

SNS COLLEGE OF TECHNOLOGY Coimbatore-35 An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING 19ECT213-IOT SYSTEM ARCHITECTURE

II YEAR/ IV SEMESTER

UNIT 2 – MICROCONTROLLER AND INTERFACING TECHNIQUES FOR IOT DEVICES

TOPIC 1 – ARDUINO LIBRARIES: LIBRARY ADDING AND REMOVING





ARDUINO IDE

💿 sketch	_feb15a Arduino 1.0.1
File Edit	Sketch Tools Help
00	
sketch	_feb15a





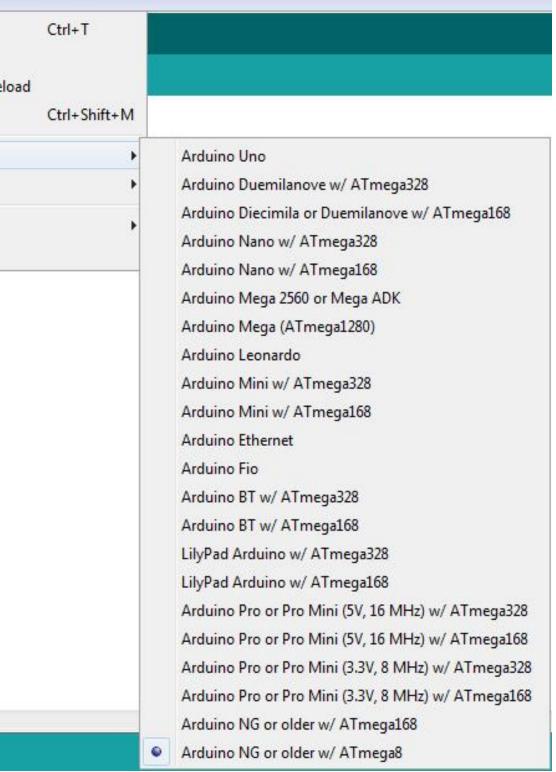


ARDUINO IDE

ile) Ec	dit Sketch Tools Help			
N	Jew	Ctrl+N		
C)pen	Ctrl+O		
S	ketchbook	•		
E	xamples	•	01.Basics	Þ
C	lose	Ctrl+W	02.Digital	Þ
S	ave	Ctrl+S	03. <mark>Analo</mark> g	⊁
S	ave As	Ctrl+Shift+S	04.Communication	۲
U	Ipload	Ctrl+U	05.Control	Þ
U	Ipload Using Programmer	Ctrl+Shift+U	06.Sensors	Þ
P	age Setup	Ctrl+Shift+P	07.Display	€
	rint	Ctrl+P	08.Strings	×
-			09.USB(Leonardo)	Þ
P	references	Ctrl+Comma	ArduinoISP	
ç	2uit	Ctrl+Q	line_array_sensor	
			EEPROM	⊁
			Ethernet	۲
			Firmata	Þ
			LiquidCrystal	Þ
			NewSoftSerial	⊁
			SD	۲
			Servo	Þ
			SoftwareSerial	Þ
			SPI	⊬
			Stepper	×
			Wire	Þ
			XBee	F

ketch_feb15a A	rduino 1.0.1
Edit Sketch To	ools Help
ketch_feb15a	Auto Format Archive Sketch Fix Encoding & Rel Serial Monitor
	Board Serial Port Programmer
	Burn Bootloader







ARDUINO IDE

💿 sketch_feb15a An	duino 1.0.1	
File Edit Sketch To	ols Help	
Sketch_feb15a	Auto Format Archive Sketch Fix Encoding & Reload Serial Monitor	Ctrl+T Ctrl+Shift+M
	Board	•
	Serial Port	•
	Programmer Burn Bootloader	•







FEATURES OF ARDUINO IDE

≻Open-source

 \succ makes it easy - write code and upload it to the board. ≻Runs on

➢ Windows

- ≻Mac OS X
- ≻Linux

 \succ C++ Based codes

► RTOS - Hard Task – Super Loop based approach







ARDUINO GETTING STARTED

Get an Arduino board and USB cable > Download the Arduino environment Connect the board \succ Install the drivers Launch the Arduino application Code Program for the application Select your board Select your serial port ► Upload the program











ARDUINO LIBRARIES

 \succ The Arduino environment can be extended through the use of libraries, just like most programming platforms. Libraries provide extra functionality for use in sketches, e.g. working with hardware or manipulating data.

 \succ To use a library in a sketch, select it from Sketch > Import Library.

