Design of a Micro-Grid System in Matlab/Simulink

ABSTRACT:-

Micro-Grid (MG) is basically a low voltage (LV) or medium voltage (MV) distribution network which consists of a cluster of micro-sources such as photo-voltaic array, fuel cell, wind turbine etc. called distributed generators (DG’s); energy storage systems and loads; operating as a single controllable system, able to operate in both grid-connected and islanded mode.

In a micro-grid the DG’s has sufficient capacity to carry all, or most of the load connected to the micro-grid. This paper presents the development of these micro-sources i.e photo voltaic array, fuel cell stack along with their power electronic interfacing circuits viz. boost converter, PWM inverter in Matlab/Simulink and finally combining these models to form a Micro-Grid.

The system is so designed that it can be operated both in islanded as well as in grid connected mode.
This project aims to lay groundwork which will allow for further investigation and for the development of a more sophisticated micro-grid model, so as to allow for a full understanding of how MG’s behave.

**BlockDiagram:-**