Scorebug Code Hardening – Brainstorming of Uses Cases to be simulated

General

* Losing and re-establishing power
* Checking code integrity and load backup copy of software if it has been tampered with
* Read unique processor no of RPi instead of random string in case no speaking name is given for the device (at least gives a unique number that is stable over time)
* Prevent log file space overrun in Debug Mode

Serial-to-USB Interface related

* USB to Serial-Cable is unplugged and replugged during an incoming data flow
* Receiving data in a higher baudrate with Stramatel (19200 instead of 9600)
* Receiving data in unknown baudrate, start/stopbits etc.

Ethernet Connection Related

* Slow Ethernet Connection
* Sporadic Ethernet Connection (timing out once in a while)
* Wrong backend server address, port, headers etc.

Algorithm related

* Data injected that does not match the format of either panel (incl special characters that should not kill the software)

Performance related

* Detection of the panel type is done with every read, check if there are performance gains to do that only if needed (ie first few reads to be sure what’s coming or when an re-evaluation is needed, ie when the baudrate was considered as incorrect

Some more remarks (design options considered and abandoned):

* In order to be less dependent on a backend server, I have installed an LAMP server onto the Raspberry Pi and have installed the backend scripts on it as well; the RPi however did not react that well, there was a great latency difference from one POST request to the other that overall was inferior than the backend solution => option abandoned
* Currently, the length of a read statement is not aligned with the length of a data frame (see panel specifications). Hence mostly, some data frames are cut between two read statements and hence thrown away. I have programmed a version that parses already on the RPi the frames and ensures that only complete frames are transmitted and remaining data is stored and posted with the data of the next read statement => option abandoned, as the overall calculation time per transaction on the RPi went from 60ms to about 250ms and also as there was no material benefit