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Design of Electromagnetic Field of PMSG for VTOL Series-Hybrid UAV

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Abstract : Series hybrid UAV(Unmanned aerial vehicle) that is proposed in this paper performs VTOL(Vertical take-off and landing) using the battery and generator, and it applies the series hybrid system with combination of the small engine and generator when cruising flight. This system can be described as the next-generation system that can dramatically increase the UAV flight times. Also, UAV systems require a large energy at the time of VTOL to be conducted for a short time. Therefore, this paper designs PMSG(Permanent Magnet Synchronous Generator) having a high specific power considering VTOL through the FEA.

Keywords : PMSG, VTOL, UAV, high specific power density
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