

# Arduino code to charge lead acid battery from solar panel

How does Arduino charge a battery?

Arduino regularly measures lead acid battery voltage and according to detected value, switches the MOSFET on to charge battery from solar panel and switches MOSFET off when the battery is full. When your load pulls power from the battery, controller detects the voltage drop and immediately starts to charge battery again.

How do I charge a battery from a solar panel?

Any load should be connected directly on battery terminals and charge controller will automatically handle the rest. Arduino regularly measures lead acid battery voltage and according to detected value, switches the MOSFET on to charge battery from solar panel and switches MOSFET off when the battery is full.

What battery charger do I need for my solar panel system?

Please have in mind the charger we will make today is for lead-acid batteries. If you have a solar panel system with Li-Po or Li-on batteries, you would need a balanced charger and connections to each cell. The MPPT controller is in charge of: 1. charging the battery in different modes. 2.

How does the Arduino work on a solar panel?

The Arduino tries to maximize the watts input from the solar panel by controlling the duty cycle to keep the solar panel operating at its Maximum Power Point. You can find more details on MPPT [here](#)

How do I know if my solar panel is charging?

As soon as we enter this state the PWM signal is set to 30%, to allow the solar panel to either charge the battery in a slower rate or keep it fully charged at all times. Note that, in both charging states (bulk and Float) a green LED turns on (powered from the Arduino), indicating that the battery is charging.

How do I plot solar panels and battery voltages in real time?

Plotting the solar panel and battery voltages in real time is achieved with Python. Note that, Python is communicating with the Arduino serially (with a baud rate of 115200). Figure 4: Example of a Python plot  
The user of this system has the ability to control the circuit over the mobile phone (remotely).



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