

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 4 – ARDUINO LIBRARIES: LIBRARY ADDING AND REMOVING



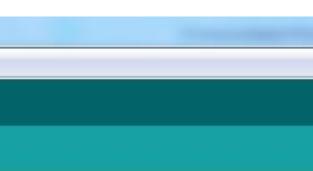
VICATION ENGINEERING



ARDUINO IDE

File Edit Sketch Tools Help		
sketch_feb15a		







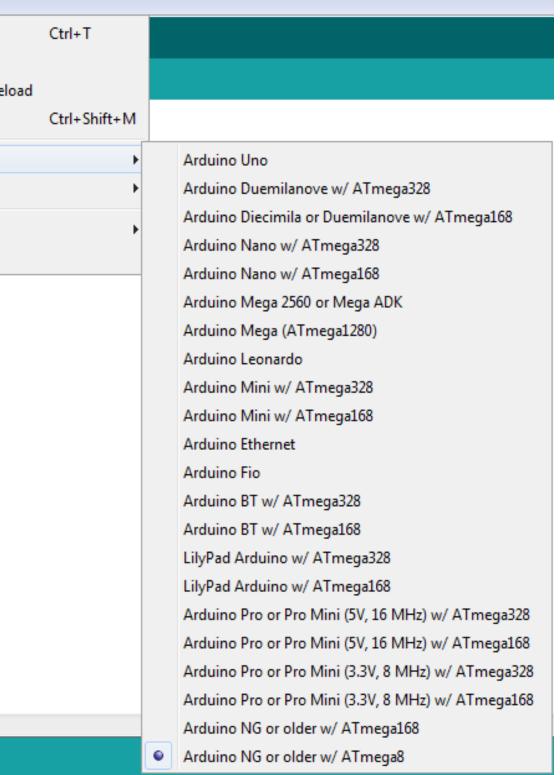
ARDUINO IDE

	etch_feb15a Arduino 1.0.1 Edit Sketch Tools Help		-	and Personne - Million	
File	Edit Sketch Tools Help				
	New	Ctrl+N			
	Open	Ctrl+O			
	Sketchbook	•			
	Examples	•		01.Basics	F
	Close	Ctrl+W		02.Digital	١.
	Save	Ctrl+S		03.Analog	¥.
	Save As	Ctrl+Shift+S		04.Communication	۲
	Upload	Ctrl+U		05.Control	×.
	Upload Using Programmer	Ctrl+Shift+U		06.Sensors	۲
	Page Setup	Ctrl+Shift+P		07.Display	۲
	Print	Ctrl+P		08.Strings	×.
				09.USB(Leonardo)	F
	Preferences	Ctrl+Comma		ArduinoISP	
	Quit	Ctrl+Q		line_array_sensor	
				EEPROM	►
				Ethernet	►
				Firmata	►
				LiquidCrystal	►
				NewSoftSerial	►
				SD	►
				Servo	►
				SoftwareSerial	►
				SPI	۲
				Stepper	►
4				Wire	►
				XBee	►

sketch_feb15a	Arduino 1.0.1
le Edit Sketch	Tools Help
sketch_feb15a	Auto Format Archive Sketch Fix Encoding & Rel Serial Monitor
	Board
	Serial Port
	Programmer Burn Bootloader

3/28/2024



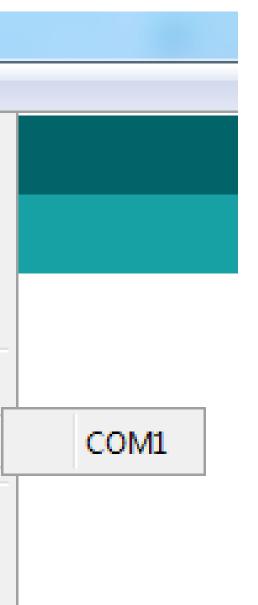




ARDUINO IDE

🥯 sketch_feb15a	Ardu	uino 1.0.1	
File Edit Sketch	Tool	s) Help	
Sketch_feb15a		Auto Format Archive Sketch Fix Encoding & Reload Serial Monitor	Ctrl+T Ctrl+Shift+M
		Board	
		Serial Port	•
		Programmer Burn Bootloader	•





4/17



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 \succ Upload the program











ARDUINO LIBRARIES

 \blacktriangleright 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.

