

Abstract

Fire disasters can cause significant damage to property and infrastructure and pose a serious threat to human life. A system that is able to detect fire early so that preventive measures can be taken is needed. Conventional fire detection systems that are widely used are usually built to detect smoke or temperature to trigger an alarm, and the system response will be delayed when the detected fire produces minimal smoke and temperature. To overcome this problem, this research builds a video-based fire classification system using a combination of HSV color space method, Local Binary Patterns on three orthogonal planes (LBP-TOP), and Support Vector machines (SVM). The dataset used is 26 videos, of which 10 are labeled fire and 16 are labeled not fire. This study produced the highest accuracy score of 90.9%.

Keywords: Fire detection, HSV, LBP-TOP, SVM