Brush Condition Monitoring Software Release Notes

Brush Condition Monitoring v3.50

Added

- Logging: pairing data to logs saved
- Modbus: button to re-initialize Modbus ports and error logging
- Modbus: variables to keep track of individual sensor errors
- UI: ttyS3 to Modbus settings title
- UI: temperature history and display to brush details page
- UI: temperature display to sensor data window
- UI: recent temperatures to sensor data windows
- UI: temperature critical fault to settings window
- UI: temperature and adjust box sizes
- UI: alternate color button to group sensors

Fixed

- Minor fix for logging format
- Workaround for a bug that prevents pairing from succeeding. This bug occurs when a bluetooth device is removed from the hash but still exists in the cache.
- Reboot system rather than application after successful software update

Changed

- Bluetooth: spread measurements across entire polling window
- UI: update splash and logo art
- UI: only display one OK button on system log dump
- UI: connect button to clear all brush length warnings functionality to settings window
- UI: adjust historical readings to be centered, update configuration labels
- UI: refine center of text when drawing custom_button
- UI: rectangle buttons
- UI: consolidate button to save logs, add Bluetooth logs

Removed

- UI: button press check for new brush detection
- UI: degree symbol from temperature display

Brush Condition Monitoring v3.41

Added

- Button to disable location
- RSSI (Received Signal Strength Indicator), MAC address, battery voltage to Modbus
- Two-hour timeout to Antenna Placement mode
- Index and numeric location to CSV export
- 0.6x coefficient to rescale displacement values
- Six most recent displacement values to sensor data dialog
- Dialog box to system log export

Changed

- In previous versions of the code, there were four different error types all getting logged under the category "Sensor Malfunction": length error, temperature critical warning, old sensor sample, and a true sensor malfunction. This was misleading for the user and likely caused unnecessary alarm. Code revised to split the Modbus outputs into four different outputs for each error type, so a sensor malfunction will now only be reported if there is a true malfunction.
- Dynamically restrict sensor configuration
- Allow switching between numeric and alphanumeric indexing
- Square corners for sensor display (remove rounding)
- Increase polling window to address the loss of data when large number of sensors is paired
- Modify both Modbus ports to mimic the settings on the advanced config page

Removed

- Zoom buttons
- Wear rate and temperature from main display
- Temperature C/F setting from config

Brush Condition Monitoring v2.5

Added

- Additional Modbus resource on ttys3 (Port 4)
- Preserve and display sensor and brush installation date
- Reboot system if no sensor data received for 3x measurement interval

Fixed

- RTU port to ttys2 (Port 3)
- RTU server address not being changed
- Brush length warnings not being cleared on installation of a new brush

Changed

- Increase the displacement fault max value to 100.0 mils and increase the button step size from 0.1/0.5 mils to 0.1/1.0 mils
- Increase wear rate averaging window to 14 days
- Move measurement interval setting to advanced configuration page
- UI to flash green on a button press (rather than blue)
- Don't display length if magnetic encoder error is reported by BHS
- Limit Modbus wear rate reporting to positive values
- Modify image and language on pairing screen
- Clarify messages on BHS update dialog
- Modify wear rate to show one significant digit rather than zero
- Converted wear rate to deci-mills in order to preserve data
- Modbus now reads deci-mills/day for wear rate, app still displays in mils
- To avoid gaps in data during a system being down, remove check for 14 days' worth of data, use all available
- Check for a minimum of three days of data and six samples before displaying wear rate

Removed

- Brush count and move measurement count on brush details page
- Historical data from Brush Details page (only display current readings)

Brush Condition Monitoring v1.0

Added

- Functionality for sensor calibration firmware

Changed

- Modify zero point on 100% brush length and expand threshold length for calibration trigger
- Modify Modbus Registry for proper connections to PI, etc.

Brush Condition Monitoring v0.95

Added

- Daily restart of BLE scanning

Changed

- TCP port minimum value to 0 from 2000
- Default TCP port to 501 from 57912
- Nominal brush length to 74.02 mm (3in – 0.086in)
- Full brush limits to –10% and +15% of nominal brush service length (1.5in)
- Full brush percentage to display actual percentage if <100%, and round down to 100% if >115%, else sensor error

Brush Condition Monitoring v0.94

Added

- Low battery count register to Modbus interface
- Brush offset calibration

Changed

- Show battery warning if sensor has less than 30 days left (previously the warning was shown if sensor had no energy to support remaining brush plus one new brush)
- Ignore mouse click if screen is off (previously a click on a black screen would still be registered by the application)

Brush Condition Monitoring v0.93

Added

- Summary registers to Modbus (# of short brushes, near-short brushes, sensor errors and high vibration locations)

Changed

- Make the SCIP detect a new brush event as: (sensor button pressed) AND (new brush length is (90%–110%)) AND (length changes by at least 50% OR brush length error is set)
- Disable wear rate warnings (wear rate outliers are not color coded, always gray—this is top right number on the location icon)
- Disable temperature warnings (temperature outliers are not color coded, only if temp is >= 105C it will be shown as orange)

- Use fixed wear rate (8mil/day) for predictive battery life estimates (to remove warnings popping up for battery life issues if the measured wear rates are low)
- Latch brush length warnings and only clear them if new brush is detected or Clear Warnings button pressed on the Brush Details window (brush length warnings are: short brush (<= 0% remaining length), near-short brush (<= threshold configured in Config window), brush length error (change in brush length by >= 5mm). These warnings persist across app restarts.
- Cap displayed brush length at 100%—if actual brush length is in the range [95%, 110%] it will be shown as 100%. Brushes longer than 110% will trigger brush length error.
- Update antenna placement RSSI thresholds to –69 and –79 to make antenna placement color coding more helpful
- Average last six displacement readings and show averaged value on the location icon