Abstract

In early decades, rescue operation in coal mine was treated as a dangerous task. After
Design of an Adaptive Coal Mine Rescue Robot using Wireless Sensor Networks

explosions occur, when rescue workers get into the tunnel without environment conditional awareness, they are facing heavy damages due to consecutive explosions [1]. This bring the necessity to detect the status of the mine environment details such as toxic gases, high temperatures through wireless sensors to perform remote inspection of mine conditions, before trapped into the collapsed tunnel. Hence, this paper aims to design an adaptive coal mine rescue robot using Wireless Sensor Network (WSN). The test bed composed of sensing and controlling mechanism with monitoring subsystems and also assembled with motor control mechanism. In addition to that, a reliable wireless communication with ZigBee is made to transfer the sensed environment data through gas and temperature sensors. This sensor based real-time information guide the rescuers to learn the situations by themselves while planning the rescue operation remotely. With the help of this mobile robot, it is possible to reduce the loss due to coal mine disaster and efficient rescue operation can be carried out.

References

- Mr. Sabarish Chakkath, S. Hariharansiddharath, B. Hemalatha, "Mobile Robot in Coal Mine Disaster Surveillance"; IOSRJEN, October 2012.

Index Terms

Computer Science Wireless

Keywords

Coal Mine Rescue Robot Temperature Sensor Hazardous Gas Detector.