# HISTOGRAM-BASED IMAGE SEGMENTATION ALGORITHM APPLICATION FOR FLOOD DISASTER MANAGEMENT

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## Abstract

Flood monitoring devices nowadays are used by many countries for disaster awareness. Flooded areas are caused by overflowing river water levels, The study developed a flood disaster management applying the image segmentation algorithm using histogram data images for analyzing the river water level images. Specifically, it aims to monitor the river water level by applying the histogram-based image segmentation from the sequential images captured by a camera module of the Raspberry Pi. The segmented water level image will undergo image histogram analysis to obtain the pixel data. These values will then determine the alert level of the river. The researchers used the descriptive methodology to examine the pixel count of the segmented histogram. The study applied the thresholding operation of the image segmentation algorithm used by Vala and Baxi wherein the grayscale image is converted into a binary image to locate the image to be segmented. The generated pixels reflect the level of the river water from the grayscale images. The study observed that the alert level 3 image of the water level resulted in the highest average of 14,624.18 pixel count as generated by the histogram. In alert level 3, the higher water level was observed due to the high pixel count result. This concludes that the increase of river water level in the image resulted in a high gray pixel count in the histogram that can be used as a flood monitoring tool.