

Weekly Documentation

The assignment for this week is to design and build a machine that includes mechanism, actuation, automation, and application. As a group, we decided to build a CNC machine that makes sawdust carpets.

A sawdust carpet is a tradition from Mexico and Central America. It consists of making a decoration carpet out of colorful sawdust and other materials.



Image taken from: <https://www.pinterest.ca/pin/472948398361059816/>

Design Process

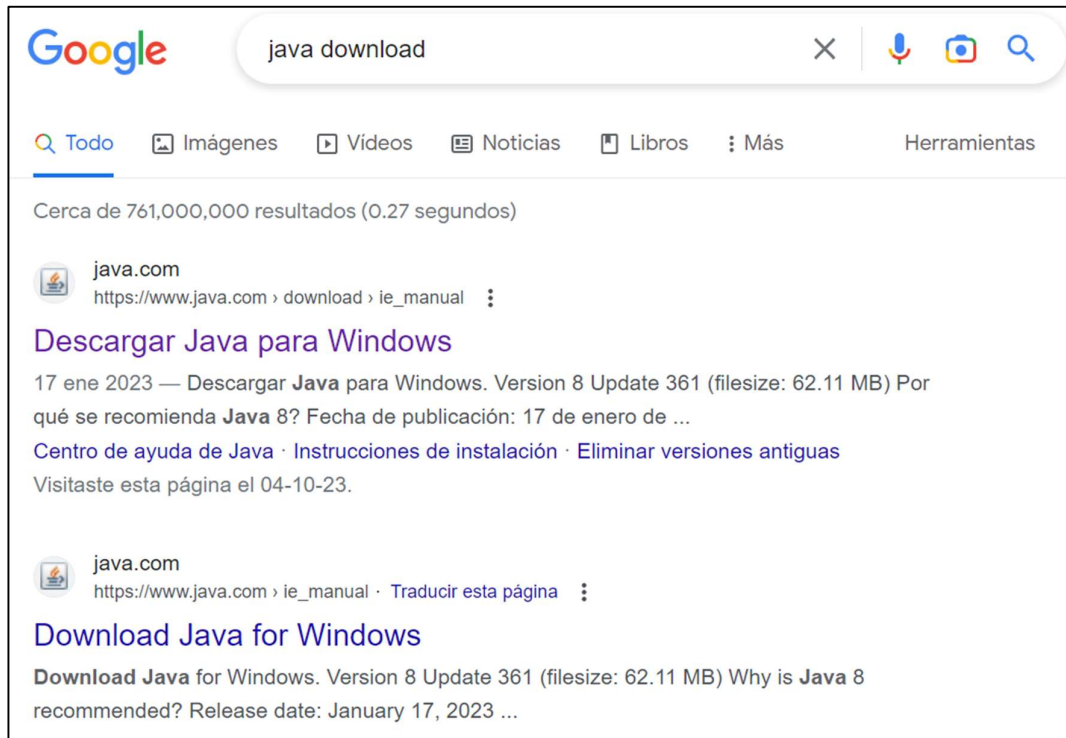
Machine Building

Software

We are going to use an Arduino and CNC driver to control the machine, but the instructions will be given in g code, so there are a few things we must install to make it work.

Installing Java

Step 1: Go to your favorite browser and search for “java download” and open the link from the official java website.



Step 2: Press the Download Java option.

Download Java for Windows

Version 8 Update 361 (filesize: 62.11 MB) Why is Java 8 recommended?

Release date: January 17, 2023

Important Oracle Java License Information

The Oracle Java License changed for releases starting April 16, 2019.

