yPos, double zPos, double range)
- void **broadcast** (Message \*message, double xPos, double yPos, double zPos, double range)
- void **push\_out\_message** (Message \*message)
- void **push\_in\_message** (std::string message)
- virtual void **comm\_function** ()=0
- double **getTime** ()

### Protected Attributes

- `std::queue< Message * > outQueue`
- `std::queue< std::string > inQueue`
- `Environment * environment`
- `Messageable * messageable`

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

- `/home/will/Documents/effacious-octo-weasel/code/simulator/CommMod.hpp`
- `/home/will/Documents/effacious-octo-weasel/code/simulator/CommMod.cpp`

## 3.14 Coord Struct Reference

### Public Attributes

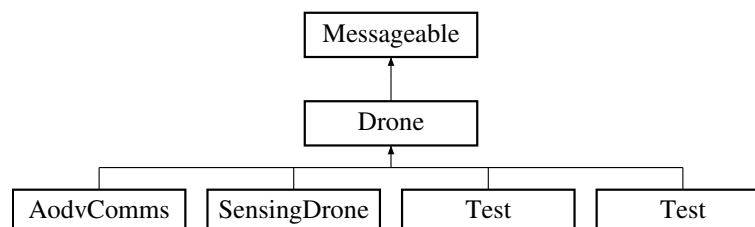
- double `x`
- double `y`
- double `z`

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

- `/home/will/Documents/effacious-octo-weasel/code/simulator/Messageable.hpp`

## 3.15 Drone Class Reference

Inheritance diagram for Drone:



### Public Member Functions

- `Drone (CommMod *cm, double iX, double iY, double iZ, double maxSpeed, Environment *e)`
- `bool isAlive ()`
- `void upkeep ()`

### Protected Member Functions

- void **kill** ()
- void **turn** (double dAngle)
- void **move** (Direction direction, double speed, double distance)
- double **getMaxSpeed** ()
- double **getAngle** ()
- bool **hasFinishedMoving** ()
- double **sense** (std::string type)

### Private Attributes

- double **oTime**
- bool **alive** = true
- Direction **dir**
- double **maxSpeed**
- double **ang** = 0
- [Environment](#) \* **env**
- double **moveDR**
- double **moveSpd**

### Additional Inherited Members

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

- /home/will/Documents/effacious-octo-weasel/code/simulator/Drone.hpp
- /home/will/Documents/effacious-octo-weasel/code/simulator/Drone.cpp

## 3.16 Environment Class Reference

### Public Member Functions

- **Environment** (std::map< std::string, data\_type >, std::function< std::string(std::string)>, double timestep)
- **Environment** (std::map< std::string, data\_type >, double timestep)
- void **broadcast** (std::string message, double xOrigin, double yOrigin, double zOrigin, double range, [CommMod](#) \*)
- void **addData** (std::string type, data\_type d)
- void **addDrone** ([Drone](#) \*m)
- void **setBaseStation** ([BaseStation](#) \*m)
- double **getData** (std::string type, double x, double y, double z)
- double **getTime** ()
- void **run** ()

### Private Types

- typedef std::vector< std::vector< std::vector< double > > > **data\_type**



### Private Attributes

- double **timeElapsed**
- double **timeStep**
- [BaseStation](#) \* **baseStation**
- std::vector< [Drone](#) \* > **drones**
- std::map< std::string, data\_type > **data**
- std::function< std::string(std::string)> **noiseFun**

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

- /home/will/Documents/effacious-octo-weasel/code/simulator/Environment.hpp
- /home/will/Documents/effacious-octo-weasel/code/simulator/Environment.cpp

## 3.17 IpAllocator Class Reference

### Public Member Functions

- **IpAllocator** (int, int, int, int)
- std::string **next** ()

### Private Attributes

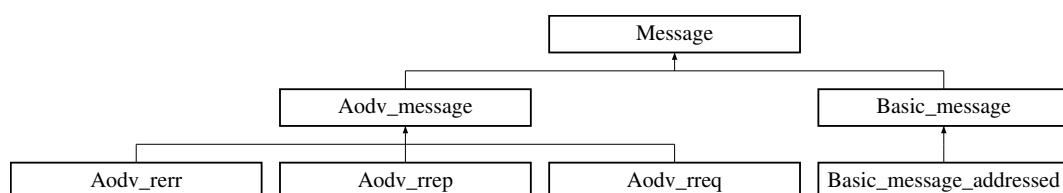
- int **m\_first**
- int **m\_second**
- int **m\_third**
- int **m\_fourth**

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

- /home/will/Documents/effacious-octo-weasel/code/simulator/IpAllocator.hpp
- /home/will/Documents/effacious-octo-weasel/code/simulator/IpAllocator.cpp

## 3.18 Message Class Reference

Inheritance diagram for Message:



## Public Member Functions

- **Message** (std::string type)
- time\_t **get\_current\_time** ()
- virtual std::string **to\_string** ()=0
- std::string **get\_type** ()

