ABSTRACT
The condition monitoring of AC motor is very challenging stage for engineers in industries or in other organization. There are many types of monitoring such as current monitoring, partial discharge monitoring, voltage monitoring, vibration monitoring, noise monitoring and thermal monitoring etc. Out of these all type of monitoring, consider vibration monitoring. The aim of the monitoring is to detect all kind of mechanical faults and out of other monitoring only vibration monitoring can detect all type of mechanical fault on same time. An experiment is needed here for considering vibration monitoring by using hardware module and software module. And through this experiment the condition of the motor can be detected either it is healthy or faulty.

Keywords - condition monitoring, Daq module, fault detection, NI Labview, vibration sensor.

I. INTRODUCTION
The condition monitoring of AC motor technique is used to detect about the abnormal condition of motor. According to the electrical power research organization the occurrences of electrical fault is 34% and mechanical fault is 66%. So our main motive is to detect the mechanical fault, which has the maximum occurrences priority. And vibration monitoring is the best technique which is used for measuring the mechanical fault. By using the vibration monitoring the abnormal condition of the sample motor can be detected before the totally shut of the motor. The vibration monitoring considered an experiment for detecting about the health of the motors. The experiment set up needs three modules: hardware module and software module and accelerometer (vibration sensor). Daq is the consider hardware module and NI Labview software is consider as the software module. The aim of the experiment is to detect about the condition of motor either motor is healthy or faulty. The previous research work can detect the same fault on same time, but through this technology all kind of mechanical faults can be detected.

II. METHODOLOGY
The experiment is considered for detecting about the condition of the motor. On the bases of vibration monitoring, the condition of motor can be determined. The experiment is based upon the continuous vibration monitoring by using vibration sensor, accelerometer. Initially install the accelerometer on the outer frame of motor for sensing available vibration. The vibration monitoring is based upon the three factors: displacement, velocity and acceleration. The accelerometer based monitoring measures the vibrations from the outer body of motor and detect about their condition. The accelerometer abstracts the data in the physical form and converts this physical form of data into the electrical form. The electrical form of data enters into the DAQ hardware module. The data acquisition module converts the electrical form of data into the digital form through ADC. The newly formed digital signal from DAQ module will be move into the NI Labview install PC. The NI Labview software analysis the vibration signal and display the useful result on the front panel of the PC. The resultant display data represented in the form of the co-ordinate graph, which have two axis: x-axis and y-axis. X-axis represents the time domain and y-axis represents the amplitude domain. And the plotted graph represents about the health of the motor. The smooth waves are drawn by the healthy motor. And the distorted waves are drawn by the faulty motor. Through this experiment the health of the applied induction machine can be easily detected.

III. EXPERIMENTAL SET UP
The experimental set up is shown through the diagram. The experiment considered 8 sample motors and the aim of the experiment is to detect about the health of these sample motors. The experimental 8 sample motors are:
These 8 motors are considered in the experiment to detect their health. Eight experiments will be conducted on 8 sample motors. Each experimental motor has its own rating. Through the experiment, the condition about the motors can be detected easily. The experimental setup:

“Fig. 2” Schematic experimental view

Start the experiment and at the end stage of the experiment, results are come in the form of a graph. If the graph plotted has a minimum level of amplitude between 0-3db, it means the condition of the motor is good, and if the amplitude lies above the 3db, it means the condition of the motor is not good.

IV. RESULTS

The results of the motors are represented through the plotted graph and time-amplitude table. Graphs represent the actual condition of the machine either it is faulty or healthy. By seeing the graph, we can decide the present condition of the machine. If the resultant plotted graph has a minimum level of amplitude between 0-3db, it means the condition of the motor is good; it is a healthy motor, as the amplitude of the plotted wave goes above 5db, it means that the condition of the machine is not good; it is the faulty motor. The orientation of the graphs represents that either motor is healthy/faulty. Experiment consider total 8 sample motors, through the experiment, we have to prove that the number of healthy and faulty motors. Out of 8 motors, 3 motors are healthy and 5 are faulty. This is proved by the experimental. The resultant graph of 8 sample motors:

“Fig. 3” Resultant graph of all sample motors

These are the results of the 8 sample motors; each sample motor enters individually in the experiment and plots its own graph. As shown above, each motor has its own experiment and has its own graph. The graph which lies its amplitude between 0-3db, it means the condition of the motor is healthy, and if amplitude lies above the 3db, it means the condition of the motor is not good.

Graph plotted by Healthy motor:-
V. CONCLUSION
The basic need of the research work is to diagnosis the mechanical faults from the AC motors. That experiment totally depends upon the monitoring technique. The research work is based upon the experiments and through the experiment the condition of motor can be detected. By studies the previous research papers it is observed through the experiment only single type of fault can be detected either it detect stator fault, rotor fault, air gap eccentricity fault and bearing fault. Only single fault can be detected but through my experiment on the same time all type of mechanical fault can be detected. This is my research work. Through this technology we can early detect about the condition of motor and timely replacement and maintenances can take place before the occurrences of hazards and totally shut down of the system. So through this technology industrial work can never be stopped.

REFERENCES