

Abstract

People Counting in a running video is one of many fields in computer vision. The application of people counting can be used in assisting human in video surveillance, security management, etc. People going in and out of a place will eventually use an entrance or exit door. On that basis, this final project implements a Region Of Interest (ROI) to mark a region where people counting is applied. One of the methods used in this people counting is curve analysis, which beforehand, a background subtraction and filtering using erode and dilation filtering is performed to reduce the noise in a video. Noise can be abundantly found in a video which was shot in a place with many environment disturbances i.e sunlight, or movement from inhuman objects.

First, the system performs foreground (objects) pixel detection and separates it from the background in the video using Gaussian Mixture Model (GMM). After the separation is complete, a filtering is done and the result then measured for color intensity so that y-axis based pixel percentage can be acquired. The pixel percentage is then used as point (a,b) and represented in the curve. The width of the curve becomes the estimated number of people based on its threshold value. This system is able to count people in various scenarios, such as when people stands too close to each other, when people in the video are running or when there are a group people walking in a separate direction. The system also has quick computation time, so it can be implemented real-time.

For cases (video) where occlusion doesn't occur, it can reach 100% accuracy. However, if an occlusion is occur, the accuracy is dependent to the number of pixels that stack between the human object. From eight testing scenarios and nineteen different case the average accuracy is 92%.

Keyword: *Curve Analysis, Noise,color intensity, Foreground, Threshold, ROI.*