

Stability Analysis of a Low Power Wind Turbine for the Simultaneous Generation of Energy through Two Electric Generators

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Abstract : In this article, the mathematical model is presented, and simulations were carried out using specialized software such as MATLAB before the construction of a 900-W wind turbine. The present study was conducted with the intention of taking advantage of the rotation of the blades of the wind generator after going through a process of amplification of speed by means of a system of gears to finally mechanically couple two electric generators of similar characteristics. This coupling allows generating a maximum voltage of 6 V in DC for each generator and putting in series the 12 V DC is achieved, which is later stored in batteries and used when the user requires it. Laboratory tests were made to verify the level of power generation produced based on the wind speed at the entrance of the blades.

Keywords : smart grids, wind turbine, modeling, renewable energy, robust control

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