

Abstract

Fire is one of the most useful tool for human life. Fire can help people in many ways, such as warming, giving better sight at night, and cooking. But, fire can also be something deadly for human. There is an increase rate of fire case in Bandung to 100% if compared to period September-October 2013 to period September-October 2014 [2]. This led people to be more aware of early fire detection, before the greater effect comes.

Fire alarms that widely used today have many disadvantages, such as not really sensitive in open space, and the response time is too slow. Therefore, a couple years ago, scientist have started to do some researches about detecting early fire using camera. According to the latest study, fire has a frequency of 10 Hz. Using camera, which has wider range and faster response time, it hopefully could catch fire characteristics with excellent precision.

In this final project, I designed and implemented a fire detection system using Mean Shift for data clustering, combined with Color Look-up method for detecting fire-colored pixels, Discrete Wavelet Transform as feature extraction, and Hidden Markov Models as classificatory. I believe the output of this system is able to catch fire object using camera.

Keywords: fire detection, mean shift, color look-up, discrete wavelet transform, hidden markov models