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Coal Mine Helmet

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Abstract: *The Coal Mining Helmet designed in this paper aims to provide safety to miners by alerting them. All the factors can be noted only if the person is wearing the helmet. The output from the helmet module keeps updating every second i.e., real time data is been updated to the cloud. These wearable devices get to share their data or retrieve the data through other source by making use of internet of things. Alerts are sent to the miner and the supervisor if any threat is detected. Ubiquitous computing and wearable computers have contributed hugely to the evolution of wearable devices. Thus, this wearable device incorporates the various sensors, alerting mechanism and communication system to develop and enhance safety of the miner. The hardware comprises of data collection, data processing and data communication sections. Sensors employed a) Temperature and humidity sensor (DHT11): In mines, the level of temperature and humidity becomes high at times and prove to be fatal to the miner. The liberation of these gases could lead to breathing problem to the person inside the mines and could lead to choking. If one or more of these quantities exceed the threshold limit, an alert is sent to the miner as well as the base Authorizer. The data collection or measuring of the parameters is done using WSN technology. WSN technology is a network of sensors, where each of the sensors has different parameters to sense yet perform together as a part of the system. The level of temperature and humidity is known to the miner by displaying it on an OLED (Organic LED) and for the gas a threshold is set and a buzzer alert is given if it is beyond the threshold.*

Keywords: OLED (organic LED), Humidity sensor (DH11), MQ2, Arduino

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