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Minning Safety System

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Abstract: Today In This World Safety Of Miners Is Major Challenge. Miner's health and life is vulnerable to several critical issues, which includes not only the working environment, but also the after effect of it. Mining activities release harmful and toxic gases in turn exposing the associated workers into the danger of survival. This puts a lot of pressure on the mining industry. To increase the productivity and reduce the cost of mining along with consideration of the safety of workers, an innovative approach is required.

Miner's health is in danger mainly because of the toxic gases which are very often released in underground mines. These gases cannot be detected easily by human senses. A real time monitoring system using wireless sensor network, which includes multiple sensors, is developed. This system monitors surrounding environmental parameters such as temperature, humidity and multiple toxic gases. This system also provides an early warning, which will be helpful to all miners present inside the mine to save their life before any casualty occurs. The system uses wireless sensor network technology to establish wireless sensor network.

Keywords: html5, css3, Jscript.

I. INTRODUCTION

Safety of workers should always be of major consideration in any form of mining, whether it is coal or any other minerals. Real time monitoring of toxic gases and other parameters present in underground mine has analysed using wireless sensor network. A real time monitoring system is developed to provide clearer and more point to point perspective of the underground mine Mining environment often has hidden dangers within such as toxic gases, which may present severe health exposures to the people working within mining. These gases need to be detected at times and informed the dangerous situation in right time for the safety of miners. Wired network monitoring systems have assisted the mine safety significantly, but it is not idea for all types of mining environment.
A real-time monitoring systems may assist in monitoring and control over the mining environment. Wireless sensor network technology offers its most of the advantages ideal for the real-time monitoring system. Thus, the primary objective of this project is decided to design an efficient real-time monitoring system so that various leaked mine gases could be identified and it can prevent accordingly

II. LITERATURE SURVEY

A structured coal mine administration framework to handle the progressing checking and extremely compelling spare issues of underground work stages. The sensor network substation is fixed at fitting between times in mine laneways to (RFID) position and gas intensities. What's more, a short time later the information is full and exchanged to checking [1]. Use for observance and revelation of fireplace in coal mines exploitation remote detector frameworks (WSNs). the appliance uses BDI (Belief, need and Intention) primarily based multi-administrator model and its utilization on detector frameworks. The argot used for execution is deciphered by Jason; associate extension of Agent Speak that depends upon the BDI style[2].The BDI director area unit responsive orchestrating frameworks; frameworks that don't seem to .be expected to method the estimation of a limit what is additional, finish but rather projected to be constantly running what is all the additional, reacting to some kind of event. The scattered model of the condition is gotten to beat the correspondence overhead, management use, organize deferral and unafraid quality on a sure along base station [3]. The building of highways in China has led to an increasingly serious problem leaving more and more coal under highways. Having as much as possible the unexploited coal and maintaining highway safety at the same time becomes a problem that must be addressed as a matter of urgency [4]. The paper addressed the characteristics of road deformations caused by underground mining, suggesting the rules to be followed while mining under highway protective coal pillar. Methods for the security mining of protective coal pillar under highway were put forward in the study on the basis of improving and integrating the existing methods for mining protective coal pillar [5]. The importance of the Coal Mine Production Safety Supervision and the specific issues that might occur under the concept of safety supervision function is proposed to create the Coal Mine Safety Production Supervision Program.

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The results, show that the addition of independent third parties to the coal mine production process implementation services in compliance with applicable guidelines, laws, rules and regulations and technical standards and the conduct of coal mining companies to establish an effective restriction framework can compensate for the government's macroscopic control and its own limitations. The establishment of the system to provide a reliable guarantee for coal mine safety production [6]. In the supply chain management (SCM) of coal companies, the volatility of the occurrence of raw coal and coal quality and the various limitations on mine production capacity are the major factors that need to be taken into account. This paper combines a supply chain model for coal mine planning with a linear programming model for production scheduling to allow coal companies respond quickly to change

