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| **Title:** | DESIGN AND ANALYSIS OF A ROOFTOP HYBRID SOLAR PV SYSTEM USING HOMER PRO AND MATLAB SIMULINK | | |
| **Author(s) Name:** | Md. Samiul Islam Sadek, Md. Anamul Haque Joy, Md. Koushik Islam, Mim Afrose Ananna, Muhibul Haque Bhuyan, and Mst. Sarmin Aktar | | |
| **Contact Email(s):** | muhibulhb@aiub.edu | | |
| **Published Journal Name:** | SEU JOURNAL OF ELECTRICAL AND ELECTRONIC ENGINEERING (SEUJEEE) | | |
| **Type of Publication:** | Journal | | |
| **Volume:** | 2 | Issue | 1 |
| **Publisher:** | EEE-SEU | | |
| **Publication Date:** | January 2022 | | |
| **ISSN:** | p-2710-2130, e-2710-21 | | |
| **DOI:** |  | | |
| **URL:** | http://www.seu.edu.bd/seujeee/downloads/vol\_02\_issue\_01\_Jan\_2022/SEUJEEE-Vol02Issue01-5.pdf | | |
| **Other Related Info.:** | pp. 35-45 | | |
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| **Abstract:** |  |
|   Abstract— In this research work, the primary target was to design a hybrid solar PV system through numerical modeling here. Here a hybrid system was proposed with a load capacity of around 1 kW. MATLAB Simulink was used to design and simulate the proposed scheme. Aspects, like the availability of physical space, electrical system scale, and on-site electrical system experts mark the areas attractive sites for rooftop solar PV implementation. Moreover, rooftop hybrid solar viability is contingent upon numerous capricious factors and the success in one site may not be reproducible at another site due to some exterior aspects, like national policy, native natural gas resources, energy fares, and availability of solar irradiance. As such, this research also investigated the feasibility of diverse kinds of rooftop systems for solar power generation and distribution in residential households, which can operate in parallel with the on-grid or in an island mode to deliver a tailored state of high reliability and flexibility to grid instabilities. This cutting-edge, integrated distribution system addressed the necessity of applying them in the sites without electric supply and/or transportation limitations in inaccessible places, and to protect the loads at a critical juncture and parsimoniously thoughtful growth. | |