ABSTRACT

V/M Graph is a logical method way of thinking that explains the existing information and relationship between different variables using graphical structure with generative design in terms of modules and probabilistic graphical models. In this final project, event (incident or activity being performed by humans) is defined into two, they are natural events (normal event) which are standing, falling, lying down, and un-natural events (abnormal event) which is collapse. Abnormal event detection is a system designed based on V/M Graph algorithm to detect an abnormal event.

The adjustment of the final project system is done by taking frames from video taken offline by a certain time interval. When difference occurs between frames, made the process of background subtraction then followed by the dilation of the structure elements to form an observation area called a blob (object). Observation of the blob labeled is based on parameters, which are object ratio, velocity of each frame, and time threshold that indicates the occurrence of abnormal events. Thus, an alarm would be raised in case of abnormal activity detection. The system is analyzed by using three kinds of changeable parameters, called bwareaopen, structuring element, and the broad label.

The result is parameters analysis of system performance that able to detect abnormal event, which is collapse, with the best accuracy rate of 100%. The best bwareaopen threshold value is 750 pixels with an average accuracy rate system of 99.10%. The best structuring element width value for the dilation process is 7 pixels with an average accuracy rate system of 100%. While the best threshold value of broad label is 2000 pixels with an average accuracy rate system of 100%.

Keywords : V/M Graph, blob, threshold, abnormal event detection, collapse, alarm.