

SURKSHA KAVACH SAFETY HELMET FOR COAL MINERS

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Abstract - Coal mining is a best source for the country economy. The security of the underground mine workers must be important because in underground hazardous situation are very serious issues. Various problems are created in mining industries like gas leakage, deficiency of light, etc. If any disaster occurs in mine and if miner gets injured, all the blame directly goes on supervisor. So there must be communication between miners, supervisor and control station. Therefore the purpose of the proposed system is to modify an existing mining safety. Helmet is one of the safety accessories miner should wear while mining. We have a tendency to use rf based mostly electronic equipment to discover employees moving through the whole mining web site. The helmet is integrated with associate degree rf based mostly trailing system that in coordination with the hunter rf systems facilitate offer knowledge over IOT.

The important thing is to make the helmet even safer by adding network facilities and better communication between supervisor and workers. This added network is used to detect the environmental situation around the miner working underground and all the real time values are wirelessly updated on the internet by using IoT so the control station get to know about the environmental conditions in which miner working and if any abnormal condition occur they are able to provide the rescue as early as possible. The system also includes the LCD and buzzer for the unwanted situation, at that time take quick action. In this helmet uses different sensors like Gas Sensor, Humidity and Temperature Sensor, IR Sensor. Here the IR sensor is used as helmet removing sensor.

Key Words: IOT(internet of things),IR sensor(infrared sensor),LCD(liquid-crystal display)

1.INTRODUCTION

Big problems in mining industries in now days are climate, social and environmental pressure and also about health and safety. Supervision and proper communication is required and important in mining industries. Supervisor responsible for the workers injuries and be aware of potentially risky situation. And all that problems resolve by the "surksha kavach safety helmet". When working with noisy equipment being aware of one surrounding can sometimes be challenging.

In mining industries workers remove safety gear because of gear is too heavy, however workers generally do not remove their helmets. The project is to modify an for mining safety helmet to make one helmet even safer by adding a wireless sensor. A safety helmet is designed for the coal miners to protect all types of hazardous situation.

2. Body of Paper

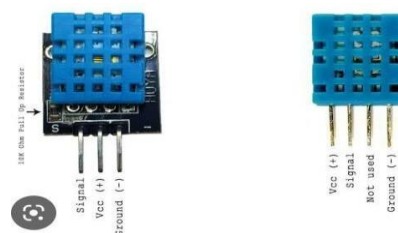
1. Gas Sensor –

MQ-6 gas sensor is used to detect gas leakage in industry, as well as mining areas. It has high sensitivity to LPG and iso-butane, propane. It has small sensitivity to alcohol, smoke. It has fast response when accident is occurs it get fast response. It has simple drive circuit and also stable and long life. It avoid the noise of alcohol and cooking fumes and cigarette smoke.



2. Humidity Sensor DTH11 –

DTH11 sensor is temperature and humidity sensor. It contain digital signal output of temperature and humidity application. The sensor include a resistive sense high performance 8-bit microcontroller. It has high reliability and excellent long term stability.



3. IR Sensor -

The IR stand for the Infrared sensor. The infrared is the light out of our visible spectrum. The infrared technology is used in industry for a variety of purposes as well as in everyday life. The most important advantages of Infrared sensor are their low power consumption, useful features, and simple design.



4. Pulse Oximeter -

Pulse oximeter is used to check the health of a person. To measure the oxygen level of the blood using the pulse oximeter. The noninvasive method of the pulse oximeter is measuring oxygen saturation in the blood. The pulse oximeter is a quick performer.



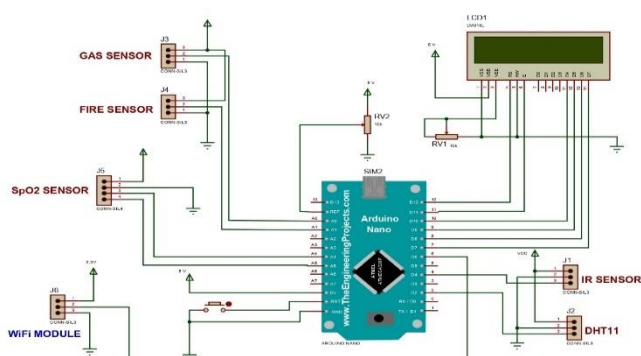
5. Buzzer –

Piezoelectric buzzers are sometimes also called as piezo buzzer. Piezo buzzer is the sound generator, used as an audio indicator in electronic circuits. It is widely used as an alarm generator in electronic devices. A Piezo buzzer has an



oscillator and a Piezo disc inside.

CIRCUIT DIAGRAM :



Model



3. CONCLUSIONS

“Surksha kavach safety helmet” was developed for the control of all hazardous situations in coal mining. Like gas leakage, temperature increases, etc. this helmet reduced accidents and provides safety for workers and also provides better communication between workers and supervisors. This is the main goal of this project.

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