III. PROPOSED SYSTEM

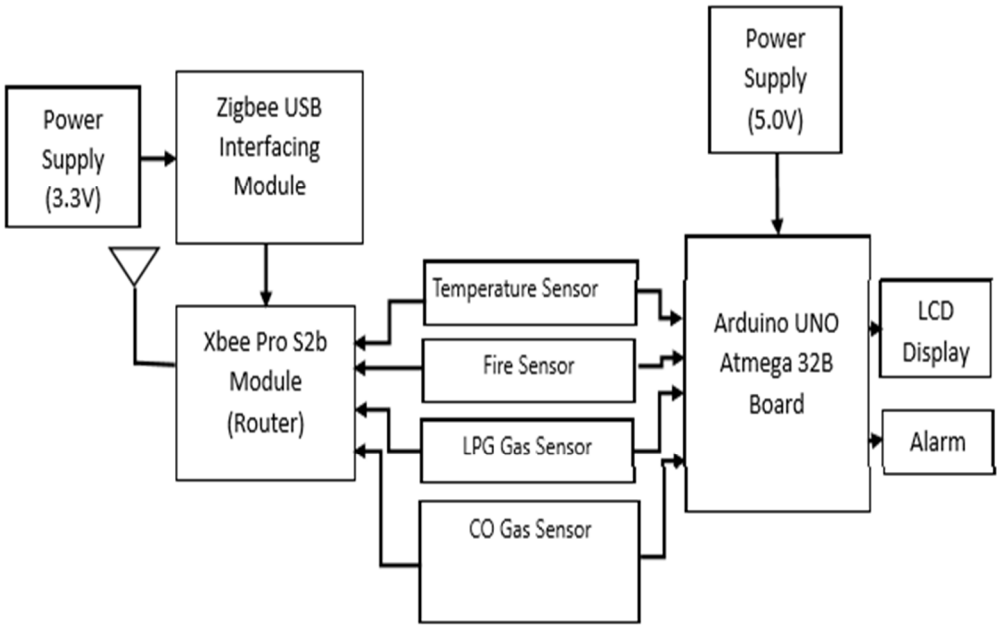

Fig.1 Block diagram of sensor unit

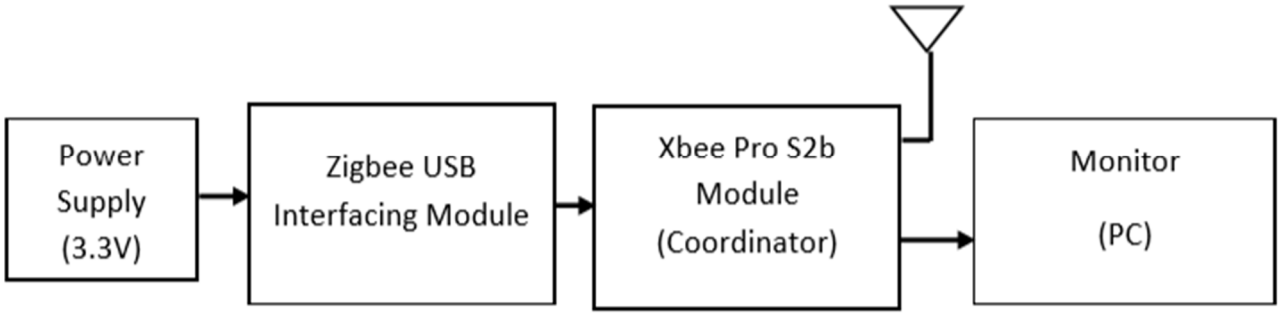

Fig.2 Block diagram of monitoring system

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