# EP1000

## Libraries

# Arduino System

- Very popular because of abundance of Code Libraries for every known sensor, device, application.
- No need to write your own code, use a library
- Lots of examples available
- Library consists of
  - C++ file (.cpp) which holds the code (usually a Class) which talks to the device/application
  - Header file (.h) which holds the definitions of the Class and functions available. This must be included in your source code.
- Once library is loaded, we just need to use the functions/methods to implement our application.

# Loading the Library

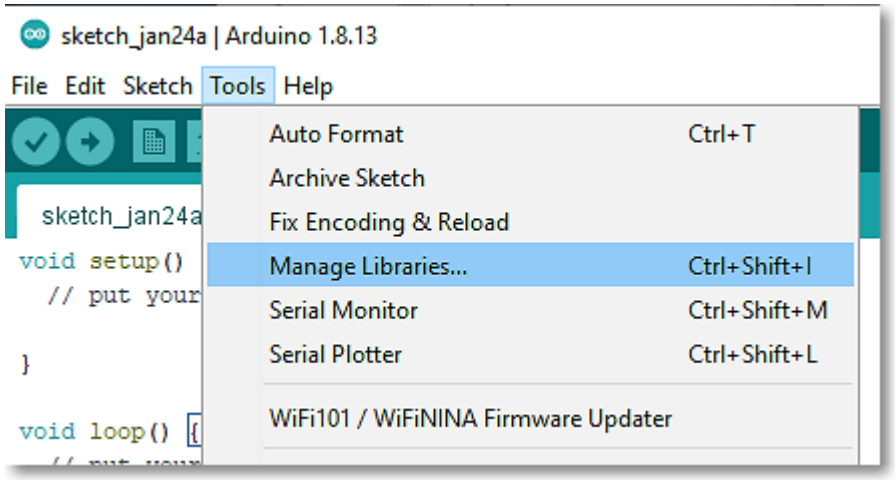
- 3 ways of loading the library
  1. Use the Arduino Library Management system
  2. Download the compressed library (.zip) and use the IDE to load the library
  3. Download the compressed library (.zip), extract the .h and .cpp files, manually copy them into the correct folders, restart the IDE.
- Library folder location

| Library | Folder location |
|---|---|
| Arduino IDE System Libraries | C:\Program Files (x86)\Arduino\libraries |
| User libraries | C:\Users\<username>\Documents\Arduino\libraries |

User Library folder: **IDE > File > Preferences**

# Arduino IDE Managed Libraries

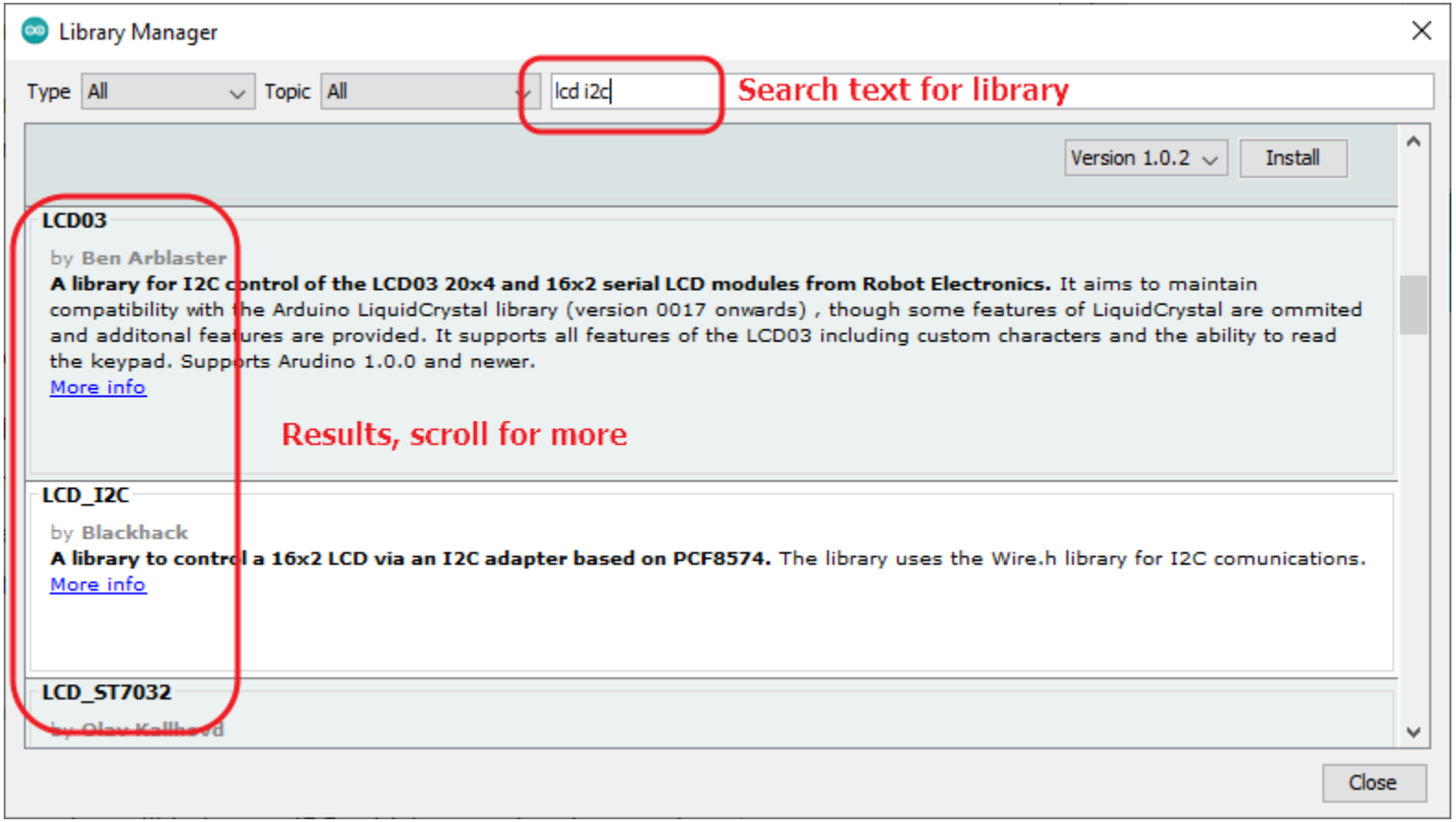
- Simplest method of loading a library
- Recommended by Arduino, for most used libraries
- IDE > Tools > Manage Libraries



