IOT BASED COAL MINING SAFETY MONITORING SYSTEM USING NODE MCU

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ABSTRACT

This paper proposes a design of a wireless sensor network (WSN) with the help of ARM controller which is able to monitor the temperature, humidity, gas, vibration and status of smoke in an underground mine. This system also controls the ventilation demand to mine workers depending upon present climate conditions within the mine field. This system utilizes low power, cost effective ARM, DHT11 sensor, smoke detector, gas sensor for sensing the mine climate parameters and Wi-Fi for remote logging of data at central location to control the climate state with the help of motor and valve control circuitry.Traditional coal mine monitoring systems tend to be wired network systems, which play an important role in coal mine safe production. With continuous enlarging of exploiting areas and extension of depth in coal mine, many laneways become blind areas, where in there are lots of hidden dangers. Moreover, it is inconvenient to lay cables which are expensive and consume time. In order to solve the problems, we will design a coal mine safety monitoring system based on wireless sensor network, which can improve the level of monitoring production safety and reduce accident in the coal mines Wireless sensor network is composed of a large number of micro-sensor nodes which have small volume and low cost.

Keywords:.wireless sensor network, coal mine monitoring ,the temperature, humidity, gas, vibration

1. INTRODUCTION

IoT is nothing but the devices communicating with each other by using the internet. IoT applications vary on a large scale. European Research Cluster on the Internet of Things classifies major IoT applications as smart buildings, smart transportation, Smart energy, smart industry, smart health and the smart city as major areas. IoT is a trend-setting innovation in which all the data from sensors is