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Indoor Automated Fire Extinguisher System using Computer Vision

Abstract

This paper presents the development of an automated fire extinguisher robot by employing fire recognition using computer vision. This project aims to develop a robot that can search, detect and extinguish small flames for indoor purposes. The robot is developed by applying open-source image processing to recognize the presence of fire. A control program was built to control the movement of the robot's servo motor. The performance of the fire recognition was analysed in different light intensities and angles. The development of this project makes use of a camera and computer vision in place of various sensors, such as gas sensors, temperature sensors, and infrared sensors, to detect fires. Furthermore, a microprocessor is employed to operate the water pump and servo motor, which drive the nozzle to the position specified by the microcontroller. The results reveal that the proposed vision-based fire detection system has a high classification accuracy correspond to fire recognition.

Keywords

Computer vision; Fire extinguishers; Fires; Infrared detectors