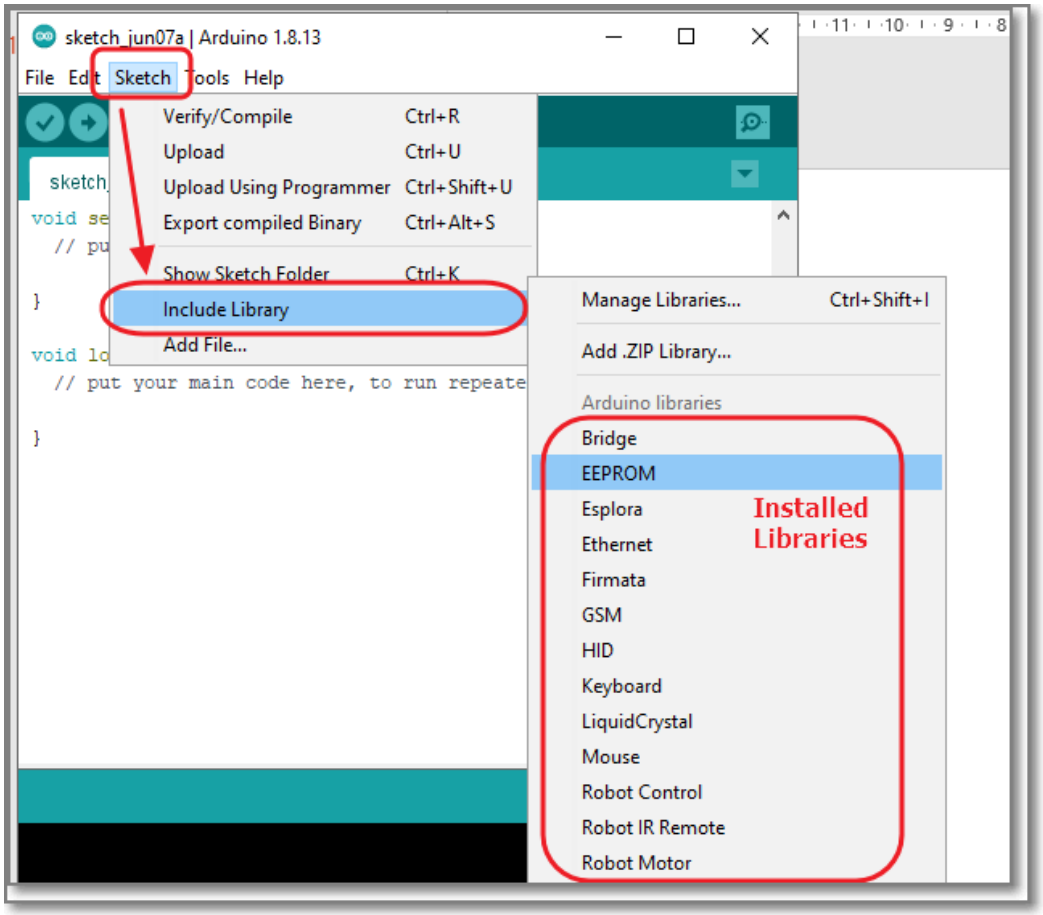

- Search for the library you require
- Select the library
- To use the library
  IDE > Sketch > Include library
- Sometimes examples are included with the library for you to test the functions.

**Problems:** Sometimes library you want is not available. (too new, rarely used)

# IDE Managed Library



# Include the header file




#include <device.h>
System library, header file is found in the system folders

#include "device.h"
User library, header file is found in the local folder library
(see IDE > File > Preferences>

Similar interfaces for IDE v2

# Manually Installed Library

- Manual method of installing a library
  - Manually download the compressed library (.zip)
  - Extract the files (usually a folder is created)
  - Check that the .h and .cpp files are present
  - Copy the folder to either
    - Arduino System Library Folder
    - User library folder
  - Restart the IDE
  - Include the header file (system/local) in the appropriate manner.

# References:


1. Adafruit: All About Arduino Libraries
2. Sparkfun: Installing an Arduino Library
3. Youtube: Arduino Libraries! How to Install them properly! Tutorial showing you 3 different ways

# EP1000

## Libraries

End