



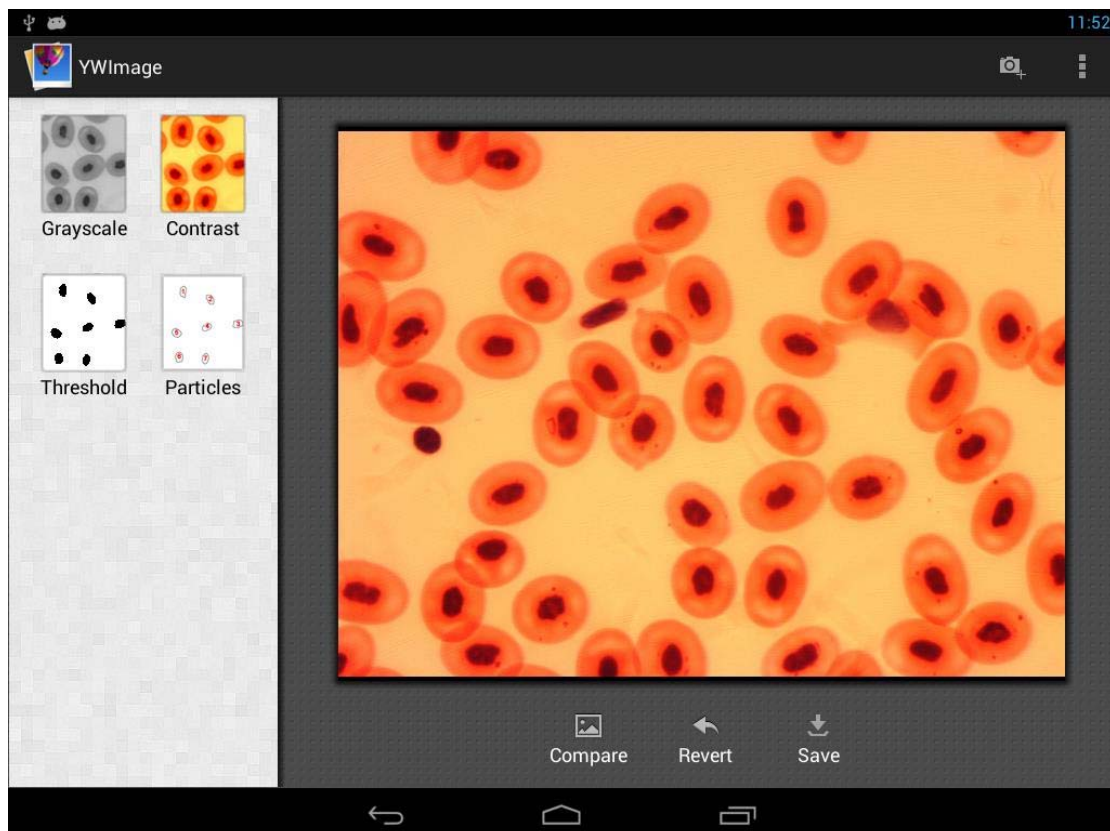
SPECTROLAB

www.spectrolab.co.uk sales@spectrolab.eu

Spectrolab in Optical Microscopy

CCD Camera YXImage User Manual CAT701111

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1. Introduction

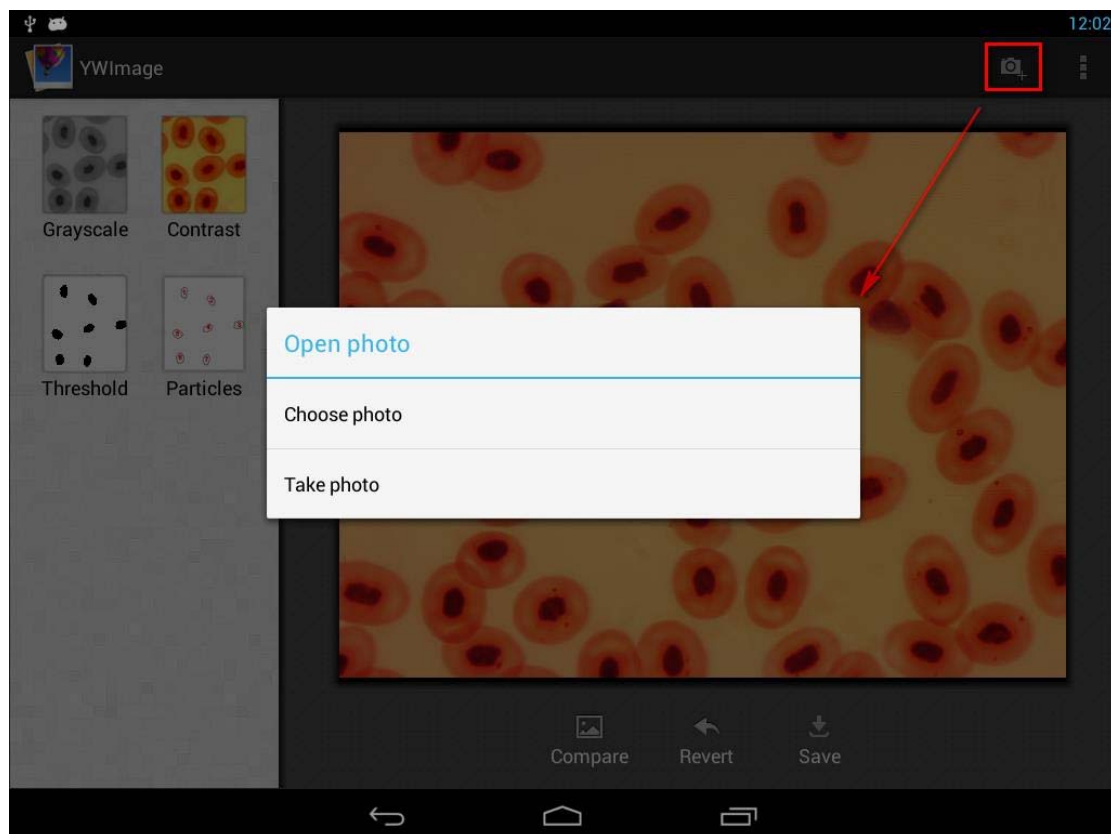
YXImage is an application used to process microscopic images on Android devices. It depends on a computer vision library OpenCV.

