IoT-based Smoke Detector in NodeMCU Platform
with Desktop Monitoring and Alert System

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Bachelor of Science in Computer Science

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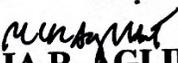
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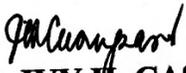
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ABSTRACT

Smoke is an unwanted byproduct of fire. Its presence is an indication of fire and this affects the environments' safety hazard and health implications. The researchers aim to develop an IoT-based smoke detector in the NodeMCU platform with desktop monitoring and alert systems that can improve the comprehensive data collection through each station and integrate it to a proper alarm protocol. The alert system can prevent the damages caused by fire for better monitoring and efficient smoke attention mechanism.

After developing the device by following the Agile Prototyping Methodology, the performance was tested by measuring the time the smoke is detected through three setups. The resulting time records were inconsistent but are in line with the standard smoke detection time. 100% of the smoke tests were detected by the device.

The System Usability Scale (SUS) was used to evaluate the device and system from twenty-five (25) respondents consisting of IT experts and target users. The system received a SUS score of 76.1 with adjective rating Good and Grade B. This score is above the benchmark average of SUS scores of systems from different studies. Overall, the device is proven to be effective in detecting smoke, recording it to the database and alerting through an audible buzzer.

Keywords: Smoke Detector, IoT (Internet of Things), NodeMCU, Desktop Monitoring System, Agile Prototyping Methodology, System Usability Scale