**SOFT START OF INDUCTION MOTOR BY ACPWM**

This project attempts a soft start control technique for the single-phase a.c. induction motor. The circuit operation is controlled by an 8051 family microcontroller.

It presents a design of a low-cost; high-efficiency drive capable of supplying a single-phase a.c. induction motor with a PWM modulated sinusoidal voltage during start. Same as in triac control, the voltage applied to the load is varied from zero to maximum value in a small span of time during start. The circuit is capable of supplying a single-phase a.c. induction motor (or general a.c. inductive/resistive load) with varying a.c. voltage at the start. It uses a pulse width modulation technique (PWM), and when compared with the phase angle control used for triacs, it produces much lower high order harmonics. It directly modulates the mains a.c. voltage. Thus, it suits EMC/EMI regulations much better. Because the circuit is aimed at low-cost, low/medium-power applications, it does not use a conventional converter topology to produce the output voltage waveform. Compared with costly converter, it requires a lower number of active and passive power components. The drive uses a PWM controlled MOSFET and the load in series with a bridge rectifier. The device attempted here takes advantage of both the low price of the phase angle control and the low harmonic content and high efficiency that we can get with standard converter topology. This drive based on this new control technique is targeted for use in consumer and industrial products: washing machine, dishwashers, ventilators, compressors.

**BLOCK DIAGRAM:**

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