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## Photovoltaic array performance parameter extraction using only Maximum Power Point Traced data

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In order to observe PV characteristics, there is need for highly sophisticated and expensive equipment. These characteristics inform the user by offering a review of the state of the photovoltaic (PV) system under different weather conditions. PV Array Current-Voltage (I-V) measurements require skilled personnel, expensive equipment and isolation circuitry, which may be intricate and demanding to handle. Literature has not sufficiently shed light on how I-V parameters and thus the I-V curve can be obtained using only a small part on the curve. The maximum power point tracker (MPPT) charge controller performs its function by continuously hovering about the knee of the I-V curve and therefore the short circuit current, open circuit voltage as well as maximum power can be obtained. In this paper, MPPT data is used and then a graph is fitted onto it. The resulting PV parameters obtained are used to extrapolate and obtain the full curve. The fitted curve is compared and analyzed against the measured data. The research will pave the way into the use of the MPPT charge controller as a MPPT Performance I-V tracer.

**Apply to be considered for a student award (Yes / No)?**

Yes

**Level for award (Hons, MSc, PhD, N/A)?**

MSc

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