Abstract Details

Title: Analysis of Automatic Fire Classification and Extinguish System using Embedded based Neural Network

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Abstract: This study discusses the development of a fire fighting system that is capable of detecting fire in its early stage and also of classifying the fire based on the smell of the smoke in the environment. Arrays of sensors along with a neural network are used. The model of the Artificial Neural Network (ANN) is implemented in a general purpose microcontroller. The result is a low cost intelligent embedded fire classifier that can be used in real life situations for fire hazards minimization. This intelligent fire classifier can be used for the development of a smart extinguisher that detects the fire, classifies it and then uses appropriate extinguishing material required for extinguishing the class of fire. The response of the proposed system takes about 17 seconds including the training time to detect class A comparing to 24 seconds for detecting class B.

Keywords: Embedded Neural Network, Fire Classification, Gas Detectors, Neural Network Training and Fire Extinguishing.