A number of libraries come installed with the IDE, but you can also download or create your own





*	sketch_n	nar26a /	Arduino 1.6.2	- + ×
File Edit Sket	ch Tools Help			
Veri	ify / Compile	Ctrl+R	Manage Libraries	ø
sketc	w Sketch Folder	Ctrl+K	Add .ZIP Library	
void set	lude Library	B	Arduino/Avr libraries	
// put Add	l File		Audio	
}			EEPROM	
void loop()	01		Esplora	
	n main code he	re, to r	Ethernet	
}			Firmata	
,			GSM	
			LiquidCrystal	
			Robot Control	
			Robot IR Remote	
			Robot Motor	
			Scheduler	
			SD	
			Servo	
			SoftwareSerial	
4		-10	SpacebrewYun	
N			SPI	
8 11 - 11 - 11 - 11 - 11 - 11 - 11 - 11	10 10 10 10		Stepper	
			Temboo	
			TFT	
9			USBHost	in on /dev/ttyACM0
SE			WIFI	and the second second
			Wire	
			Contributed libraries	
			Bridge	

3/19/2024

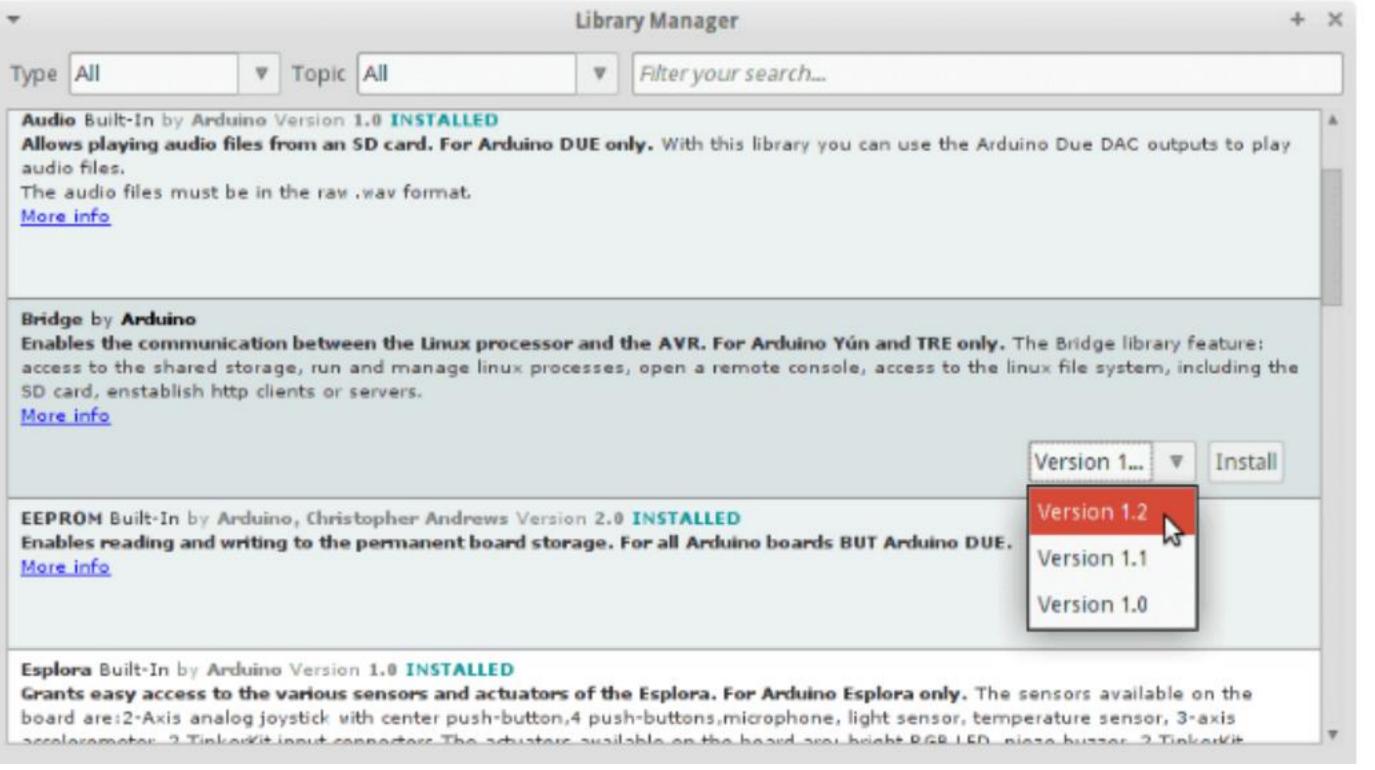






	ry Manager	Libra					
h	Filter your search	v	All	Topic	v	All	Type
ry you ca	1y. With this library	luino DUE on		rom an	lio files f	vs playing audi o files. audio files mu	Allow
	the AVR. For Arduir , open a remote co		and manage lin	ge, run a	unicatio ed stora	ss to the share ard, enstablish	Enab
