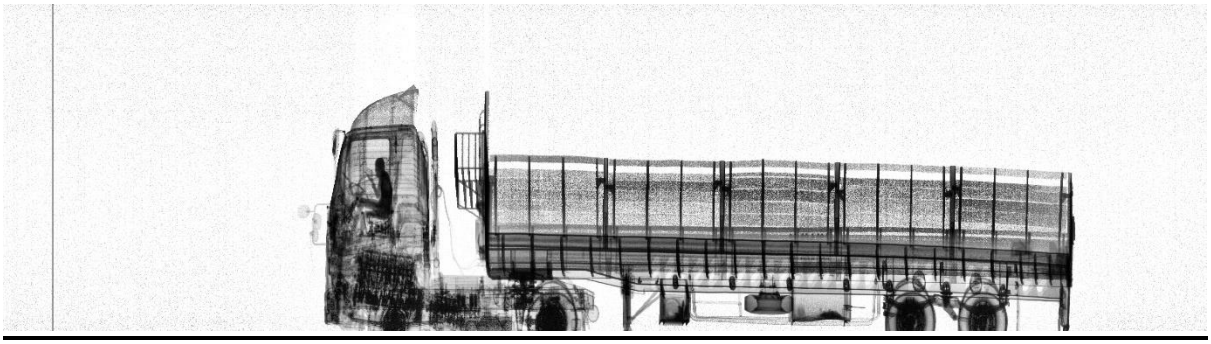
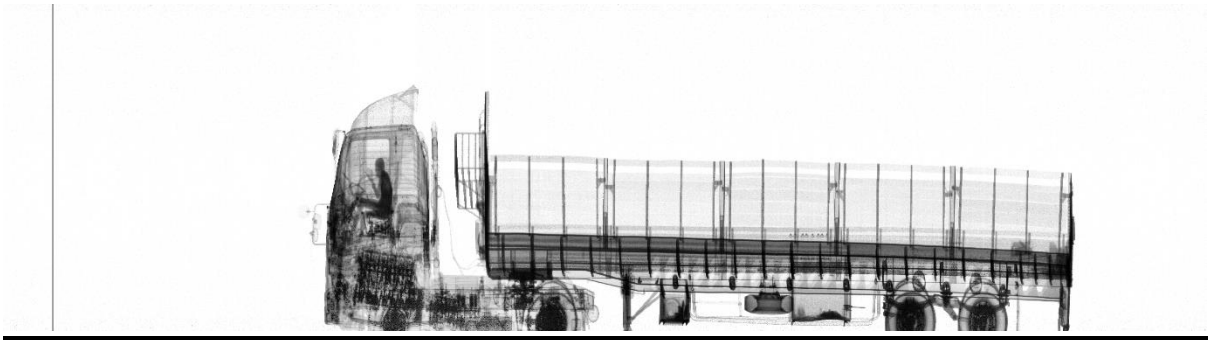
CLAHE-related function Report

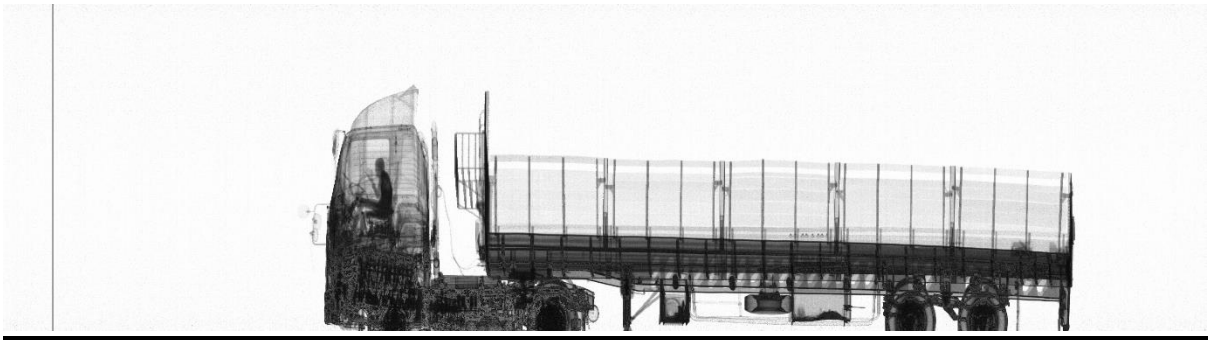
Last Updated Output – Figure 1



New Output – Figure 2



Initial Threshold CLAHE Output – Figure 3



1. Adjustment of the Output

The output has adjustments, for which Figure 1 applied Standard CLAHE without any Threshold twice on the same image. Once the issues and mistakes are found, the Threshold CLAHE function is corrected to fix them.

After trying times to change the function code and applying the concept for the threshold CLAHE function, there are still no changes from the initial output for Threshold CLAHE, as shown in Figure 3. The overflow of the threshold region remained at the threshold region and could not be distributed from it.