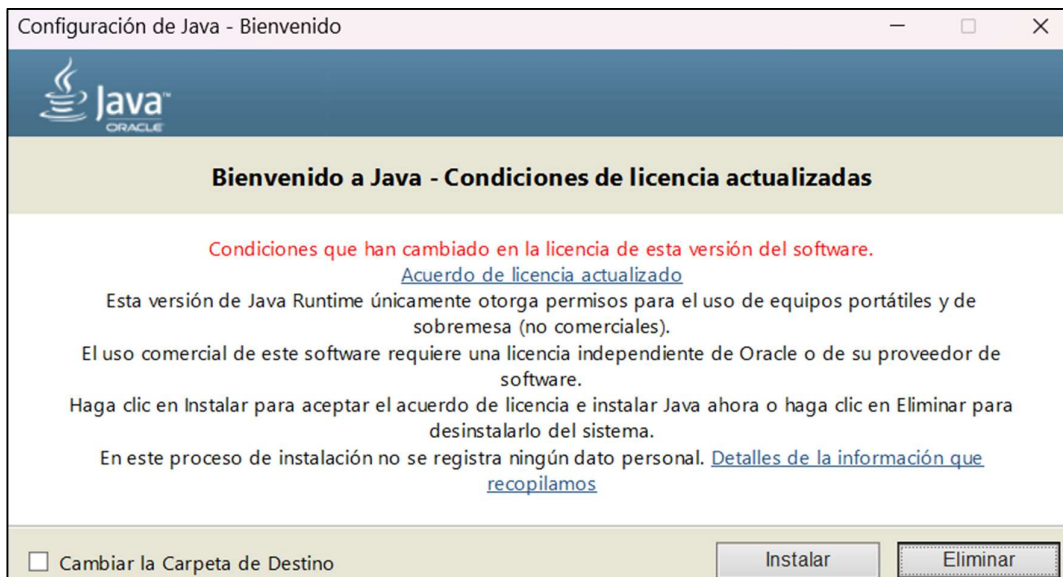
The [Oracle Technology Network License Agreement for Oracle Java SE](#) is substantially different from prior Oracle Java licenses. This license permits certain uses, such as personal use and development use, at no cost -- but other uses authorized under prior Oracle Java licenses may no longer be available. Please review the terms carefully before downloading and using this product. An FAQ is available [here](#).

Commercial license and support is available with a low cost [Java SE Subscription](#).

Download Java

By downloading Java you acknowledge that you have read and accepted the terms of the [Oracle Technology Network License Agreement for Oracle Java SE](#)

Step 3: Execute the downloaded file and install Java.