Currently, version 1.0 of YXImage provides functions like gray scale, contrast, binarization and particles analysis.

2. Examples of particle analysis

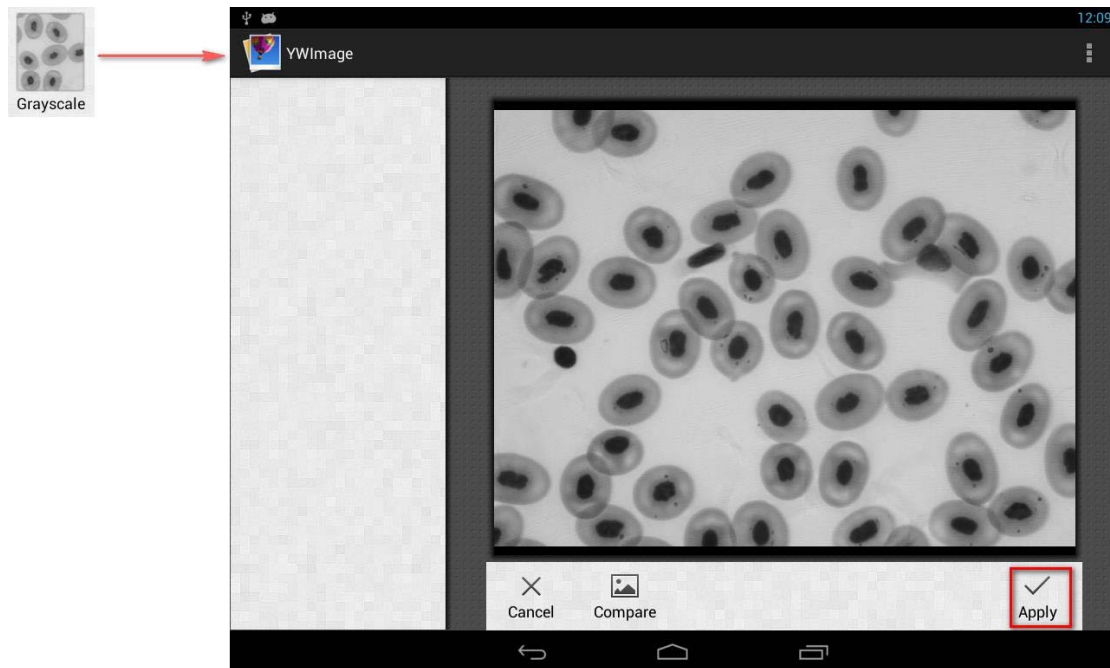
2.1 Load image file

Click the camera icon to the upper right corner of the screen, you can choose a picture or take picture from Camera application.



