

## ABSTRACT

Generally, the current visitor counting system used in a public place is manual. But, the unclear sight factor in humans can cause mistakes in counting the amount of visitors. Another method that might use is by using automatic sensor in a room, such as temperature sensor which needs a more relatively expensive expense. The solution for the problem is by using a supporting aid, a web cam, to function as the automatic counting system with a relatively expense.

The method used in counting the visitors automatically is Normalized Sum Differences (NSD) which took the absolute value of the current pixel frame amount and the next pixel frame amount. The NSD value was normalized with the width of detection window. Its value is then selected by applying the thresholding process to detect the people's existence in the detection window. Furthermore, a simulation was done by placing a web cam on top of the entrance and the software implementation with the NSD method will automatically count the number of the existing visitors. The input of the stimulation was the direct information from camera and recorded video in \*.avi format, whereas the output from the simulation was the number of visitors entering and leaving the place so that the total number of people in the place was finally identified.

The result of the test showed that the NSD value was bigger when using the light background compared to using the dark background. The use of bigger detection window was more accurate than the small one. The test recorded that the most optimum accuracy value was when the test was done with the threshold value 27 in which the accuracy level was 94%. Moreover, the appropriate space for each passing person was 90 cm for an optimum accurate count.

***Key Word : WebCam, Normalized Sum Differences (NSD), Detection Window, Threshold***