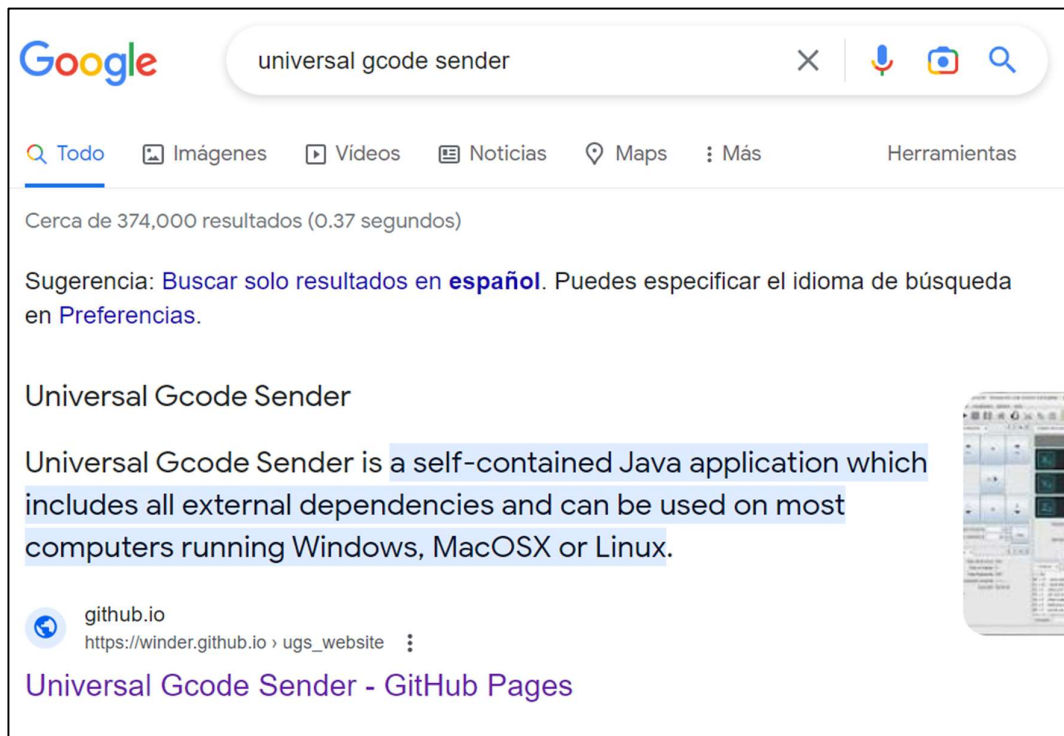


Step 4: Wait a few seconds and Java will be installed.



Installing Universal Gcode Sender

Step 1: Go to your favorite browser and search for "universal gcode sender" and open the link from the Github site.



Step 2: Go to Download Page found on the upper menu bar.

- [Universal Gcode Sender](#)
- [Features](#)
- [Screenshots](#)
- [Platform](#)
- [Classic](#)
- [Sponsors](#)
- [Donations](#)



Step 3: Previously, we downloaded Java so we could run UGS, but there is a platform-based interface that has Java already integrated. I tried installing UGS Platform, following the user instructions found in the page, but could not running, so I decided to go old school and install the classic version. So, just click on the “All platforms” link under UGS Classic.

UGS Platform

The next generation platform-based interface.

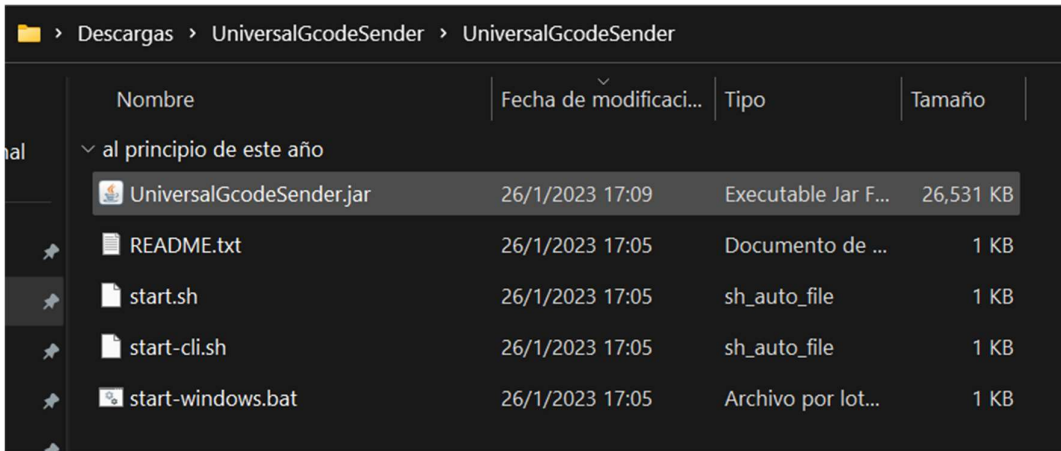
Version 2.0.14	Version 2.0.13	Description
Windows x64	Windows x64	Windows 64-bit version with bundled Java
Windows	Windows	Windows version with bundled Java
MacOSX	MacOSX	MacOSX version with bundled Java
Linux	Linux	Linux version with bundled Java
Linux ARM	Linux ARM	Linux ARM version with bundled Java. Can be used with RaspberryPi
All platforms	All platforms	A generic package without Java which needs to be installed separately

