

**Sudan University of Science and
Technology**

College of Engineering

**School of Electrical and Nuclear
Engineering**

**Home and Industrial Safety Using
Fire and Gas Detection System**

السلامة السكنية والصناعية باستخدام نظام الكشف

عن الغاز والحريق

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الايه

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قال الله تعالى:

((قل هل يستوى الذين يعلمون والذين لا يعلمون))

صدق الله العظيم

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DEDICATION

Our thanks and deep appreciation to our great parents our source of inspiration and love who dedicated their live to empower us with carriage and support .Our gratitude and special thanks to our supervisor and KHARTOUM refinery.

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In the name of Allah , the Most Gracious and the Most Merciful Alhamdulillah, all praises to Allah for endowing us for with health , patience , and knowledge to complete this work.

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ABSTRACT

Gas leakage and fire outbreaks in industrial as well as houses have led to wide destruction and losses in the past. Gas leakages and fire outbreaks both spread widely and lead to even greater losses of life and property if proper action is taken on time. So here we propose a system that detects gas as well as fire outbreaks and alerts accordingly so that proper action may be taken to control it. For this our system uses gas sensor along with a temperature sensor interfaced to the microcontroller. The microcontroller is also in turn connected to LCD screen and buzzer to show the alerting part. As soon as the fire starts the rise in temperature is recorded by our temperature sensor. When temperature rises beyond certain limit it sends signal to the microcontroller. The microcontroller processes the signal and displays the fire alert status on LCD screen and also sounds the buzzer. Now the gas monitor too constantly monitors for any gas leakages. As soon as any gas is detected at the sensor it sends the signal to the microcontroller. The microcontroller now processes this data and sounds the buzzer and also displays the gas alert message on LCD screen.

مستخلص

تسرب الغاز والحريق فى المنشآت الصناعية فى الماضى ادى الى خسائر فى الارواح والممتلكات، لذلك السبب تم اقتراح نظام تلقائى يقوم بالكشف عن تسرب الغاز والنار و يقوم باصدار تنبيهات الخطر ومن ثم يتخذ اجراءات ملائمة للحد من انتشار الحريق.

استخدم فى هذا المشروع حساس للكشف عن ارتفاع درجة الحرارة و اخر يقوم بالكشف عن الغازات المتسربة وربطهما بوحدة تحكم عبر شاشة لعرض قراءات درجة الحرارة والغاز موصلة بوحدة التحكم.

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LIST OF ABBREVIATION

IMO	International maritime organization
ISO	International standard organization
NFPA	National fire protection agency
IMO FSS	International maritime organization fire safety system
BLEVES	Boiling liquid expanding vapor explosion
UV	Ultra violet Radiation
IR	Infra- red
MCU	Microcontroller
DSP	Digital Signal Processor
ADC	Analog –to-Digital-Convertor
DAC	Analog-to-Digital Convertor
I/O	Input /Output
CU	Control Unit
CPU	Central Processor Unit
PC	Personal Computer
NC	Normally Close Contact
NO	Normally Open Contact
AVR	Advance Virtual RISC
PIC	Peripheral Interface Controller
EEPROM	Electrically Erasable programmable Read Only Memory
AVRASM	AVR Assembler
DCS	Distributed control system