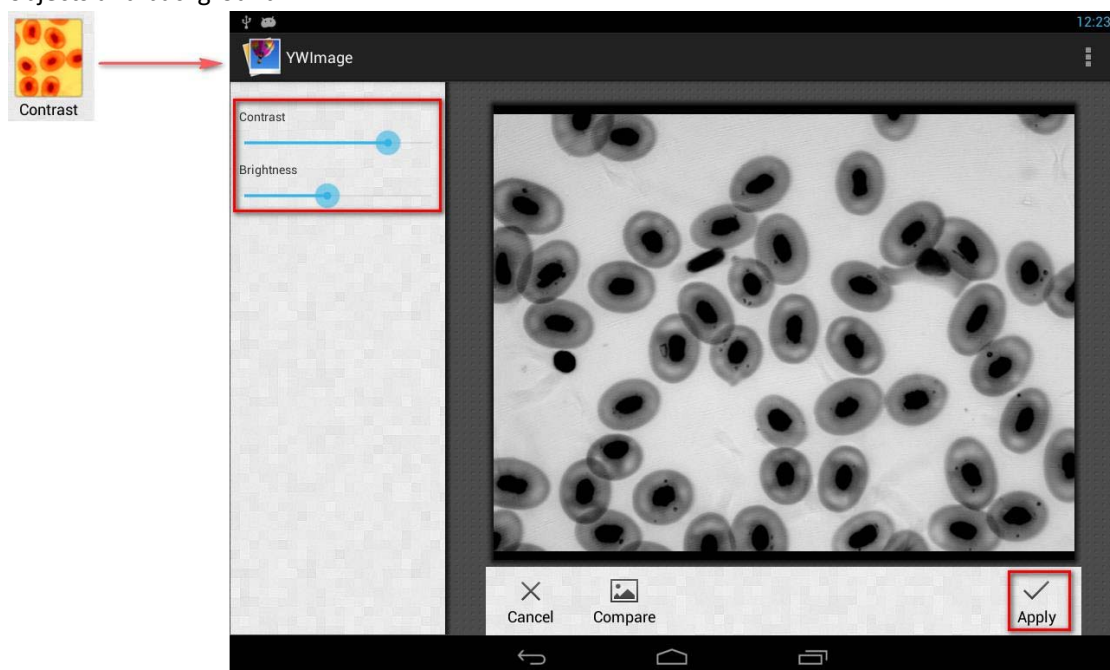
2.2 Convert the image into grayscale

Choose "Grayscale" function from left sidebar, click "Apply" button to confirm conversion.



2.3 Adjust contrast and brightness

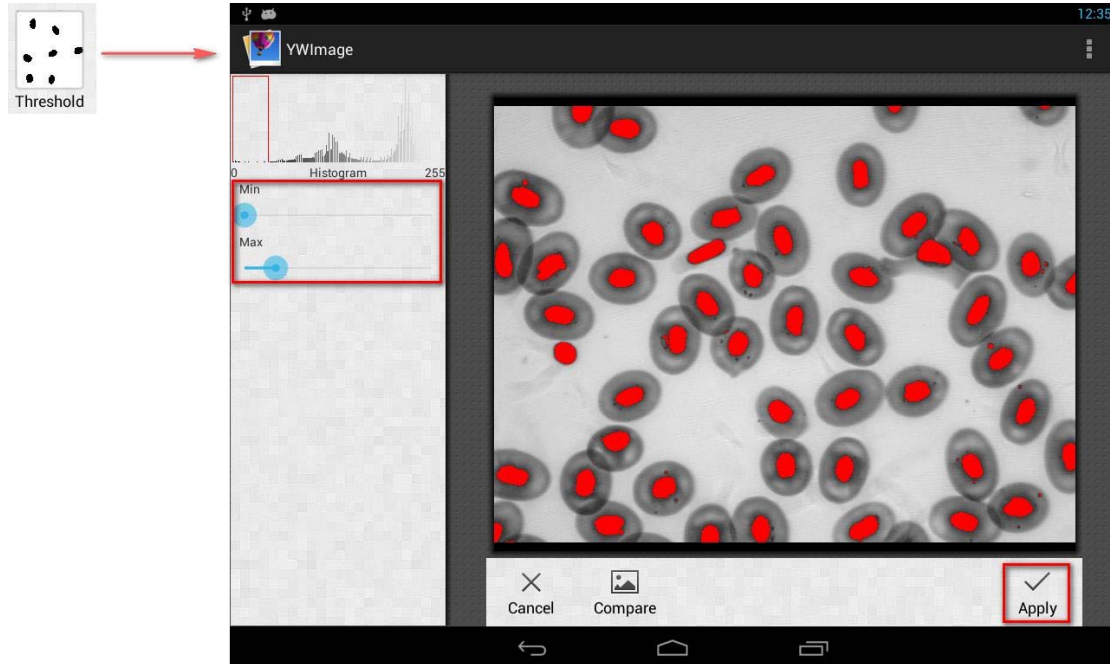
Adjust contrast and brightness of the grayscale image, increase the difference between the objects and background



