# Datalogger

The Path to Version 1.0

## Version 0.3:

* Intermediate version as features for 0.4 are implemented

## Version 0.4:

* Primary goal: stable enough for use given special conditions:
  + An empty SD card is used or last occupied block is recorded correctly (this is usually not the case)
* Eliminate SD layer errors during rapid write sequences
  + Logic analyzer to capture waveforms to determine errors
  + Perhaps need to add termination resistors?
* Integrated debug
  + Motivation: Maintaining separate debug build and release builds are problematic - can't enable debugging output without reflashing firmware
  + Idea: Have debugging output be switched in software rather than the C preproccessor
  + Implementation details:
    - Debug console which takes commands through UART
    - Set debug logging levels through UART
    - Minimal performance penalty when debugging output is disabled
    - Store logging levels to NVM
* NVM (external EEPROM)
  + Store device serial numbers
  + Store device parameters: baud rates, ...
  + Store any user configurations
* Streamline user interface - feedback from Australia people

(intermediate versions as features for 1.0 are implemented)

## Version 1.0:

* Primary goal: stable enough for general use
* FAT32 library should handle existing fragmented files gracefully
  + Need to read in existing FAT sectors before writing them out - v0.3 library assumes that all sectors after the writing point are empty - which may not be the case for a fragmented file system

## Further Versions:

* Block write scheduling
  + Spread out data filling operations (like filling out directory table or FAT table) to reduce processing time - reduce worst case cycle time so less CAN packets dropped and higher timestmp accuracy