

48. Title: An improved ventilation exhaust fan for industry

Inventor: Prof. Bhim Singh, Department of Electrical Engineering

Key Words: Exhaust fan, Permanent magnet synchronous motor (PMSM)

Domain: Motors & Machines

Summary: A surface permanent magnet synchronous motor (SPMSM) is developed for an industrial exhaust fan. Further, low-cost ferrite magnets are utilized in developed SPMSM. This provides improvement in efficiency and reduced cost.



Diagram: Symbolic representation of Industrial exhaust fan

Advantages:

- » Energy efficiency more than 85% as compared to single-phase induction motor
- » Reduction in the operating cost of the motor up to 50%
- » Reduced cost of permanent magnet due to utilization of low-cost ferrite magnet

Applications: Ventilation application in industrial areas, energy management, HVAC system

Scale of Development: A prototype is developed and demonstrated in simulated Laboratory environment.

Technology Readiness Level: 4

IP Status: Indian Patent Application 202111058799