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| **Title:** | ISLANDED MODE MICROGRID AUTOMATION BY USING DROOP CONTROL METHOD FOR STRANDED ZONE IN BANGLADESH | | |
| **Author(s) Name:** | Abu Hena MD Shatil, Lutfur Rahman | | |
| **Contact Email(s):** | abu.shatil@aiub.edu | | |
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| **Abstract:** |  |
| Distributed generation (DG) is a critical component  of the emerging microgrid concept, which enables sustainable  energy integration within a distribution network. Inverters are  critical components of DG unit operation since they connect  energy sources to the grid utility. By combining inverters with  feasible control mechanisms, the interface may be enhanced  successfully. These controllers are critical in microgrids since  they help to increase the system's performance, stability,  resilience, and dependability. In Bangladesh, areas like Saint  Martin, Hatia are remotely located where this type of  microgrid automation can be implemented. The microgrid can  be operated in grid-connected and island mode. Different  control strategies like droop control, master-slave control,  circular chain control, average current sharing control can be  used to perform grid in island mode. In this study, a  hierarchical droop control methodology has been used. In a  conventional droop control system load-dependent on the  frequency and voltage regulation become poor. In this  research, it has been observed that the hierarchical droop  control network shows stable power-sharing with improved  voltage and frequency regulation. Extensive simulations have  been carried out to validate the proposed control strategy’s  effectiveness in terms of rapid transient response and  stabilization of voltage, frequency, and power equitability  among the micro sources in the islanded microgrid | |