

BUSTA 1

1. Illustrare i componenti di un impianto solare fotovoltaico e le loro funzioni.
2. Motivazioni per l'utilizzo dei sistemi di accumulo nelle stazioni di ricarica: casi d'uso, limitazioni e potenzialità.
3. Gli organi dell'Università: competenze e rapporti tra gli stessi

1. Illustrate the components of a photovoltaic solar system and their functions.
2. Reasons for using storage systems in charging stations: use cases, limitations, and potential.
3. The governing bodies of the University: competencies and relationships between them

The overall block diagram for this study is depicted in Figure 1. In addition to being an input for the Fuzzy P&O MPPT algorithm, the PV module also powers the buck converter. Before supplying the PWM generator with power, the delta parameter will be modified to extract the MPP from the PV input power. Next, the PWM signal will be produced and sent to the buck converter to control the switching time. Finally, the output of the converter will charge the load, which in this case is a 12 V lead acid battery.

BUSTA 2

1. Cos'è lo smart charging (o charge management), quando e come è opportuno utilizzarlo.
2. V2X: applicazione, potenzialità e limitazioni.
3. Le strutture dell'Università "La Sapienza": Facoltà, Dipartimenti e Centri

1. What is smart charging (or charge management), when and how should it be used.
2. V2X: application, potential, and limitations.
3. The structures of the Sapienza University: Faculties, Departments, and Centers

The buck converter consists of a power switch MOSFET, power diode, capacitor and an inductor at the output. Using the operating voltage of the PV panel as V_{ip} and the output voltage of the PV panel as V_{op} with ripple current, ΔI assumed to be 10% of output current, it is projected that the switching frequency in the design will be 5 kHz.

BUSTA 3

1. Livelli di potenza di ricarica oggi disponibili, curve di ricarica.
2. Illustrare alcune tipologie di accumulatori di energia attualmente disponibili.
3. Il Codice etico e di comportamento dell'Università "La Sapienza".

1. Power levels available today for charging, charging curves.
2. Illustrate some types of energy storage currently available.
3. The Ethical and Conduct Code of Sapienza University.

Due to its capacity to handle nonlinearity in the system, the FL-MPPT is chosen as the algorithm for tracking the MPP in the PV system in this study. This MPPT method expands the selection of variable duty cycle step size, thereby enhancing the performance of the PV system. Using the slope value of the Power-Voltage (P-V) characteristic, this method attempts to calculate the variable step for a PV module.