Explanation of System Responsibilities

For: Manual Control System (MCS) Library

Created by: Josh Lee on 1/24/16

Last Modified by: Josh Lee on 1/24/16

# Overview:

The Manual Control System works as the intermediary between the network and hardware layers. Classes contained within this System handles the translation of network messages into the relevant hardware commands, and also regulates the sending of commands to the hardware layer to prevent any conflicts between other systems.

# Responsibilities of Current Interfaces

Currently the MCS Library makes use of 4 interfaces. Please note that all 4 interfaces are implemented by the Network and Hardware Library’s, and their respective ESRs should be referred to for details on these interfaces.

## Message

Please see the Network Library ESR for details.

## ExchangeSubscriber

Please see the Network Library ESR for details.

## MDS\_Interface

Please see the Network Library ESR for details. Please note this interface may be unnecessary and may be removed in the future from the MCS.

## HardwareInterface

Please see the Hardware Library ESR for details.

# Responsibilities of Current Classes

Currently the MCS Library consist of 1 concreate class, and makes use of 3 others from the Network Library. Please note for information on the classes from the Network Library please refer to its ESR. The only new class implemented by the MCS is the Manual Control System class.

## SetSpeedByteMessage

Please see the Network Library ESR for details.

## OpcodeOnlyMessage

Please see the Network Library ESR for details.

## ManualControlSystem

The Manual Control System fulfills three primary tasks:

1. Notify the Network Layer what messages it accepts and then receives those valid messages.
2. Translate valid network messages into the appropriate commands and send these commands to the hardware layer.
3. Control the sending of commands to the hardware layer. For example not commands should pass through to the hardware layer when manual control mode is disabled.

The Manual Control System is meant to act as a simple pass through that translates messages from the network layer into hardware specific commands, then sends these commands to the hardware layer to be turned into physical action by the robot. The Manual Control System also acts in the role of a “gate keeper” and should only send messages to the hardware layer when manual control is enabled, ie when the robot is not in autonomous operation mode. Please keep in mind that the Manual Control System is able to send as well as receive messages in its current form, but currently should not send any messages under normal operating conditions. Thus this interface may be removed from the Manual Control System in the future.