UGS Classic

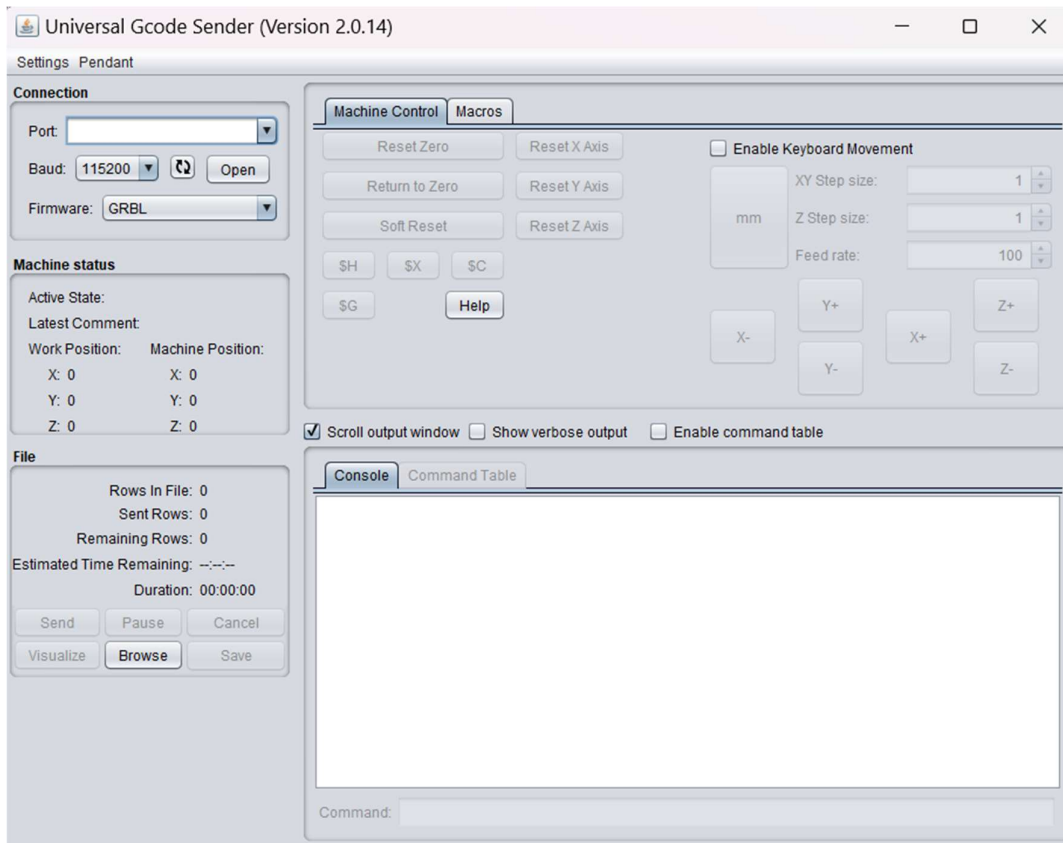
The classic UGS interface with slightly less features but with the same robust backend as the Platform edition.

Version 2.0.14	Version 2.0.13	Description
All platforms	All platforms	A generic package without Java which needs to be installed separately

Step 4: Unzip the file and go to the UniversalGodeSender.jar and execute it.



Step 5: The Universal Gcode Sender software will open. Here, we will send the Gcode to the Arduino.



GRBL Library

We need to provide the GRBL library to the Arduino so it can understand the commands send from the Universal Gcode Sender, so here are the steps to install it.