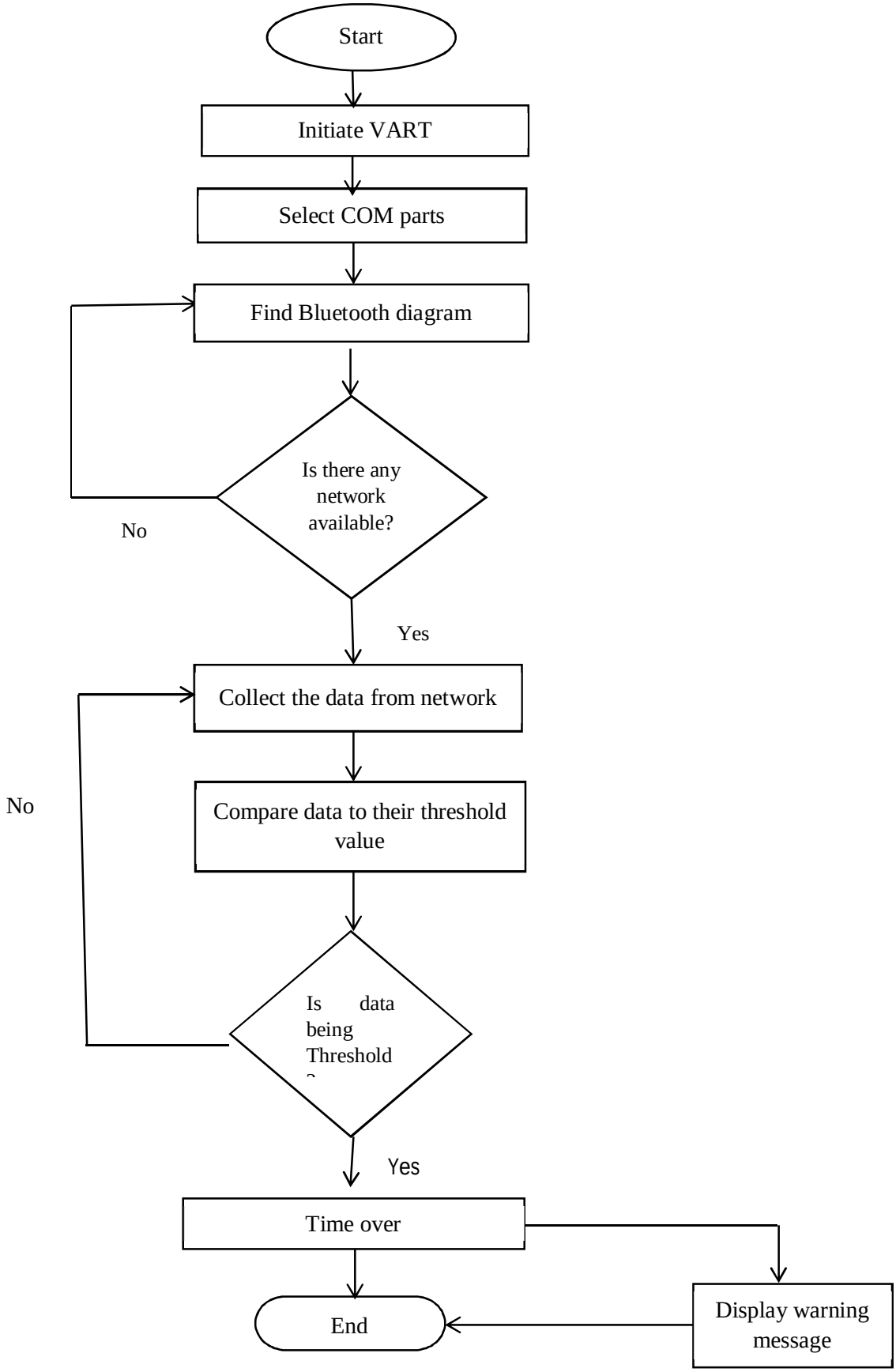

Fig.3 Flowchart of monitoring system

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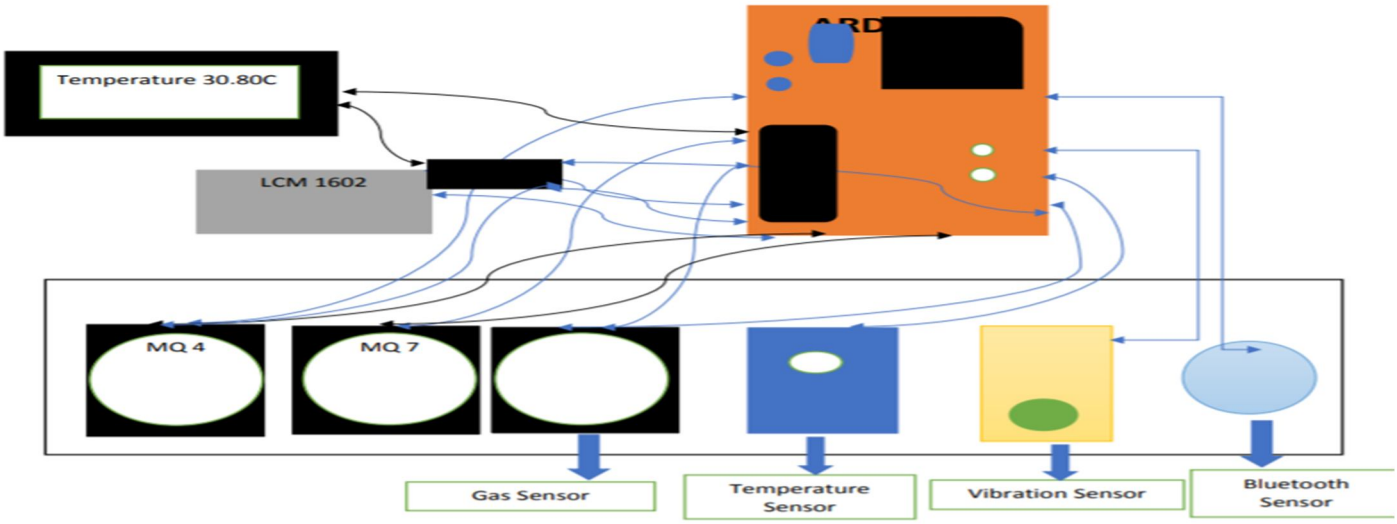
IV. SYSTEM ARCHITECTURE

