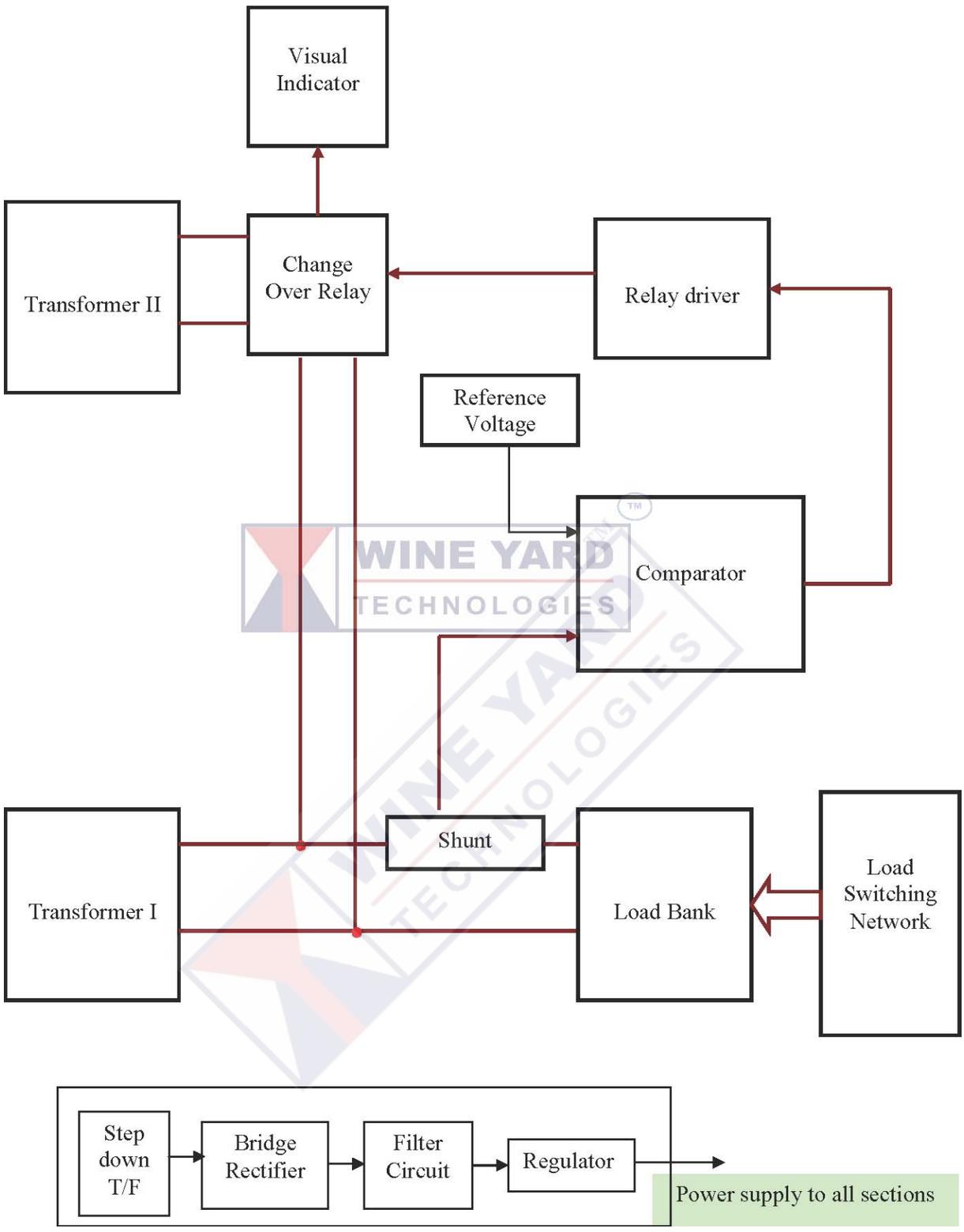
Automatic Transformer Distribution and Load sharing system

Power travels from the power plant to house through an amazing system called the power distribution grid. For power to be useful in a home or business, it comes off the transmission grid and is stepped-down to the distribution grid. This may happen in several phases. The place where the conversion from "transmission" to "distribution" occurs is in a power substation. It has transformers that step transmission voltages (in the tens or hundreds of thousands of volts range) down to distribution voltages (typically less than 10,000 volts). It has a "bus" that can split the distribution power off in multiple directions. It often has circuit breakers and switches so that the substation can be disconnected from the transmission grid or separate distribution lines can be disconnected from the substation when necessary.

In this project, a slave transformer in the case of shares the load of master transformer over load and over temperature. A sensor circuit is designed to log the data from the master transformer and if it is found to be in over load condition, immediately the slave transformer will be connected in parallel to the master transformer and the load is shared.

LM324 operational amplifier is used to compare the load of the transformer with a standard load capacity. An NPN transistor is used to drive the relay.

This project uses regulated 5V, 750mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac out put of secondary of 230/12V step down transformer.



Advantages:

Automated Load Sharing by transformers

No manual errors Fit and forget system

Highly sensitive Low cost and reliable

circuit

Applications:

Process Industries Power

Distribution Stations

Agriculture Transformers