HYDROSAFE: SMART FIRE PROTECTION SYSTEM

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This research introduces a pioneering fire prevention system merging existing CCTV infrastructure with Arduino technology. The system optimizes fire detection accuracy and response times without the need for extensive wiring, making it versatile for deployment in offices and agricultural environments. Employing computer vision and machine learning models, CCTV cameras autonomously identify potential fire incidents.

The system's architecture involves CCTV cameras for detection, Arduino microcontrollers for decision-making, and a water spraying mechanism for swift fire suppression. Wireless communication protocols enable real-time data transfer from cameras to Arduinos, triggering the water spraying system upon fire confirmation. Efficient power management ensures prolonged operation, while safety features prevent unintended water discharge. A user-friendly interface facilitates system monitoring and configuration adjustments. Thorough testing in diverse environments validates system reliability, with calibration mechanisms accommodating various camera angles. Compliance with safety standards ensures applicability in different settings. This research not only presents an innovative fire prevention solution but also showcases the system's adaptability, from securing office spaces to safeguarding agricultural landscapes. The modular design and integration capabilities underscore its scalability and potential for future advancements in intelligent fire prevention technology.

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