Objectives

- Improve the accessibility and functionality of the control panel and UI elements.
- Enhance calibration and image enhancement functionalities, including unrestricted input for calibration parameters.
- Simplify and integrate CLAHE and filtering operations into a unified and user-friendly interface.
- Update line information and detection workflows for enhanced user feedback.
- Plan and initiate tasks for new features, including library integrations and 3D chart generation.

Activities

- **UI and Control Panel Updates:**
  - Enhanced accessibility of control panel buttons.
  - Developed `resetAllParameters()` method to reset all settings and parameters.
  - Updated `clear()` method in `DisplayWindow` to fix zoom size issues for interlace output.
  - Modified `resetAllParameters()` to include button colour changes for zoom mode upon reset or clear actions.
  - Moved the "remove detection" button into the control panel.
  - Disabled the "Detect Dark Line" button when no file is loaded, updating its enabled state.

- **Calibration Input Enhancements:**
  - Introduced an overload of `showInputDialog` using `QInputDialog::getInt` for full integer range input.
  - Updated all calibration dialogues to use this new input method.
  - Maintained default suggestions and expanded input flexibility without limiting functionality.

- **CLAHE and Image Enhancement Updates:**
  - Combined CLAHE operations into the "Image Enhancement" section.
  - Renamed and reordered buttons for clarity and functionality.

- o Improved CLAHE dialogues with additional options, such as processing mode selection, threshold functionality, and parameter inputs.
- o Enhanced error handling and user feedback for CLAHE operations.

- **Line Information Updates:**
  - o Enhanced the line information box to dynamically update with removed and remaining line details.
  - o Re-detected lines after removal using `m_imageProcessor.detectDarkLines()`.
  - o Updated the display info label with new line details or cleared it if all lines were removed.

- **Team Meeting and New Tasks:**
  - o Discussed upcoming tasks, including calibration and interlace library integration, raw text file processing, and 3D chart generation.
  - o Initiated CLAHE integration into a double pointer structure for image processing.

- **Library Integration Work:**
  - o Attempted integration of new external libraries and header files.
  - o Identified compatibility issues between debug-mode libraries and the release-mode program.
  - o Planned reconfiguration of OpenCV files to address the issue.

Achievements

- Improved control panel functionality for better accessibility and user experience.
- Enabled unrestricted calibration input with enhanced input dialogues.
- Simplified and unified CLAHE operations for more intuitive usage.
- Provided dynamic and accurate line detection updates in the information box.
- Outlined and started work on new features, ensuring a clear roadmap.

Problem & Solution

- **Problem**: External libraries incompatible with the program's release mode.
  Solution: Identified the need for OpenCV reconfiguration to align with debug mode requirements.

- **Problem**: UI inconsistencies in button states and functionality.

  Solution: Improved button state management and integrated controls into the main panel.

- **Problem**: Limited calibration input range.

  Solution: Expanded input range using `QInputDialog::getInt` with full integer support.

- **Problem**: Complexity in CLAHE operations.

  Solution: Streamlined the CLAHE interface and integrated operations into the broader "Image Enhancement" section.