Step 1: Step 1: Go to your favorite browser and search for “grbl arduino library” and open the link from the Github site.



grbl arduino library



Todo

Imágenes

Videos

Maps

Noticias

Más

Herra

Cerca de 152,000 resultados (0.38 segundos)



github.com

https://github.com > Protoneer · Traducir esta página

GitHub - Protoneer/GRBL-Arduino-Library

Arduino Library for GRBL - With this **Library** you can use the **Arduino IDE** to upload **GRBL** to your **Arduino Board**. (More details at the bottom of this page).

https://github.com > blob > READ... · Traducir esta página

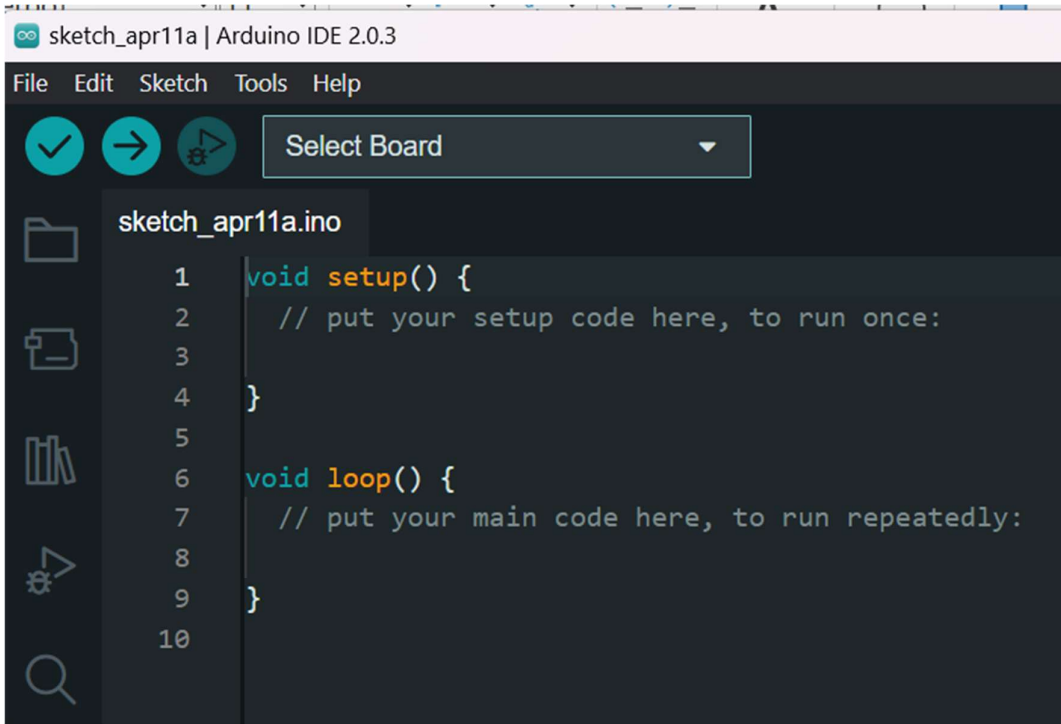
GRBL-Arduino-Library/README.md at master - GitHub

Arduino Library for GRBL - With this Library you can use the Arduino IDE to ...

