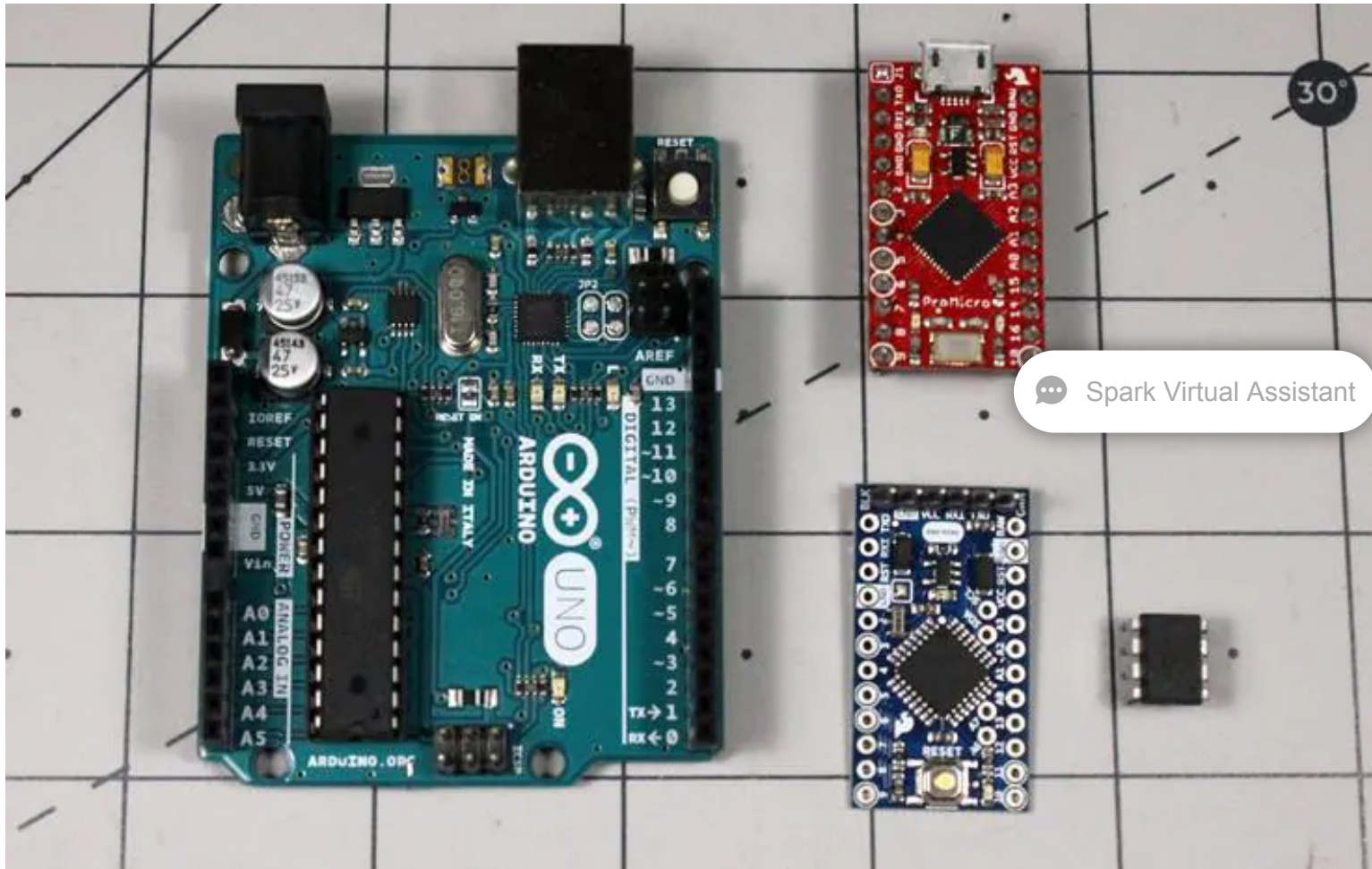




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Published By

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Arduino boards are excellent tools for experimentation and prototyping, especially when power is abundant. But what if power is an issue? Whether you're running on limited battery or working in a remote monitoring scenario using solar power, sometimes every milliamp counts. Your device's power draw—when in use and at rest—can make a huge difference in your application.

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As it just so happens, there is something called sleep mode. In fact, several types of low power sleep modes are available via the Arduino IDE:

SLEEP_MODE_IDLE
SLEEP_MODE_ADC
SLEEP_MODE_PWR_SAVE
SLEEP_MODE_STANDBY
SLEEP_MODE_PWR_DOWN

We arranged this list beginning with the least power savings and most active function power savings. In SLEEP_MODE_PWR_DOWN, most processor functions are turned off. In SLEEP_MODE_PWR_DOWN, I used [code found here](#), listed below:



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```
#include <avr/sleep.h>

void setup ()

{

  set_sleep_mode (SLEEP_MODE_PWR_DOWN);

  sleep_enable();

  sleep_cpu ();

} // end of setup

void loop () {}
```

With that code loaded into our respective boards, we see the following:

Arduino Uno: 24mA
Sparkfun Pro Micro 5V: 5mA
Arduino Pro Mini 5V: .63mA

Putting the Uno to sleep saves about half its power consumption. That's better, but not great, since the Uno still has to power a USB interface chip, voltage regulators, and a power LED. The Pro micro sees its power

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Sleep modes can be beneficial for applications with intermittent tasks. For instance, a sensor or real-time clock (RTC) module could ping an interrupt to wake up when it needs to perform a task. It can also use the reset pin to restart the system, allowing it to do its duty, then go back to sleep. While you won't need it for every project, being able to put your microcontroller to sleep is an excellent skill to have in your microcontroller programming toolbox.



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