

# INDUCTION MOTOR CONDITION MONITORING AND CONTROLLING BASED ON IOT

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## ABSTRACT

*In today's scenario, the induction motor plays a predominant role in the industrial applications. The major superiority in induction motors is rugged and simple in construction. It can operate in any environmental condition and the cost is inexpensive. This paper grants the information regarding IoT (Internet of Things) based remote control and monitoring system of an induction motor in industries for implementation, In order for protected and economic conditions. The Transducer modules and sensors observe the parameters like Temperature, vibrations, external moisture RPM, induction machine load current and voltage and send to the (Arduino) processing unit. It will inspect and exhibit the parameters. To eschew system failure, this paper presents the induction machine start and stop control by both automatic and by manual. It also provides an industrial application to make the system become faster and user friendly*

**Keywords:** induction motor, aurdino uno, voltage sesnsor, current sensor, speed sensor.

## INTRODUCTION

In the evolution of electrical technology, the dc motors were widely used different industrial applications. After the invention of ac motors especially ac induction motors the view of industry become changed due to the wide advantage of induction motors. The different faults occur in induction motors are, Electrical-related faults: The electrical faults may occur due to the following factors such as unbalanced 3phase supply, over voltage, over loading. Mechanical-related faults: The mechanical fault may occur due to rotor bar broken, air gap eccentricity, damage in bearing, rotor and stator winding failure the performance of the induction motor depends upon the above electrical and mechanical parameters. So the continues monitoring of induction motor is needed for safe and reliable operation of industrial induction motors. The electrical and environmental parameters such as voltage, current, temperature and surrounding humidity of the motor, affects the good performance of motor. And also the mechanical factors such as vibration and abnormal speed affect the good performance of the motor. Some electrical and mechanical factors cause the severe damage to the health of induction motor and also cause severe problem to application where the induction motor is used. Today scenario the industry work as fast as possible to finish the product /service. In many industries, the induction motors very widely used to process the product

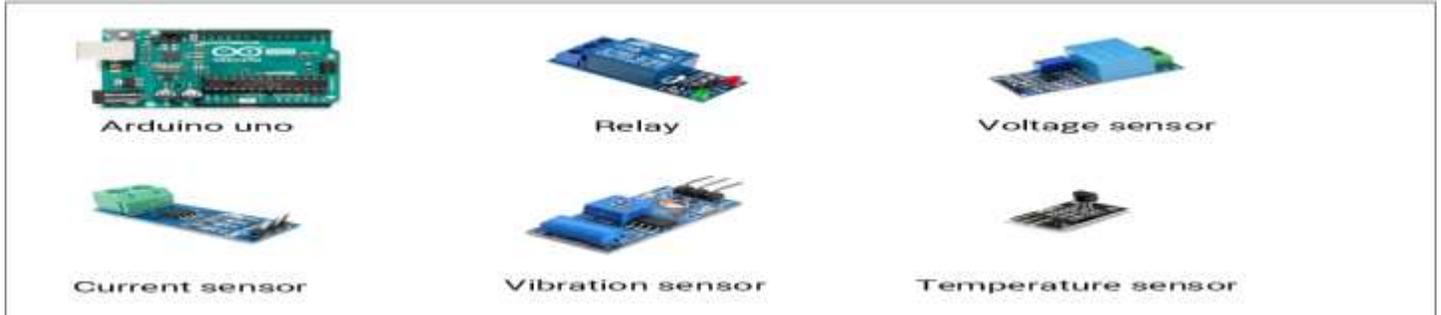
## METHODOLOGY

The power supply is turn ON, the Arduino and all the interface components get the required supply. Sensor unit senses the corresponding motor parameters and feed to the Arduino. Arduino reads the data from various sensors and analyses according to the given instructions, then sends the sensor information to LCD and network gateway through Wi-Fi. In Parallel, Arduino reads the commands from internet and provides control signals to the relay via contactor, which will control the induction motor. The sensor information's are displayed visually in server. The Induction motor control is based on the sensed parameters and in manual mode the control is based on alert messages received from the web. The control is done by relay and contactor circuit. The motor is turn ON/OFF when abnormal value is detected.

### BLOCK DIAGRAM:



### COMPONENTS:



## **CONCLUSION**

In this project the concept of Internet of Things for early detection and monitoring of motor system failures remotely. The system has the ability to combine various sensed parameters in real time and improve accurate detection of different faults occur in motor. The monitoring of the motor system presents the measurement of different parameters namely vibration of the motor, temperature, speed, supply voltage and motor current. Thus, compared to other conventional methods this system has more number of fields which enables alarm, alert messages and quick controlling. The concept of IoT is presented here for remote monitoring and controlling the motor. By using visual basics the data received from the controller node represent by graphically .The data is also displayed serially. The work is updated to extra fields for precious control. The application of the system is needed today for every electrical system (i. e EV vehicle and automation of industries where greater safety is needed). The system has the specific advantage less maintenance, easy and quick controlling and accessing

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