Fire Detection Using Video Processing based On Computer Vision

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Abstract: *A unique real-time fire detection system based on HMMs is provided in this work. First, we describe a fire characteristics analysis that supports the usage of HMMs to detect fire; second, we suggest a method for discovering candidate fire pixels that includes moving pixel detection, fire-color inspection, and pixel clustering. This paper's main contribution is the creation and use of a hidden Markov fire model that combines state transitions. To eliminate data redundancy between fire and non-fire with fire motion information the final choice is yours. The training provides parameters for the application, which is based on this model, which includes training and application. This is an HMM application. The results of the experiments reveal that the approach has a high detection rate and a low false alarm rate and a low false alarm rate. Furthermore, real-time detection has been effectively realized via the learned parameters of the HMM, since the most time-consuming components such as HMM training are performed off-line.*

Keywords: Hidden Markov Model (HMM), Hue Saturation Value (HSV), etc.

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