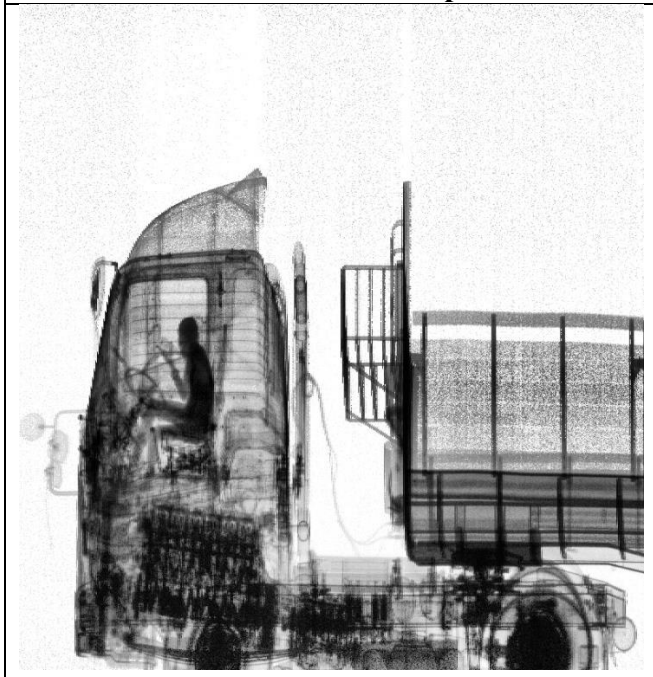
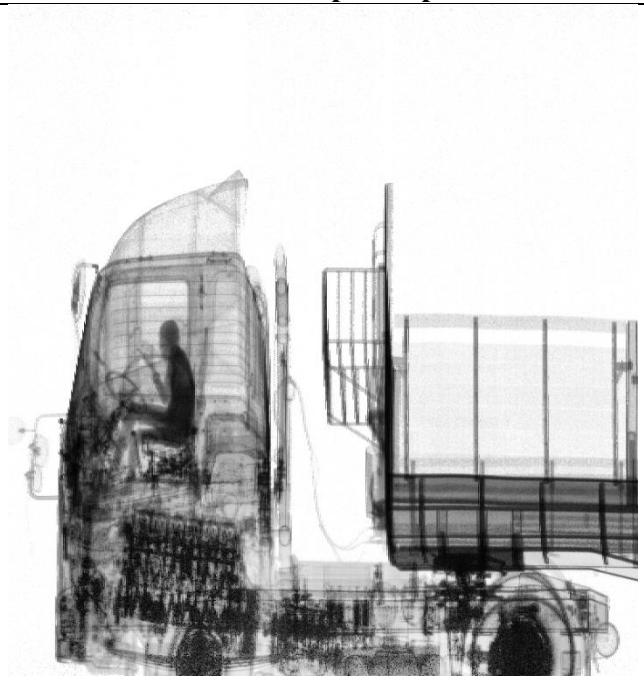
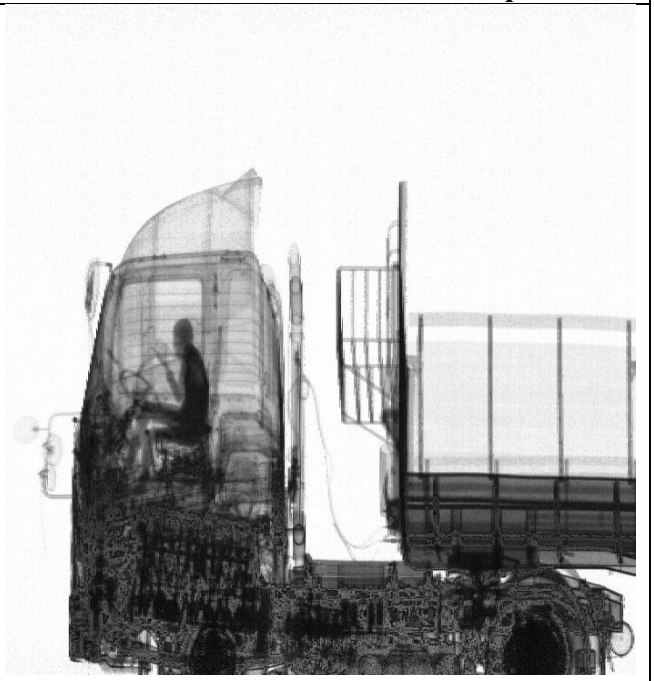
So, the adjustments were made and produced in the image like Figure 2, but this output was not related to the threshold; the details of this adjustment can be found in section 3.

2. Explanation regarding function

The function uses a new concept: the image in its current state will be applied for Standard CLAHE with the clipLimit and tiles entered by the user. After applying the Standard CLAHE, the image before the CLAHE effect and after the CLAHE effect will make the comparison, and the brighter pixels from both the image and mask will be taken into one image.

Besides that, we tried to apply this concept for the threshold region, which only compared the threshold region from both images, but tried many times, and the result remained the same as in Figure 3.

3. Comparison

Double CLAHE output	New Concept Output	Initial Threshold CLAHE Output
		
The front part of the cargo becomes much darker when double CLAHE is applied to the image, and some parts that should be brighter are also affected by the double CLAHE effect.	The front part of the cargo improved when compared with both outputs, but only certain parts became brighter, and CLAHE didn't affect the overall image.	The front part of the cargo, especially the threshold region (Bottom part of the image), is shown to be very messy and darker due to the CLAHE effect being only limited inside the threshold region and making that region overflow issues.