## Private Attributes

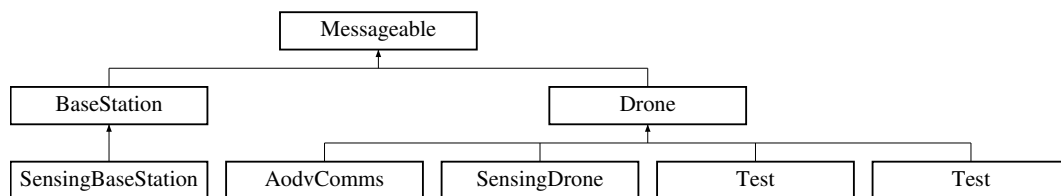
- std::string **type**

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

- /home/will/Documents/effacious-octo-weasel/code/simulator/Message.hpp
- /home/will/Documents/effacious-octo-weasel/code/simulator/Message.cpp

## 3.19 Messageable Class Reference

Inheritance diagram for Messageable:



## Public Member Functions

- **Messageable** ([CommMod](#) \*cm, double xp, double yp, double zp)
- void **send\_message** ([Message](#) \*contents)
- [Message](#) \* **wait\_for\_message** ()
- void **push\_message** ([Message](#) \*contents)
- void **receive\_message** (std::string contents)
- [CommMod](#) \* **get\_comm\_mod** ()
- double **getX** ()
- double **getY** ()
- double **getZ** ()
- [Coord](#) **getPosition** ()
- double **getTime** ()
- virtual bool **message\_callback** ([Message](#) \*message)=0
- virtual void **run** ()=0
- void **runCommMod** ()

### Protected Attributes

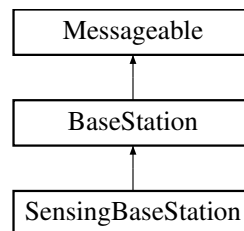
- `std::queue< Message * > inQueue`
- `CommMod * communicationsModule`
- `Coord position`

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

- `/home/will/Documents/effacious-octo-weasel/code/simulator/Messageable.hpp`
- `/home/will/Documents/effacious-octo-weasel/code/simulator/Messageable.cpp`

## 3.20 SensingBaseStation Class Reference

Inheritance diagram for SensingBaseStation:



### Public Member Functions

- **SensingBaseStation** (`CommMod *cm`, `double xp`, `double yp`, `double zp`, `double areaX1`, `double areaY1`, `double areaX2`, `double areaY2`)
- `void run ()`
- `bool message_callback (Message *message)`

### Private Attributes

- `std::vector< std::string > droneIPs`
- `double areaX1`
- `double areaX2`
- `double areaY1`
- `double areaY2`

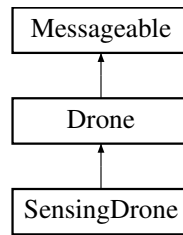
### Additional Inherited Members

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

- `/home/will/Documents/effacious-octo-weasel/code/programs/SensingBaseStation.hpp`
- `/home/will/Documents/effacious-octo-weasel/code/programs/SensingBaseStation.cpp`

### 3.21 SensingDrone Class Reference

Inheritance diagram for SensingDrone:



#### Public Member Functions

- **SensingDrone** ([CommMod](#) \*, double, double, double, double, double, [Environment](#) \*, bool)
- bool **message\_callback** ([Message](#) \*)
- void **run** ()
- void **continueJob** ()
- int **atLoc** ([Coord](#) location)
- void **newArea** (double x1, double y1, double x2, double y2, double height)

#### Private Member Functions

- void **quit** ()

#### Private Attributes

- int **m\_task**
- int \* **m\_flag**
- double **sensorRadius**
- std::queue< [Coord](#) > **remainingPoints**
- bool **sink\_node**
- std::string **baseStationIP**

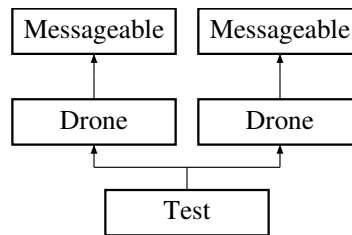
#### Additional Inherited Members

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

- /home/will/Documents/effacious-octo-weasel/code/programs/SensingDrone.hpp
- /home/will/Documents/effacious-octo-weasel/code/programs/SensingDrone.cpp

## 3.22 Test Class Reference

Inheritance diagram for Test:



### Public Member Functions

- **Test** ([CommMod](#) \*, double, double, double, double, [Environment](#) \*, bool)
- bool **message\_callback** ([Message](#) \*)
- void **run** ()
- **Test** ([CommMod](#) \*, double, double, double, double, [Environment](#) \*, bool)
- bool **message\_callback** ([Message](#) \*)
- void **run** ()

### Private Attributes

- bool **sink\_node**

### Additional Inherited Members

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

- /home/will/Documents/effacious-octo-weasel/code/programs/BasicAddrComms.hpp
- /home/will/Documents/effacious-octo-weasel/code/programs/BasicComms.hpp
- /home/will/Documents/effacious-octo-weasel/code/programs/BasicAddrComms.cpp
- /home/will/Documents/effacious-octo-weasel/code/programs/BasicComms.cpp



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