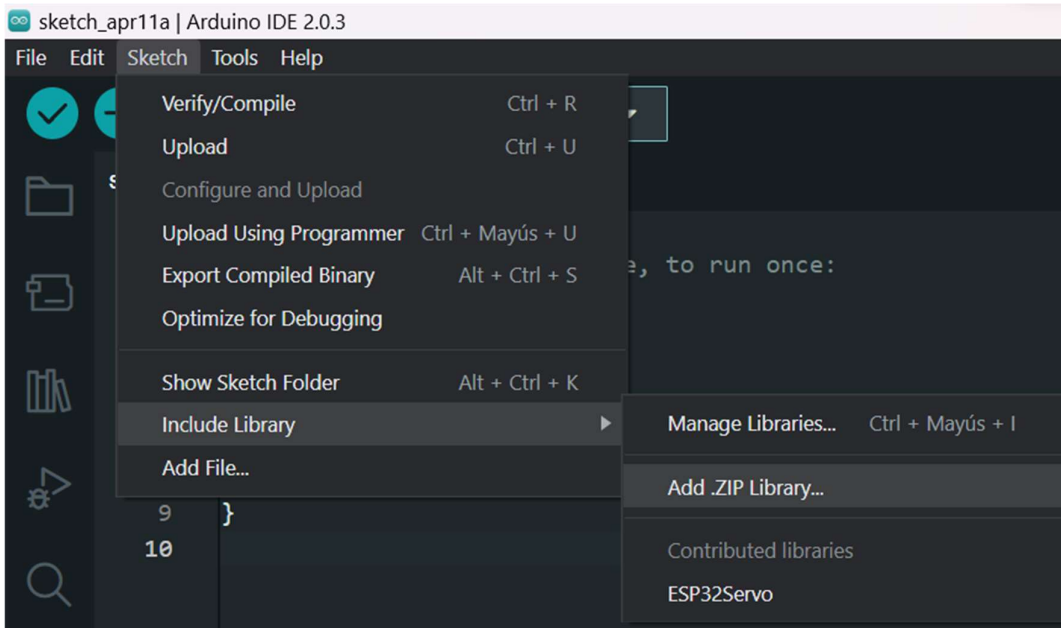
Step 2: Click on the green dropdown button “Code” and click on “Download ZIP”.

The screenshot shows the GitHub repository page for Protoneer/GRBL-Arduino-Library. The repository is public and has 5 issues and 1 pull request. The 'Code' dropdown menu is open, showing options to clone the repository using HTTPS or GitHub CLI, to open it with GitHub Desktop, or to download it as a ZIP file. The repository structure is visible, including files like README.md, config.h, coolant_control.cpp, coolant_control.h, defaults.h, and eeprom.cpp.

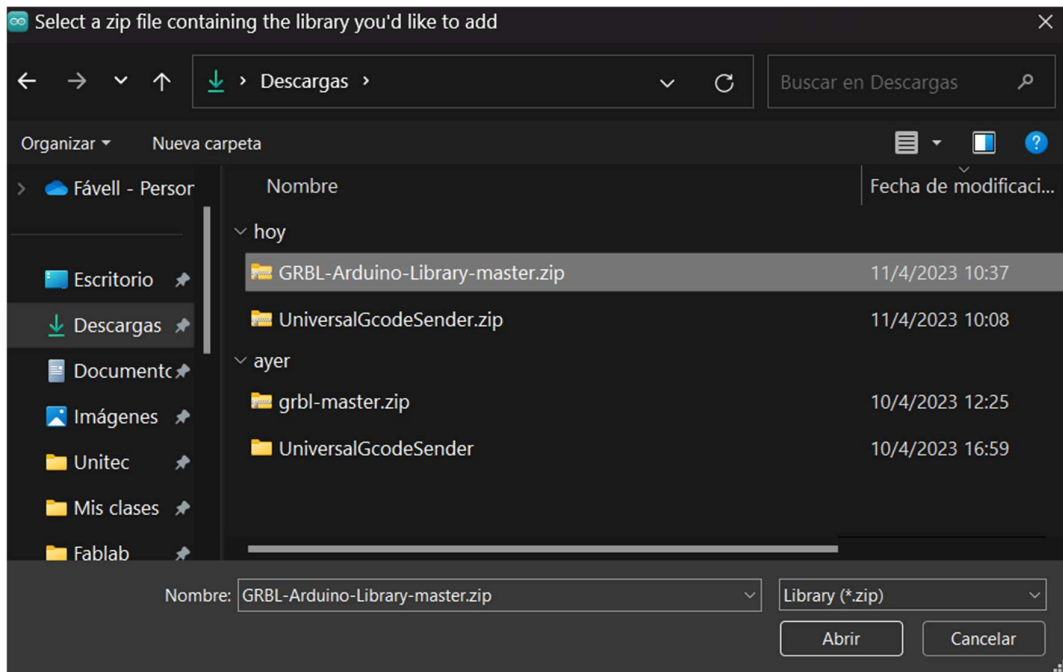
Step 3: Open the Arduino IDE.