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_m	ar26a /	Arduino 1.6.2	- + ×
File Edit	Sketch Tools Help			
00	Verify / Compile	Ctrl+R	Manage Libraries	Ø.
sketc	Show Sketch Folder	Ctrl+K	Add .ZIP Library	-
void set	Include Library	E.	Arduino/Avr libraries	A second
// pu			Audio	
}			EEPROM	
void lo	on () 🕅		Esplora	
	t your main code he	re, to r	Ethernet	
}			Firmata	
1			GSM	
			LiquidCrystal	
			Robot Control	
			Robot IR Remote	
			Robot Motor	
			Scheduler	
			SD	
			Servo	
			SoftwareSerial	
4			SpacebrewYun	¥
			SPI	
			Stepper	
			Temboo	
			TFT	
9			USBHost	ún on /dev/ttyACM0
			WiFi	
			Wire	
			Contributed libraries	
			Bridge	

3/28/2024





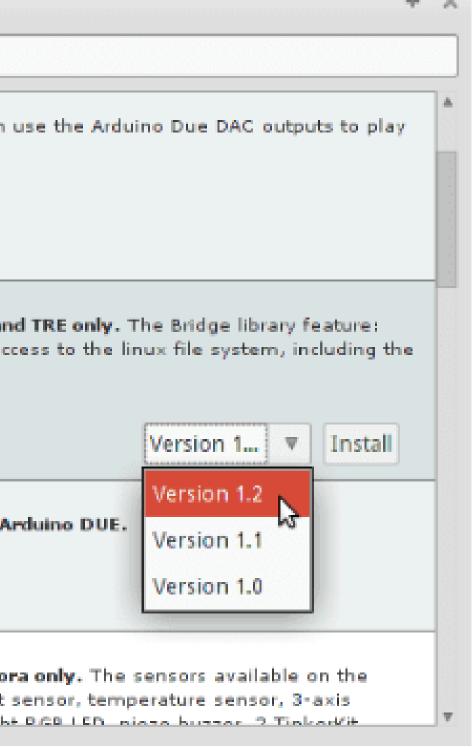


Ŧ			Libra	ry Manager
Type All	Topic All		V	Filter your search
Audio Built-In by Ardu Allows playing audio fi audio files. The audio files must b <u>More info</u>	iles from an SD c	ard. For Arduino D	UE or	ily. With this library you can
	torage, run and	manage linux proc		the AVR. For Arduino Yún a , open a remote console, a
EEPROM Built-In by A Enables reading and w More info				INSTALLED For all Arduino boards BUT /

Esplora Built-In by Arduino Version 1.0 INSTALLED

Grants easy access to the various sensors and actuators of the Esplora. For Arduino Esplora only. The sensors available on the board are:2-Axis analog joystick with center push-button,4 push-buttons, microphone, light sensor, temperature sensor, 3-axis accelerameter 2 TiskerKit issut connectors The actuators available on the board area bright RGR LED pieze huzzer 2 TiskerKit



