

Abstract

Wildfire is a disaster that often occurs in Indonesia, especially forest fires that greatly impact the community. Cases of forest fires often occur in large forest areas where people rarely have activities in the area. Therefore a fire detection system can greatly assist early detection of fires. A fire detection system that can be implemented on Single Board Computer (SBC) devices such as the raspberry pi can be very useful. In addition to lower costs compared to conventional devices, the small size of SBC makes it easier to apply in various places such as surveillance towers and drones. In this research, a fire detection system is designed that can be implemented on SBC devices. The system was built by applying the Scale Invariant Feature Transform (SIFT) feature extraction method. This method is taken to prove whether this method can be used for implementation on SBC devices. For the classification method, we use the Support Vector Machine (SVM). For the detection process in the image, we apply selective search to get the potential fire areas. The experimental result shows a TPR value of 94.78%, TNR 29.36%, PPV 74.66%, NPV 71.93%, accuracy 74.31% and F1-score 83.52% on the RBF kernel.

Keywords: fire, SIFT, SVM, detection, raspberry pi