**Task list**

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| Task Number | Name | Period (arbitrary) | Description |
| 1 | Check Signal | 10ms | Checks the signal strength -updates global strength variable |
| 2 | Connection state | 10ms | Handles connection stages – updates global state variable |
| 3 | Check CAN | 1ms | Log every message that arrives on each CAN bus to RAM |
| 4 | Assemble blocks | 1ms | Compress and move ‘changeBuffer’ to ‘blockBuffer’ |
| 5 | Transmit block | 1ms | Transmit data block if signal strength > 1 ‘bar’ (TBC) |
| 6 | Store block |  | Store data block if signal strength <= 1 ‘bar’ (TBC) |
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Data Structures

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| --- | --- | --- | --- |
| Structure number | Name | Contents | Description |
| 1 | CAN Buffer | canBuffer\_t x 2048 x No of CAN channels.  (336 kB per CAN channel) | Stores received data, logging delay timer and byte masks for compression |
| 2 | Data Buffer | 10240 (tbc) x 3:   * Latest data block * Data block ready for transmission * Data block from mass storage | Stores data in blocks as they will be sent via AMQP. |
| 3 | Data queue |  | Contains list of mass storage memory addresses in order they were logged. |
| 4 |  |  |  |

**typedef** **struct**

{

int16\_t logDelay; // (a)

uint8\_t logMask; // (b)

uint8\_t changeMask; // (c)

uint8\_t dataLength; // (d)

uint8\_t currentData[8]; // (e)

uint8\_t compareData[8]; // (f)

} canBuffer\_t;

canBuffer\_t can1[2048]; // 0x000 to 0x7FF

1. logDelay
   * decremented by task 4. Compression algorithm operates when this == 0.
   * set to 0 initially if a canID is not to be logged.
   * Reset to 0 if == -1.
2. logMask
   * Byte mask representing which data bytes to log.
   * Unlogged bytes are always sent as 00 and not included in the changeMask;
3. changeMask
   * Byte mask used in the compression algorithm as per firmware 11x.
   * Bytes not included in logMask are ignored.
4. dataLength
   * The length of the CAN message as received.
5. currentData
   * The latest data received for the ID.
6. compareData
   * Updated by the compression algorithm when logDelay == 0.
   * These values are added to the buffer for transmission / storage.

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| Header |  |  |