MTRX2700 Major Project

Serial Module Pseudocode/Module Design

**Design Requirements for Module**

* Must be able to take any message from the system and output to serial monitor
  + Message should be customisable and can be sent simply by calling module
* Must be able to take command from terminal and store into a buffer
  + Should use interrupts for this element

**Inputs / Outputs**

* Generally, the module should take any message in a function call and output this message to the serial monitor. The module should also take any command from the terminal and store into a buffer. Command handling is not within the module scope.
* Specifically, in the context of this task, the module will be given a direction and distance value (which determine the position of the object from the system) which must be printed on the serial monitor/terminal. The module will also receive a series of image values from the object detection module which will be given to Matlab to plot.
  + The system may also receive query instructions from the terminal.

**Pseudocode**

* Serial output

1. Function called
2. Load argument into buffer and end buffer with null
3. Update message to send bit/register to true
4. Check whether terminal ready to receive
5. If ready to receive, transmit character by character until null reached
6. Update message to send bit/register to false
7. Clear buffer

* Command input

1. If receive interrupt triggered
2. While message waiting to be received, read character by character into buffer
3. Update message to receive bit/register to false once null character received