FIRE DETECTION BASED ON VISION SENSOR USING SUPPORT VECTOR MACHINES

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Abstract

Fire is one of the disasters that often occur. The cause of frequent occurrence of fires are due to human negligence and short-circuits. Fire does not only damaged buildings even cause many victim. Currently many of fire detectors use heat sensors, ion, and infrared. However, the use of this alarm system will not work until the particles reach the sensor. Therefore, there has to be a fire detection system that can detect fires quickly.

In this final project fire-detection software is implemented using motion detection, color detection using color probabilities, region growing, features extraction using wavelet and pixel classification using support vector machines. The Results from shape detection will be used in the process of determining the fire.

The dataset used in the testing process contains sixty-seven videos with a length of six to sixteen second video taken from various sources. The resulting performance is the best at 96.32% true positive, 1.46% false positif and missing rate of 2.23%.

Keywords: Motion Detection, Color Detection, Probability, Wavelet, Support Vector Machines.