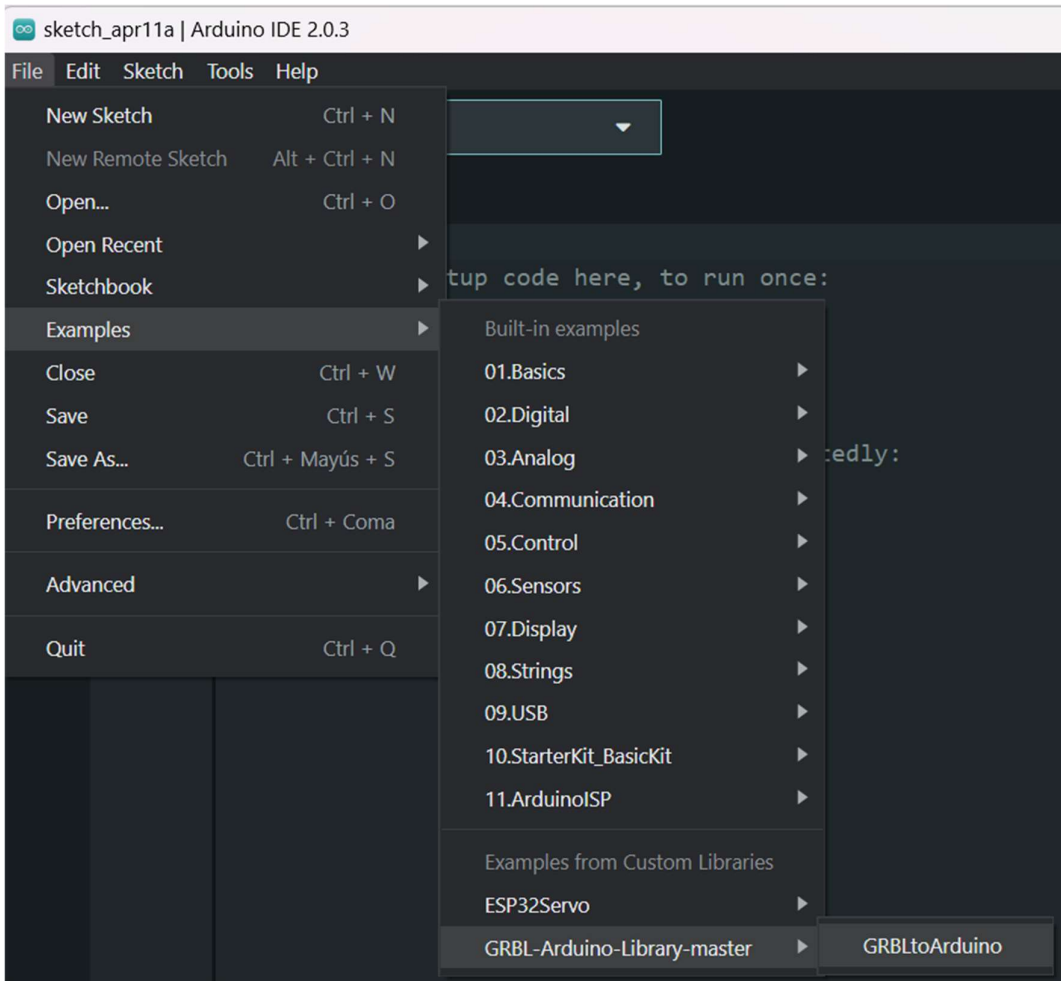
Step 4: Go to Sketch > Include Library > Add .ZIP Library...



Step 5: Select the GRBL-Arduino-Library-master.zip file we have just downloaded, and it will get installed.



Step 6: Close the IDE and open it again. Go to File > Examples. You will see that there will be a new example for the library recently installed, so select GRBLtoArduino.