ards BU1	INSTALLED For all Arduino boar		topher Andrew permanent boa			les reading an	
	INSTALLED	Version 2.0 rd storage. F	and manage lin servers. topher Andrew	ge, run a ents or s io, Chris g to the	ed storag h http cli y Arduin nd writin	to the share ard, enstablish info OM Built-In by les reading an info	acces SD ca More EEPR Enab



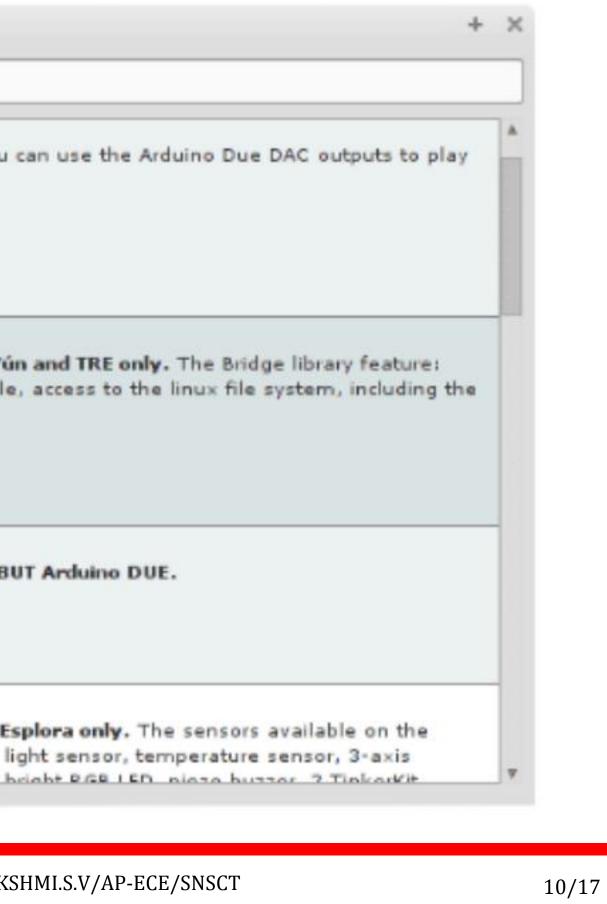


9/17



*		Library Manager
Type All	Topic All	▼ Filter your search
Allows playing a audio files.	w Arduino Version 1.0 IN audio files from an SD car must be in the raw way fo	d. For Arduino DUE only. With this library you
Enables the con access to the sh	ared storage, run and ma lish http clients or servers	Linux processor and the AVR. For Arduino Y anage linux processes, open a remote consol
EEPROM Built-I	n by Arduino, Christopher	Andrews Version 2.0 INSTALLED
Grants easy act board are:2-Axi	s analog joystick with cent	NSTALLED s and actuators of the Esplora. For Arduino I ter push-button,4 push-buttons,microphone, rs The actuators available on the beard area

