



Real-time Wildfire Detection using Smart Sensors Network

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Abstract

This work describes the development of a smart embedded system designed for forest fire protection. The system utilizes a combination of sensors, cameras, and machine learning algorithms to detect and alert of potential fire hazards in real-time. The sensors are strategically placed in the field to detect variations in temperature, humidity, and other surrounding environmental factors that may indicate the presence of fire. The machine learning algorithms analyze the data from the sensors and cameras to determine the likelihood of a fire and to predict its potential spread. The system can also be integrated with existing fire suppression systems, such as sprinklers and drones, to aid in extinguishing fires. The developed system has the potential to significantly enhance the efficiency and effectiveness of fire protection efforts in forests, helping to prevent devastating wildfires. The proposed system also includes a predictive maintenance module which detects any malfunction of the sensors, cameras and other devices and asks for the assistance.

Keywords: Smart Sensor, Machine Learning, Wildfire Detection, Wireless Mesh Network, Image Processing.