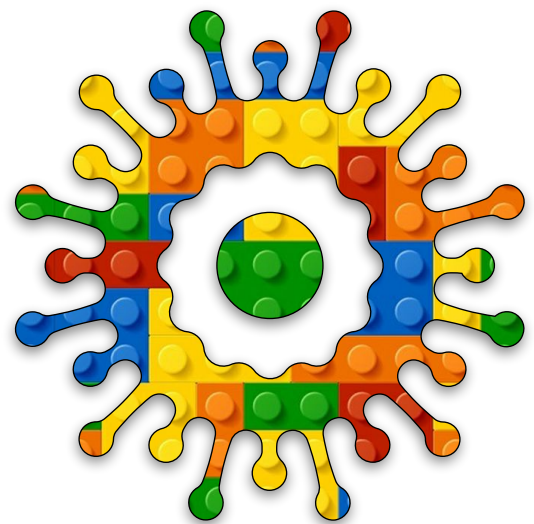


Internet of Things Module A Unit #2 software





Module A Unit #2 software

The Arduino Website

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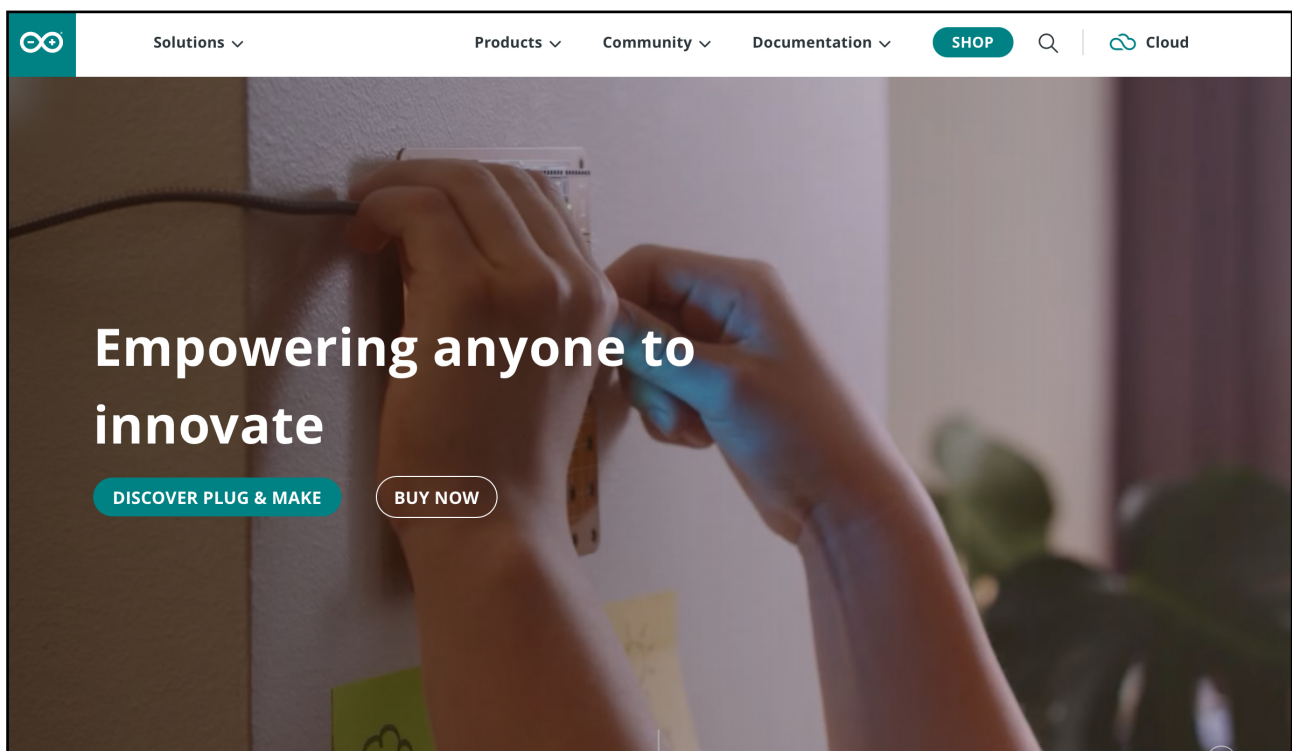
The Arduino Website

To get started, you will need to visit the Arduino website. The link is shown below:

<https://www.arduino.cc>

You will see the following page. If you click on products, you will get a page displaying all the Arduino boards and the software options. If you have a Chromebook or just want to use the web editor.

Figure 1: Arduino Web Page





Cloud or Download IDE?

You have a number of options:

The **Arduino IDE**, which you will have to download to your computer, and the **Cloud Editor**, which you can use from your web browser (but you will need an account). I will introduce both, but I will be working with the downloaded Arduino IDE for most of this course/tutorial.

