IOT BASED HOSTEL FIRE DETECTION AND ALERT SYSTEM

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In the current era, student safety is one of the upcoming problems. Accidental fire is one of the hazards affect student safety. Nowadays, there are many systems used to detect fire. However, no proper fire management system can be found in student hostels is Sri Lanka. Consequently, the residents of hostels can lose their lives due to serious injuries caused by fire disasters such as current shorts, gas leakages, etc. The Internet of Things (IoT) is one of the forefront techniques, which can be used to create smart systems. This study is focused on using IoT to create an efficient fire alarm system, specially designed for student hostels in Sri Lanka. When the system detects a breaking out of fire, it will automatically send a notification to officer on call and raise an alarm. The officer can confirm or ignore the impeachment using a mobile application, which is installed in a smart phone. If the officer affirms the situation, a notification containing the location of the device will be sent to the nearby fire brigade immediately. However, if it is not detected by device, we have built the message alert system to inform the officer on call about any fire incident by using unprecedented functional scope application. Then residents can prepare in case of emergency. If it is denying, then the residents also can avoid any false alarm by using proper button. In this system, we have used highly sensible sensors to detect the presence of a fire in its surrounding and a microcontroller to trigger the alarm and to send a message to the server through hostel Wi-Fi network. This system was tested in a simulated environment and stabilized that the accuracy was of acceptable level. Furthermore, this system can be further upgraded to a build-up alert system, which can send a mail or make a phone call to the nearest fire brigade.

Keywords: Internet of Things (IoT), Fire Detection, Fire Management, Microcontroller