Patent Search

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Abstract:

The aim of this design is to create a DC micro-grid system to integrate a Permanent Magnet Synchronous Motor (PMSM) and renewable energy sources. This micro-gr designed to provide reliable and efficient energy to the while reducing the environmental impact and cost of operation. The micro-grid system will combine a PMSM, energy sources, power converters, and a control unit to ensure the system's reliability and safe operation. The control unit will ensure that the system is able to mana power flow between the PMSM, renewable energy sources, and other loads connected to the micro-grid. Additionally, the control unit will be designed to prioritize th needs of the PMSM, ensuring that it is able to operate without interruption.

Complete Specification

Description:The proposed system can efficiently regulate the power flow between the PV arrays, battery bank, and load and control the PMSM speed through the p electronics converter . The DC/DC converter controls the renewable energy source's power flow to the DC bus, and the DC/AC converter converts the DC power to A power. An energy storage system stores excess energy and releases it when required. The DC bus ensures efficient power delivery to the PMSM and other micro-gri components. The IoT system enables real-time monitoring of the system. Finally, the control system regulates the power flow between the components and the DC This proposed system is a reliable and efficient alternative to traditional power systems for off-grid applications, as it integrates PMSM in a DC-microgrid system po by PV sources.

By exploring and implementing these technologies, the efficiency and reliability of the DC micro-grid system can be significantly improved, making it a viable option integration of PMSM and renewable energy sources.

The DC micro-grid system ensures a reliable and consistent supply of energy to the PMSM, as the system is designed to be robust and fault tolerant. To ensure that micro-grid system is operating at maximum efficiency, the system should be designed to optimize power utilization. This could include the use of advanced optimiz algorithms, such as particle swarm optimization, or the use of optimization techniques.
This project has presented a new vision for the motor operation, which is the PMSM with dc micro grid system used for all purposes. A full and detailed description made for every part of this system. This paper has also offered a user Internet of thing based data of the knowledge. In addition, the wireless monitoring method h

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