If you have a **Chromebook**, then you will need to use the Cloud version. That isn't a problem. You may wish to use the Cloud version anyway, which is also quite fine. We will move onto the **Cloud IDE** later anyway when we build our IoT device.

The benefits of using the Cloud are that all the libraries are up to date, whereas with the downloaded version, you will have to keep on top of the boards and libraries software; you will get a prompt every so often.

Even though you can use the downloaded version without signing up, it is not a bad idea to do so because it will connect to your Cloud account (one and the same), and you will see your sketches in both places, which is quite handy.



Why start with the downloaded version of IDE?

The whole point of this exercise, this tutorial, is to use the Cloud to connect devices. So, why start with the downloaded version rather than go straight to the web-based version? The answer is you can go straight to using the web-based IDE; the only problem is, if you are using the free version, then you have only **25** uploads per day, whereas the downloaded version is unlimited.

The choice is yours, but I wanted to start with something you can quickly and conveniently use. If you want to use the web-based IDE, then you can still use this first module with it.



The download

If you go to the **Products** page on the website, you will be given a list of options.

- Arduino IDE
- Arduino Cloud
- Cloud Editor

Arduino IDE

We will go here to download and use the latest version. How you install it depends on your computer, whether it is a PC, Mac, or Linux machine. You can use almost any machine which has internet access and a spare USB port. If you have a Chromebook, it is a bit more restrictive; you can download the software in the Linux bit of your Chromebook but only if you know what you are doing.

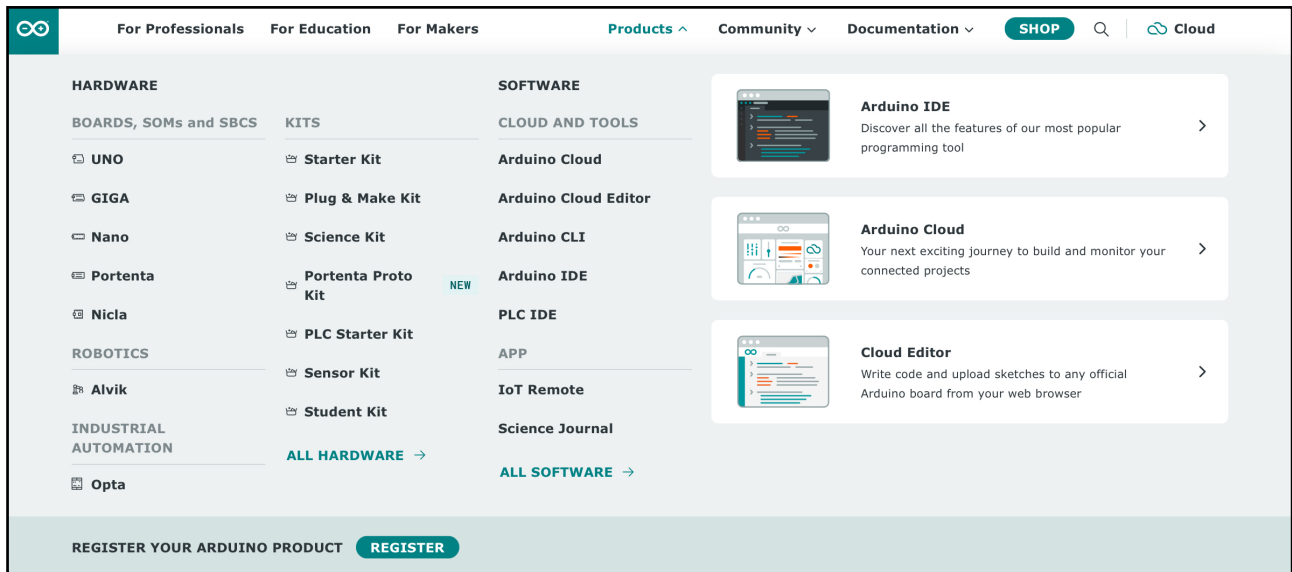
Arduino Cloud

This is for module B where we build our IoT Thing.

Cloud Editor

This is where we can do exactly the same thing as the Arduino IDE (more or less). The choice is yours, but the tutorial will use the Arduino IDE, but you can still follow along.

Figure 2: Product Page





Download the Arduino IDE

The benefit of this is that you can connect your Arduino straight to the application once it has been downloaded. You don't need to log in or anything like that. The drawback is that you will need to update it when necessary and update the boards and the libraries. You may well have to add extra libraries manually. This is not particularly onerous, but you need to bear this in mind. The IDE is free to use, even if they ask for a donation, but you have only so many uploads per day.

