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| **Author(s) Name:** | Md. Ikramul Islam Nuhin, Md. Ahnaf Shariar, Jafrin Monsur Khan, Tanjum Naeem Kongkon, and Mohammad Hasan Imam | | |
| **Contact Email(s):** | hasan.imam@aiub.edu | | |
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| **Abstract:** |  |
| The new age of electricity generation is renewable energy. There is no other room but to use renewable resources in energy generation to make the planet healthier, safer, and sustainable for the future. There are many different forms of renewable resources, but solar power is by far the most convenient. By utilizing solar panels, solar energy can be converted into electricity. Nowadays, solar panels are extensively utilized for the efficiency, availability, and simplicity of power production. This paper mainly represents the simulation of the compact design of a grid-tied solar system for energy production & internet of things (IoT) -based power monitoring using Matlab/Simulink. The main three sections of this design are; a fully optimized grid-tied model, IoT-based power measuring system, and optimized battery-based storage system. The model is also capable of working under load -shedding conditions. When irradiance is 1000, the integrated system can produce 2056W from the solar panels and it gradually decreases when the irradiance is less than 1000. Detail’s structure and modelling of this system are discussed in this paper and the results found were promising which could be implemented in real life. | |