IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 15, May 2023

IoT Based Coal Mine Safety Monitoring and Alerting System

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Abstract: *Coal mines are one of the most important industries in the country, as they are used as fuel in the steel and cement industries to extract iron from the stone and create cement. The coal mining industry is known for its hazardous working environment, requiring stringent safety measures to protect miners and prevent accidents. The coal mine safety and monitoring project provides a comprehensive solution to enhance safety within coal mines. The objective of this project is to continuously monitor critical parameters such as temperature, gas concentration, and water level to ensure a safe working environment in coal mines. The continuous monitoring of temperature, gas concentration, and water level, along with remote communication capabilities and alerting mechanisms, contribute to minimizing the risk of accidents, improving response times, and overall safety standards within coal mining operations.*

Keywords: The project utilizes various components, including the NodeMCU ESP12E Microcontroller, I2C LCD, Buzzer, MQ Gas Sensor, LM35 Temperature Sensor, Float Sensor, NRF24L01 Wireless TX RX

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