Vegetation Segmentation Based On The Modified Near-InfraRed Webcam Using NIR-Blue Channel Weighting and Histogram Thresholding

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Abstract.   Device cameras or webcams are photoconductive devices that are sensitive to near-infrared (NIR) wavelengths, but most of these cameras are fitted with a blocking filter to this wavelength and allowing visible lights such as the red, green, and blue (RGB) bands. NIR image property becomes more important due to its sensitivity to the vegetation. The research objectives are enabling the NIR being captured by replacing the red band into the webcam using super-blue filter and segmenting vegetation from the image captured. This modified NIR webcam is becoming vegetation imaging capturer by combining with NIR - blue channel weighting image processing and histogram thresholding method. The modified NIR webcam and vegetation segmentation approach distinguish canopy from its environment with high accuracy and high sensitivity as it was validated with manual segmented image as a ground truth.