Step 7: Upload the example to your Arduino and verify that there are no errors. If everything has been done correctly, now you are ready to send the Gcode from UGS to your Arduino.

GRBLtoArduino | Arduino IDE 2.0.3

File Edit Sketch Tools Help

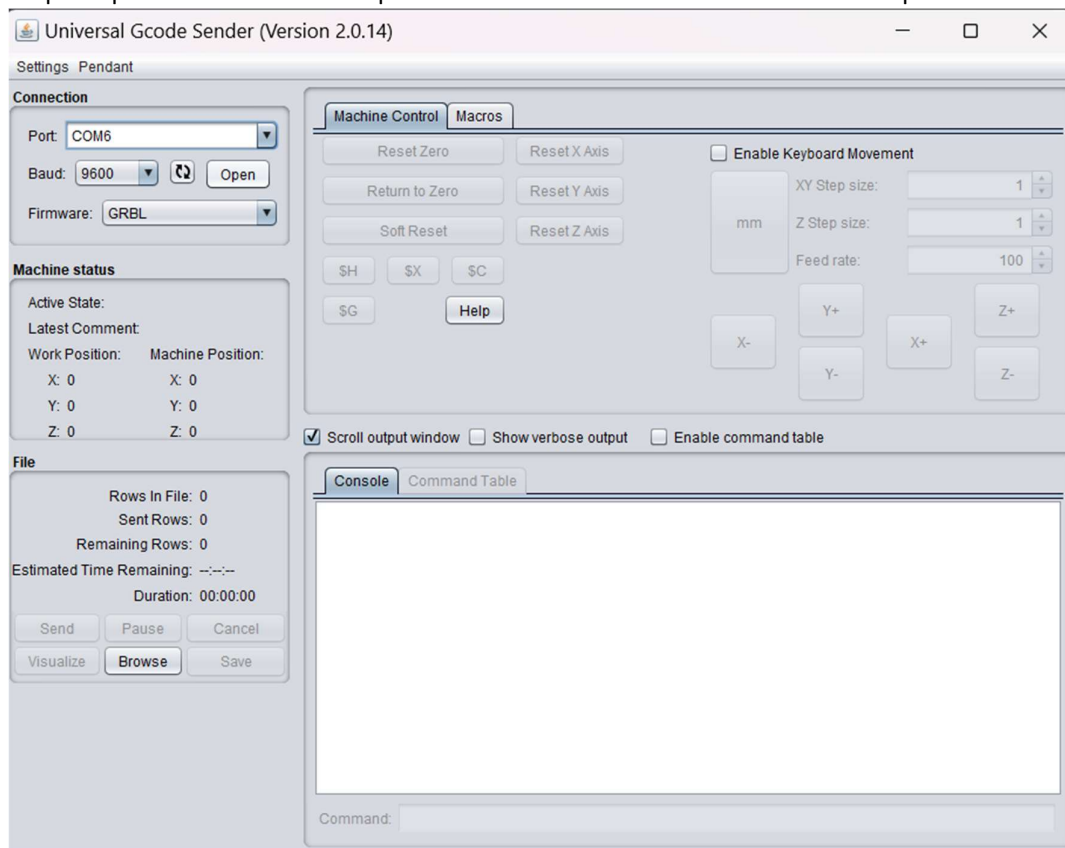
✓ → ⚙️ Arduino Uno

GRBLtoArduino.ino

```
18  */
19
20  /*
21  Supported hardware:
22  | Arduino Duemilanove
23  | Arduino Uno
24  | Arduino Mega 2560 (Limited Testing)
25
26  */
27
28  #include <grblmain.h>
29
30  void setup(){
31    startGrbl();
32  }
33
34  void loop(){}
35
```

Setting up

Step 1: Open UGS and select the port connected to the Arduino. Then click on Open.



Step 2: You will be connected and see the commands and an ok message in the Console.

