Embedded Analysis & Predictive Maintenance Features

**Monitoring Software :**

**Features :**

- Cross-platform UI (Linux, MacOS, Windows, iOS, Android) :
  - Web-browser-based data visualisation tool (Google Chrome, Safari, Firefox, Opera, Edge).
  - No installation required.

- Data statistics and analysis :
  - Acceleration time signal.
  - RMS value
  - Fast-Fourier-Transform (FFT).
  - Power Spectral Density (PSD).

- Customised RMS and Spectral Analysis. The following settings can be changed :
  - RMS averaging period.
  - FFT scale (linear/dB).
  - PSD scale (linear/dB).
  - Decimation type: fixed or with peaks detection.
  - Peak detection threshold value.

- Data recording :
  - Acceleration signal.
  - RMS value.
  - Comments for the measurement can be entered on the UI.
  - CSV file is streamed onto the client computer while recording.

**Description :**

The Monitoring Software is a useful tool for observing data measured with Miraex Smart Sensors. The program requires no installation of third-party softwares and plugins. It just works out-of-the-box. The access to the Monitoring Software is made through Miraex Edge Smart Sensor Configuration UI (see #REF).
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Screen Shots:
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Screen Shots:

- **Recorder**
  - Comment header for csv file
  - Details
  - The text entered here is displayed in the header of the .csv file recorded once clicked on any RECORD button
  - Comments about my measurement
  - Comments can be multiline
  - Press to start/stop recording data. Raw data recording will slow down the visualization.

- **RMS**
  - RMS averaging period
  - 1000ms
  - RMS filter status (OFF): ON
  - RMS bandpass filter settings

- **Spectrum**
  - Spectrum type
  - FFT
  - Excitation type: peak detection
  - Threshold for peak detection (advanced)
  - FFT spectrum

Data visualization and analysis features are shown, including signal analysis over time and RMS values.
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Requirements and Architecture:

Operating System: Linux, macOS, iOS, Android, Windows 7, 8, 10

Web Browser: Google Chrome, Firefox, Opera, Edge

Min. system requirements: 4GB of RAM, Intel i5 2GHz, ethernet port and preferably a large screen (for visualising more than one device at the time)

Details on Data:

| Time Data | Viewer                     | -3200 data points per second
|           |                           | -Downsampled 20x
|           |                           | -Can be adapted depending on the network quality to avoid lags
| RMS       | Viewer (Standard)          | -4 RMS points calculated per sec.
|           |                           | -No downsampling
|           |                           | -RMS averaging period tunable from 250ms to 2000ms
| Spectrum  | Viewer (Peak-detection mode) | -Approx. 16 000 points per spectrum
|           |                           | -4 spectra per second
|           |                           | -Spectrum resolution 4 Hz
| Spectrum  | Recorder                  | -64 000 data points per second (no downsampling here)
| Time Data | Recorder                  | -4 RMS points calculated per second
| RMS Data  | Recorder                  | -No downsampling
|           |                           | -RMS averaging period can be changed from 250ms to 2000ms

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