The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a simple and inexpensive adjustable speed drive for use with single-phase induction motors.

**OVERVIEW**

Widely used in applications such as HVAC, fans, pumps and home appliances, single-phase induction motors are manufactured in large volume and at low cost. These motors operate at a constant speed determined by the AC power line frequency and the load imposed on the motor; however, for many applications (e.g. fan motor drives), a single-phase induction motor that could operate at variable speeds would be advantageous.

Although simply reducing the AC voltage to the motor can easily and inexpensively decrease its operating speed, this approach lowers energy efficiency and generally does not allow close motor control. Another approach involves using a power conversion system to change motor speed; however, such power converters are expensive, especially when compared to the low cost of the motor itself.

**THE INVENTION**

UW-Madison researchers have developed a simple and inexpensive adjustable speed drive for use with low-cost, single-phase induction motors. The drive can operate in full-speed mode with high starting torque, and in at least one lower-speed mode suitable for applications such as fan motor drives.

**APPLICATIONS**

- HVAC
- Fans
- Pumps
- Home appliances
KEY BENEFITS

- Drive is simple and inexpensive
- Allows motor operation at multiple, discrete speeds or in a continuously variable speed mode
- Supplies power to the motor at higher efficiencies than can be obtained with conventional low-cost drives
- Drive can be retrofitted to existing motors

ADDITIONAL INFORMATION

Tech Fields
Engines & Power Electronics - Motors
Engines & Power Electronics - Power converters

CONTACT INFORMATION

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