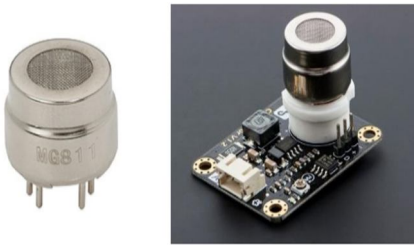


V. APPLICATIONS

Methane gas sensor (MQ-4)

MQ-4 gas sensor composed of ceramic tube and Tin Dioxide. Electrode and heater are fixed into a layer. The heater provides required work conditions for the work of sensitive components.

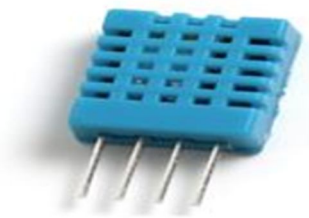
When the target combustible gas present, the conductivity of sensor is higher along with the gas concentration rising. The MQ-4 sensor has 6 pins in which 4 of them are used to fetch signals and other 2 are used.



Carbon Dioxide Sensor (MG811)

This CO2 sensor is designed by DFRobot engineer. The MG-811 sensor is highly sensitive to CO2 and less sensitive to alcohol and CO. The MG-811 sensor has low humidity and temperature dependency. Its structure same as MQ-7 but parts material are different.

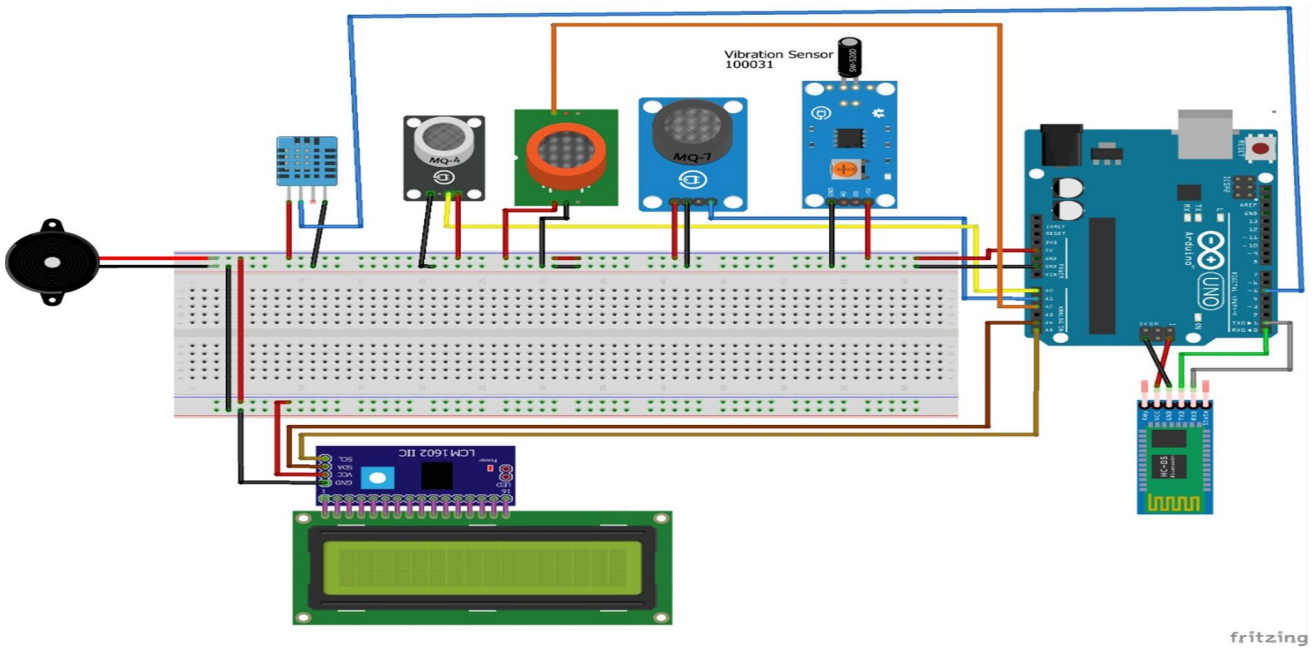
This sensor composed by solid electrolyte layer, Heater, Platinum Lead, Gold electrodes, Porcelain Tube, 100m double-layer steeliness net, Nickel and copper plated ring.



