Fall 2019 Capstone Design Expo Registration

Project Title: Protecting Induction Motor from Phase & Temperature

Department: Electrical engineering

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Project Information

Description: Our project protect induction motor from single phasing (Unbalanced Voltage) and Overheating.

Abstract: Our project allows to check the three phase supply sequence. Knowing the phase sequence of three phase motors is quite an important thing. Considering if the motor uses a pumping action, even a single phase reversal that results in the wrong sequence may lead the motor to run in the wrong the direction. Well it may also lead to fail permanently due to dry run of the motor. Here in this system a direct 3-phase 60Hz Ac supply is at first transferred through diode stabilized voltage drop setup to an (OR – NAND) gate integrated logic circuit in order to recognize proper RYB sequence arrangement by fixed duration pulse series. In the process of transforming the RYB sequence to YBR the NAND OR gate integrated combination generates an output having a pulse missing during fixed durations of time. This pulse is now used in order to provide a trigger as input signal to a microcontroller of 8051 family. This input is given to run LED's fixed in a circle through a timer. When the sequence has not been initiated, the triggering carried out is indicated by clockwise and then anticlockwise lighting up of LED's in the circular placement and the sequence goes on. The Circuit DC power requirement is provided through the use of a step down transformer coupled with filter capacitor, regulator and bridge rectifier.
The system can be even further improved by providing a relay to the circuit in order to cut off the supply applied to the load.