Summary Description: Experimenting With My Cheap 12V 50W Solar Storage System

Tags: electronics; nature projects; solar; 12V batteries; MPPT

Why I did this: I wanted to experience owning a solar storage system. I had the opportunity to receive some free 12V batteries, and I found a cheap basic maximum power point tracking (MPPT) solar charge controller and 50W solar panel online. The system totalled about $100. I also have a cheap 12V inverter (used in vehicles to get a 120V AC supply).

(pic of solar system)

Design Walkthrough:

Parts: 50W solar panel; 12V batteries; MPPT; 12V terminal socket; 12V inverter

I installed the panel on the south wall of my place (the location is practically perfect for sun capture, and the occasional rain keeps the panel clean); combined my cheap 12V batteries (they were old emergency light batteries that were replaced, so I got them for free; they are garbage quality, but enough for me to experiment with solar setups and various load types); and hooked up the wiring between the panel, batteries and MPPT. I also installed the 12V terminal socket and inverter to power 120V appliances (or optional 5V systems).

Lessons Learned and Future Changes:

Go Pro. I only bought the items because they were cheap, and I just wanted to experience a solar storage system (because I’m an engineer and very interested in sustainable systems), but this system is currently not professionally set up. It needs code-acceptable wiring, a quality battery, and a lot more solar wattage to be useful for high power loads. However, the MPPT was less than $20 and it is surprisingly great quality (lots of features and control for cheap price).

Every little bit helps…I think. Even though it’s a cheap setup, it can be a use for my hydroponics’ system; the plant water container needs a constant bubbling of air to prevent mold growth on roots, so I constantly bubble air into the container. The bubbler’s wattage is so low that this solar system could kept it powered indefinitely (even with its poor batteries).

References:

N/A