As you can see, the latest version is version 2.x, but you can also download the original version 1.x. The difference is mainly that you can connect your cloud-based sketches in version 2.x, bringing both together. You have to select the operating system your computer uses: Windows, iOS, or Linux.

Figure 3: downloading the IDE



What other components do you need?

This is a brief reminder of the components we will be using, as well as the Arduino Nano 33 IoT:

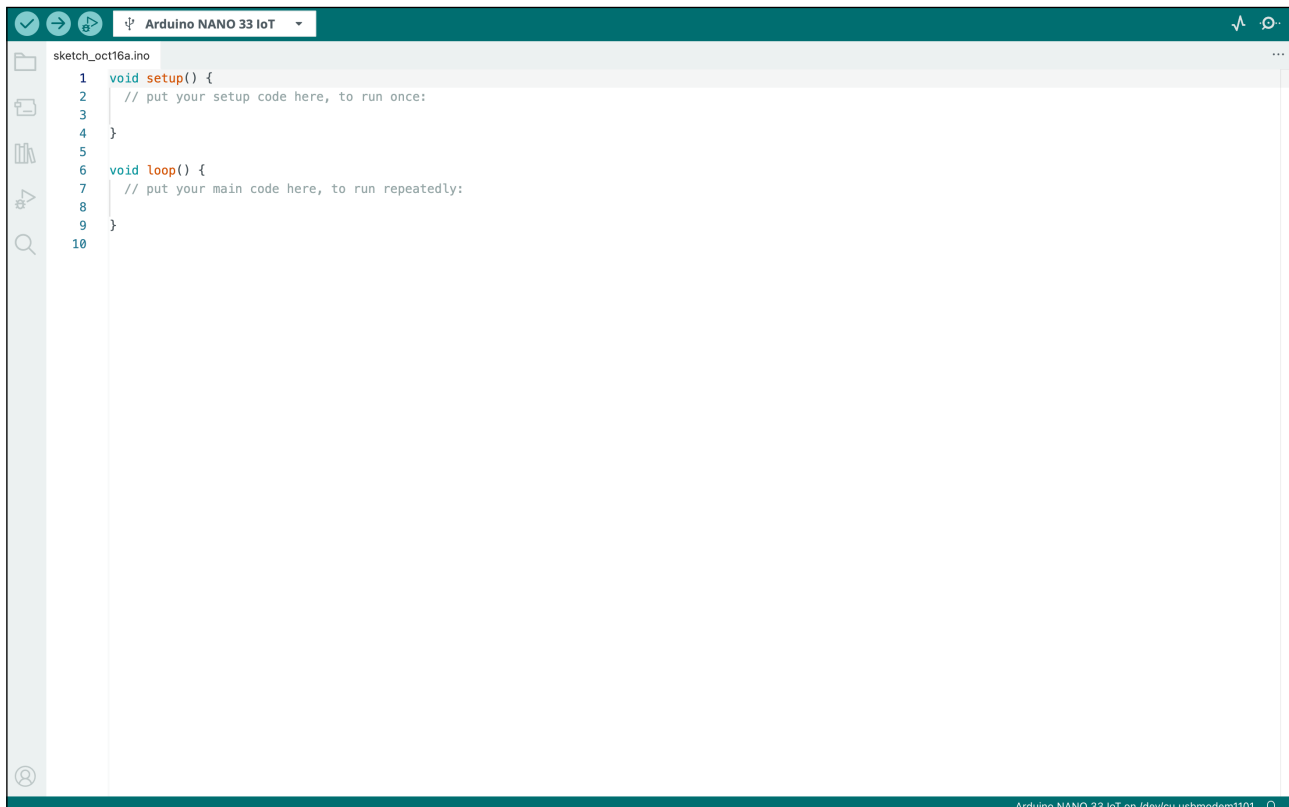
- Breadboard (get the half size)
- LED traffic light
- Button
- Variable resistor (pot)
- Jumper wires

You can get these from almost anywhere: Amazon, Pi Hut, eBay, etc.

Default page

Once you have downloaded the software, open the application and you should have a default page like the one below.

Figure 4: default page





Buttons

The main buttons you will be using are the ones along the top as shown in the figure below. The one you will be using is highlighted in red. That is the upload button and will also verify (check for mistakes) before uploading. You will at some point get an error message (everyone does) and it is then your job to find out what the problem is.

The left-hand button is verify only and the right-hand one is debug (may explain at a later date).

Figure 5: main buttons





Next...

We can move onto the coding now. There will be things to explain as we go along. We will take it step by small step, but if you have already completed some of the **introduction to robotics** module or are generally familiar with the Arduino IDE, you can skip through this bit quite quickly. Module B is where we will be doing the real IoT stuff, but this first part is also important as I will assume you are familiar with the Arduino Nano 33 IoT.