Smart Induction Motor Protection System

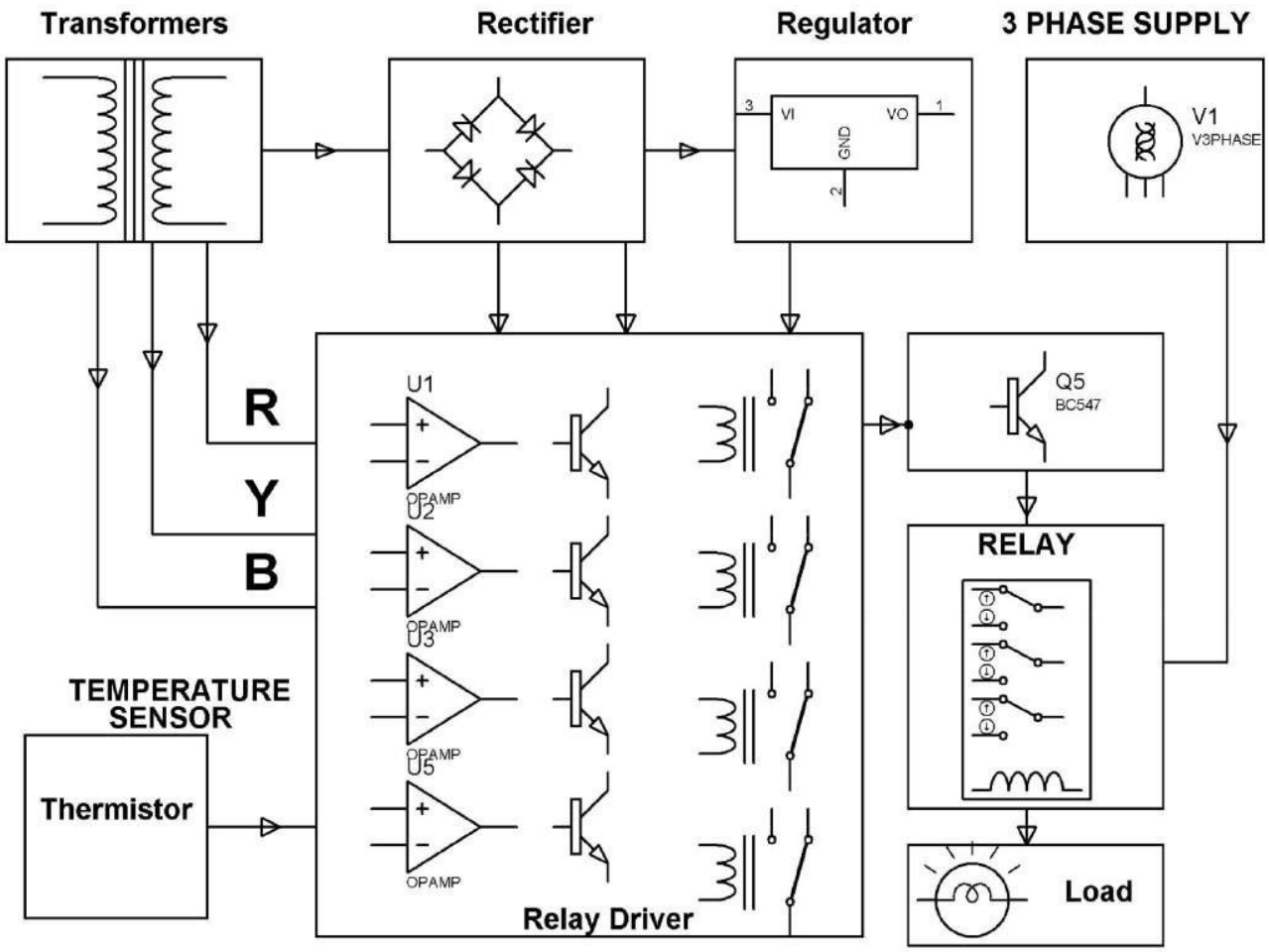
ABSTRACT

The project is designed to protect an induction motor from single phasing and over temperature. Providing a protection system is very important in industries, using lot of motors such that production is not hampered owing to failure of any motor.

The basic idea for the development of this project is to provide safety to the industrial motor/pump/lift Motor etc. If any of the phases, out of the 3 phases is missing or if the temperature of the motor during operation exceeds the threshold value, motor stops immediately. The system uses a 3-Phase power supply where three single phase transformers are connected to it. If any of the phases is not available the corresponding transformer stops supplying power to the circuit. This leads to one of the four relays getting switched OFF. The main relay which is powered through a set of four relays gets disconnected because of one relay not being powered. Thus the main relay that delivers 3 phase supply to the motor gets disconnected. A thermistor is connected to the motor body to sense the temperature. If the temperature increases then supply to the fourth relay is disconnected.

Further the project can be enhanced by using current sensors for over load protection and phase sequence sensor for protecting the motor from applying wrong phase sequence.

BLOCK DIAGRAM



HARDWARE REQUIREMENTS:

OPAMPs, Resistors, Capacitors, Diodes, Thermistor, Transformers, Regulator, Relays