

## Abstract Details

**Title:** Survey of Automatic Fire Classification and Extinguish Techniques using Embedded Based Neural Network

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**Abstract:** Automatic fire detection is important for early detection and promptly extinguishing fire. Using of embedded Neural Network in automatic fire detection is one of the most important applications of Neural Network. There are many studies investigating the best sensor combinations and appropriate techniques for early fire detection. In the previous studies fire detection has either been considered as an application of a certain field (e.g., event detection for wireless sensor networks) or the main concern for which techniques have been specifically designed (e.g., fire detection using remote sensing techniques). These different approaches stem from different backgrounds of researchers dealing with fire, such as computer science, geography and earth observation, and fire safety. In this report we survey previous studies from point view of facilities of the system, ability of application in real life and performance parameters like training time and convergence time. This work also proposes a solution for implementing neural networks on microcontrollers for many embedded applications.

**Keywords:** Artificial Neural Networks, Embedded System, Fire Classification, Microcontroller and Network Training.