**IOT Based Smart Mining Monitoring System**

**RESULT AND DISCUSSIONS:**

The mine monitoring system is a real-time sensing and localizing system, which is used to ensure the safety of the mine-workers. The real time sensing is enhanced by various sensors for measuring temperature, humidity, vibration and light intensity. The sensors used are Thermistor (Rt 60) to measure temperature and humidity, LDR to measure Light Intensity, Piezo electric sensor to measure vibration in the underground mines. The measured values of the sensing elements are sent to the control room, where the necessary actions are taken for ensuring the security of mine-workers. Using RSSI data the location of the working personnel can be tracked. The voice alert system provides warning if the values of parameters like temperature and humidity go beyond their threshold values. The system can thereby prevent the disasters in the underground mines across the world.

**CONCLUSION AND FUTURE WORK:**

Safety has long been a concern in the mining business especially in sub-underground mining. While mining today is safer than it was in the previous decades, mining accidents still occur. Government figures indicate that 5,000 Chinese miners die in accidents each year. Accident due to underground mining continue worldwide, including dozens of fatalities at a time, such as the 2010 Upper Big Branch Mine disaster in the United States, and the 2009 Heilongjiang mine explosion in China. There are many safety gears are available in the market. But the prototype we developed stands versatile among them with its auspicious design and possibilities. Because compared to other safety equipment’s it helps in continuous monitoring of a mine worker.

Using this system variation in surrounding conditions can be monitored and necessary safety precautions can be taken. It also provides a technique for tracking the position of the worker which enables the rescue team to provide immediate help in adverse conditions. As a future enhancement, the control room module can be designed and implemented for the mentioned purposes. The safety provided by the smart helmet can be improved in future by the Integration of more sensors in this system. The RF technology is a low-cost technology compared to other communication schemes. Thus, using Radio frequency technology is the Savior of Underground miners across the world.