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SmartBLDCMotorIntegrationinConventional Fan Housing for Power Optimization

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Abstract:*This project retrofits a traditional ceiling fan using a capacitor-run induction motor with a high-efficiency BLDC motor to reduce power consumption and enhance performance. By replacing the stator and rotor whileretaining the fan's outer housing, the system uses an L6235-based control circuit for efficient speed control and motor protection. Power usage dropped from 160W to 36W—over 75% savings. The retrofit also improved startup time, torque, noise, and temperature. This cost-effective solution supports sustainable upgrades and encourages scalable BLDC retrofit kits for wide adoption.*

Keywords:
BLDCMotor,EnergyEfficiency,L6235DriverIC,SensorlessControl,PowerConsumptionReduction, Smart Fan Technology, Brushless DC Conversion