DHT-11 Sensor

This DHT11 Sensor measures the temperature and humidity. The sensor has greater reliability and very good stability. A resistive-type humidity measuring component with negative temperature coefficient is used. It connects to a microcontroller and shows excellent quality, anti-interference and fast response ability.

VI. RESULTS



VII. CONCLUSION

The development of coal mining protection for employees using Arduino, Gas Sensor, LDR, Temperature and Humidity Sensor continues to track the safety of mining and update information to the IoT site. By using this tool, we guarantee the safety of workers

VIII. ACKNOWLEDGMENT

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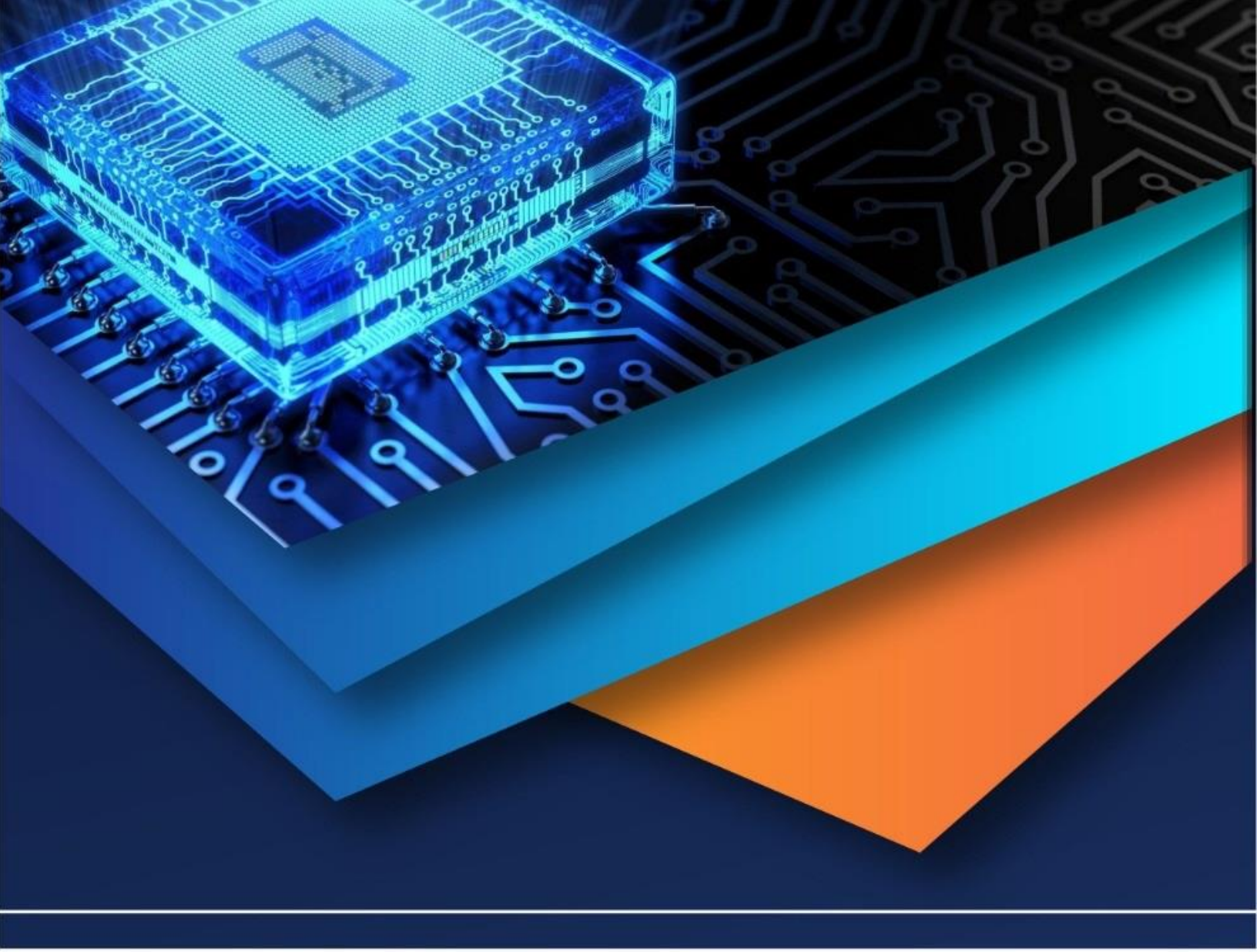

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