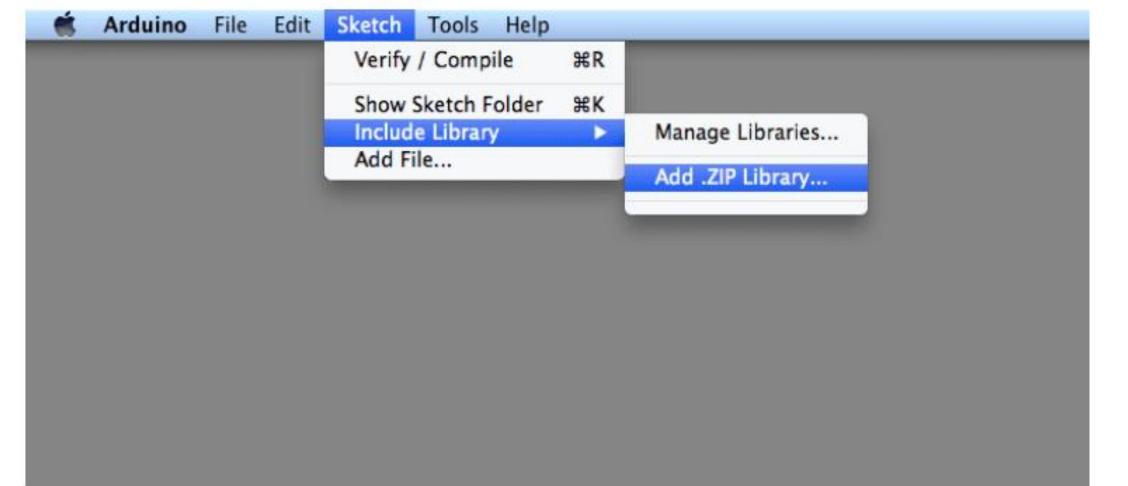






Libraries are often distributed as a ZIP file or folder. The name of the folder is the name of the library. Inside the folder will be a .cpp file, a .h file and often a keywords.txt file, examples folder, and other files required by the library. Starting with version 1.0.5, you can install 3rd party libraries in the IDE. Do not unzip the downloaded library, leave it as

is.



In the Arduino IDE, navigate to Sketch > Include Library > Add .ZIP Library. At the top of the drop down list, select the option to "Add .ZIP Library".

3/19/2024

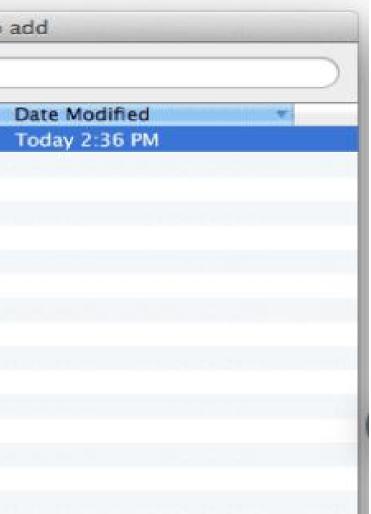




Return to the *Sketch > Include Library menu*. menu. You should now see the library at the bottom of the drop-down menu. It is ready to be used in your sketch. The zip file will have been expanded in the *libraries* folder in your Arduino sketches directory. NB: the Library will be available to use in sketches, but with older IDE versions examples for the library will not be exposed in the *File > Examples* until after the IDE has restarted.

000	Select a zip file containing the libr	rary you'd like to
	III 📰 🔻 🔝 Downloads	÷ Q
FAVORITES	Name	
Dropbox	Tlc5940_r014_2.zip	
Google Drive		
All My Files		
Applications		
Documents		
Library		
Desktop		
😔 Downloads		
😭 scott		
DEVICES		
Macintosh HD		







When you want to add a library manually, you need to download it as a ZIP file, expand it and put in the proper directory.

> The ZIP file contains all you need, including usage examples if the author has provided them.

> The library manager is designed to install this ZIP file automatically as explained in the former chapter, but there are cases where you may want to perform the installation process manually and put the library in the *libraries* folder of your sketchbook by yourself.

Preferences		
Settings Network		
Sketchbook location:		
C:\Users\Simone\Docume	ents\Arduino	
Editor language:	English (English)	 (requires res
Editor font size:	16	
Interface scale:	Automatic 100 \$ % (requires	restart of Arduino)
Show verbose output dur	ing: 🗌 compilation 🔲 upload	
Compiler warnings:	None 🤝	
Display line numbers		
Enable Code Folding		







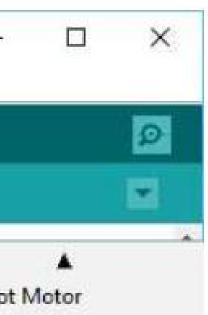
Start the Arduino Software (IDE), go to *Sketch > Include Library*. Verify that the library you just added is available in the list.

~		
and the second	Upload	Ctrl+U
etch	Upload Using Programmer	Ctrl+Shift+U
ise pu	Export compiled Binary	Ctrl+Alt+S
Pu	Show Sketch Folder	Ctrl+K
	Include Library	
i 10	Add File	
put y	our main code here, to	run repeate

INTRODUCTION TO ARDUINO/19ECT213-IoT SYSTEM ARCHITECTURE/LAKSHMI.S.V/AP-ECE/SNSCT







ebrewYun

000

mmended libraries

ruit GFX Library





INTRODUCTION TO ARDUINO/19ECT213-IoT SYSTEM

3/19/2024

ARCHITECTURE/LAKSHMI.S.V/AP-ECE/SNSCT

