All of the code is on the [NUSolar Github.](https://github.com/nusolar) This is the documentation for the driver controls code written Fall 2017 - Winter 2018. This code was a modification of the original driver controls code to work with the Mitsuba motors for SC7.

The code that was modified were: the NUSolar CAN library and the [Driver Controls arduino controls](https://github.com/nusolar/sc7-arduino-code/blob/master/DriverControls/v2.0/DriverControls/DriverControls.ino) code. Note that the CAN library is under the [master branch](https://github.com/nusolar/NUsolar-CAN) and the new modified code is under the [Mitsuba branch](https://github.com/nusolar/NUsolar-CAN/tree/Mitsuba) of the Nusolar-CAN.

The files of the CAN library that were modified for the Mitsuba controllers were :

* [CAN\_IO.h](https://github.com/nusolar/NUsolar-CAN/blob/Mitsuba/CAN_IO.h)
* [CAN\_IO.cpp](https://github.com/nusolar/NUsolar-CAN/blob/Mitsuba/CAN_IO.cpp)
* [Layouts.h](https://github.com/nusolar/NUsolar-CAN/blob/Mitsuba/includes/Layouts.h)
* [Layouts.cpp](https://github.com/nusolar/NUsolar-CAN/blob/Mitsuba/Layouts.cpp)

The information for the Misuba CAN information is under Electrical > Electrical Reference Documentation: Datasheets, Libraries, etc. > Mitsuba Manuals and Config Tools.

In Layouts.h there were new definitions corresponding with the Mitsuba motors.

|  |
| --- |
| #define MTBA\_REQUEST\_COMMAND\_REAR\_LEFT\_ID 0x08F89540 #define MTBA\_REQUEST\_COMMAND\_REAR\_RIGHT\_ID 0x08F91540 #define MTBA\_FRAME0\_REAR\_LEFT\_ID 0x08850225 #define MTBA\_FRAME0\_REAR\_RIGHT\_ID 0x08850245 #define MTBA\_FRAME1\_REAR\_LEFT\_ID 0x08950225 #define MTBA\_FRAME1\_REAR\_RIGHT\_ID 0x08950245 #define MTBA\_FRAME2\_REAR\_LEFT\_ID 0x08A50225 #define MTBA\_FRAME2\_REAR\_RIGHT\_ID 0x08A50245 |

These are used to determine which packet is being requested.

The header files define classes corresponding to each of the IDs. The classes include the MTBA id and a frame id and a call to generate the frame.

In the Driver Controls, there are timers for intervals. The MTBA\_SEND\_INTERVAL is an interval for when to send a request to the motor controllers. The Metro mtbaRequestTimer takes the interval as a timer to send requests. When the timer expires there is either a request from the logger to Rear Left #1 or Rear Right #1 for Frame0, Frame1, or Frame1.