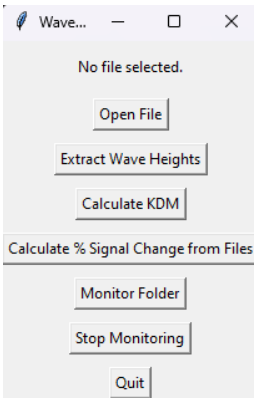
Instructions for Watchdog Software

Please note that the software is not perfect and does not work with every single type of waveform, however it will vastly speed up the data analysis while I try fix in the meantime.

Make sure that the files to be analysed have the format: time-signal type-LL/UL/BL - trial where signal type is ON or OFF only and time can be either hhmmss or hhmm such as 0300 or 031230 etc. There also does not need to be the LL UL or BL in the file name it can also just be time-signal type-trial for the monitor stage.

Once the softwareis run it will open a command prompt which will display information and any errors that occur during the software running. After some time, it will then pop up with a small window as shown:

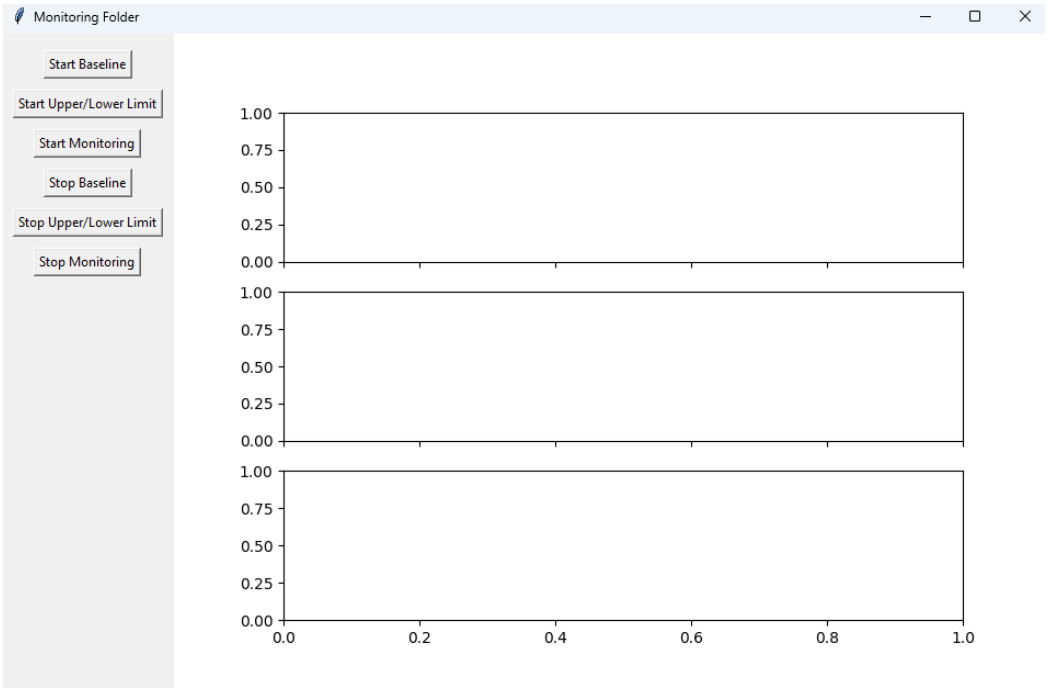


The buttons needed for the Watchdog Program are:

Monitor Folder / Stop Monitoring:

Before you start monitoring ensure that you have a folder already created. Once completed follow the steps:

1. Click the button Monitor Folder and then select the folder to monitor.
2. There will then be a pop up to input the number of channels and once completed the following window will appear:



3. The three buttons represent the three stages of the monitoring being the baseline to get the i_min values, as well as the Upper/Lower limit stage, the then the long term monitoring stage which will be when the plotting begins. The code will not let you progress out of order and you must click the corresponding Stop buttons after you have started a stage to allow you to press the next Start button.

4. Once the Start Baseline button is pressed it will prompt you for the number of trials in that stage. Once input there will be an output in the command window saying it has started monitoring for baseline files (files with -BL in them). Once this stage is done click Stop Baseline button

5. Click Start Upper/Lower Limit button to begin looking for the files with -LL and -UL in them and begin that stage. It will once again prompt you for the number of trials. Once all files have been saved to the folder press the Stop Upper/Lower Limit button.

6. Click Start Monitoring button for the long term monitoring. For the inputs on this stage it will first ask for the number of trials. It will then ask you for the upper and lower concentration limits. Please only put a number in, I am assuming that it will be in μM so just write 400 and 151 (assuming upper and lower is still these values). **There is sometimes a small bug where the input box will appear behind the monitoring window, you have the move the whole monitoring window out of the way as it doesn't let you minimise it (sorry no idea why)**

7. Once it has started monitoring, once it has enough files to get the average of the number of trials for both Signal OFF and ON, it will automatically calculate concentration and plot by solving **y = mx + c where y = concentration and x = KDM**. Please note I found m using
   m = (400 – 151) / (Avg. KDM for all Upper Limits – Avg. KDM for all Lower Limits)
   c = 151 – m * Avg. KDM for all Lower Limits

8. Once testing is done press Stop Monitoring and it will prompt you to save the .csv files for the Raw Data, then Average Wave Height, then calculated KDM and Concentration. After this the plots should still be on the monitor window! If you need to run the experiment again please be sure to close and re-open the software just to reset variables and potentially save some processing time later on.

Hopefully that is everything but if there are any issues feel free to reach out on email or messenger if that's easier!

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