2.4 Binarization

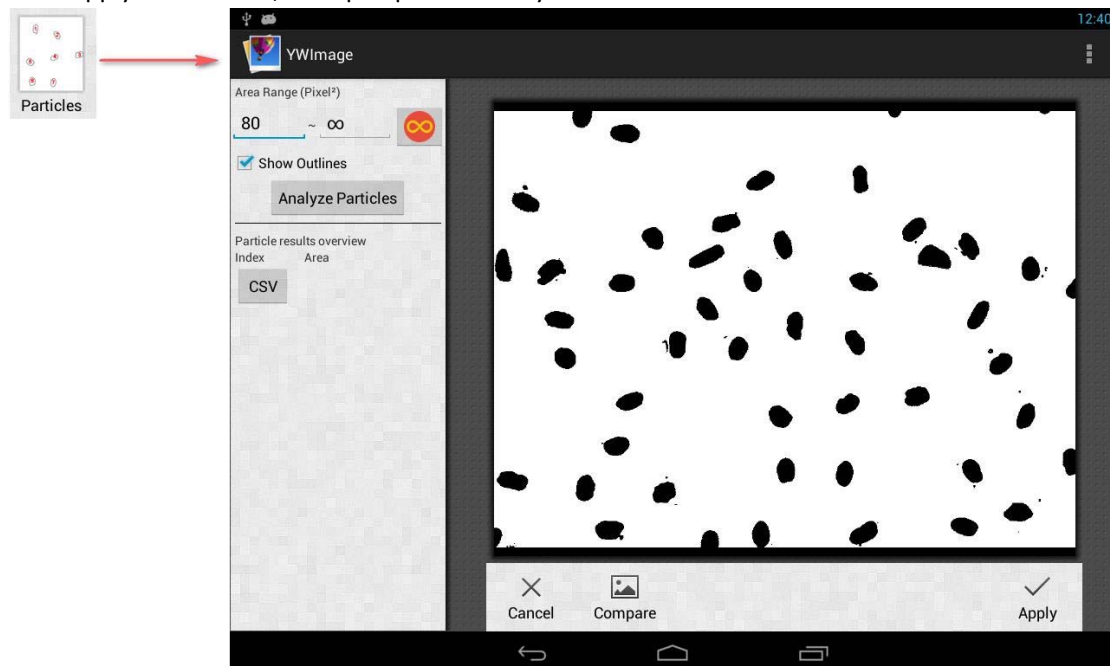
With the binarization tool, you can change the minimum and maximum threshold values. The intensity of all the pixels within the threshold range will be set to red. After applying binarization, the red area's RGB value will set to (0, 0, 0), the other area's RGB value will set to (255, 255, 255).

Note: Try to make the red area not overlap with each other.




2.5 Particle analysis

After apply binarization, the open particle analysis tool:



First of all, Because there is some noise or dirty points after binarization you need to set the range of particle size. Reducing the range of the particle's size will make the result more precise.

To restore the maximum value to infinity, Click the  button.

Check the “Show Outlines” checkbox to show borders and number of particles after analysis.
Click “Analyze Particles” button to start analysis, the result will be as below.



Click “CSV” button to export data to report file, the default path is:
/mnt/sdcard/YXImage/Reports