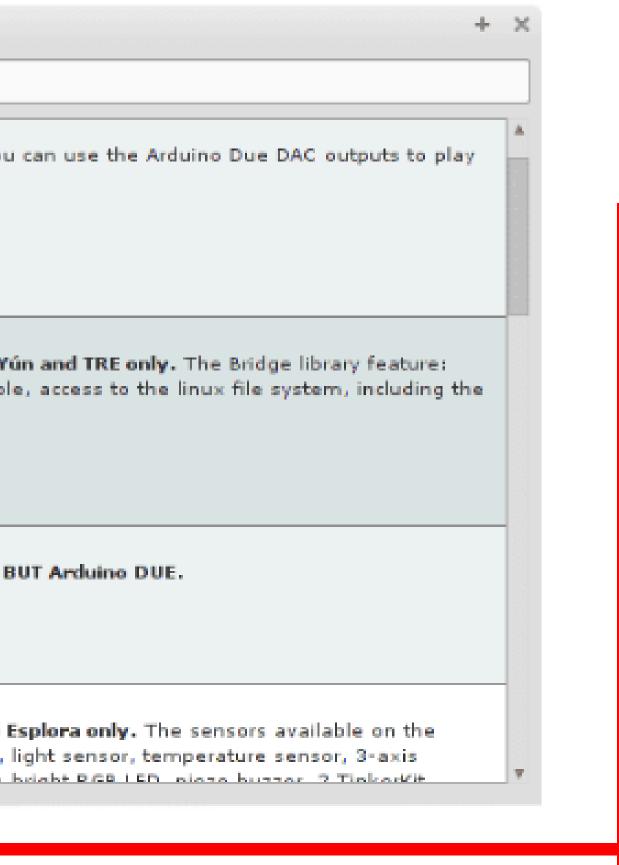




T		Library Mar	ager
Type All	▼ Topic All	▼ Filter	your search
Allows playing audio fi audio files.	ino Version 1.0 INSTAL	r Arduino DUE only. Wi	th this library you
access to the shared s SD card, enstablish htt <u>More info</u>	ation between the Linux torage, run and manage	•	
	rduino, Christopher And riting to the permanent		
Grants easy access to board are:2-Axis analo	duine Version 1.0 INSTA the various sensors and og joystick with center pu sekit input connectors. Th	l actuators of the Esplo ush-button,4 push-butto	ons, microphone, I







10/17



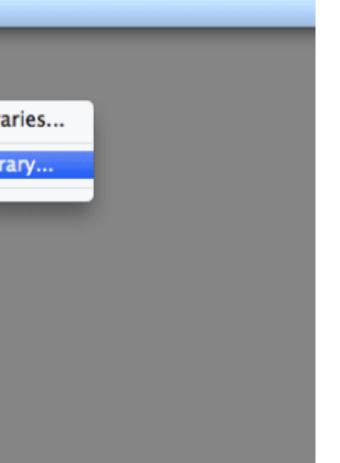
Libraries are often distributed as a ZIP file or folder. The name of the folder is the name of the library. Inside the folder will be a .cpp file, a .h file and often a keywords.txt file, examples folder, and other files required by the library. Starting with version 1.0.5, you can install 3rd party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

as is.

Verify / Compile #R	
Show Sketch Folder #K	
Include Library	Manage Libra
Add File	Add .ZIP Libra

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".



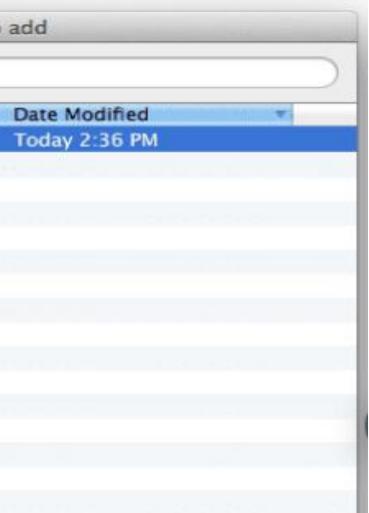




Return to the *Sketch > Include Library menu*. menu. You should now see the library at the bottom of the drop-down menu. It is ready to be used in your sketch. The zip file will have been expanded in the *libraries* folder in your Arduino sketches directory. NB: the Library will be available to use in 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 library you	'd like to
	IIII I III T Downloads \$	Q
FAVORITES	Name Tlc5940_r014_2.zip	
Google Drive		
Applications		
 Library Desktop Downloads 		
😭 scott		
Macintosh HD		







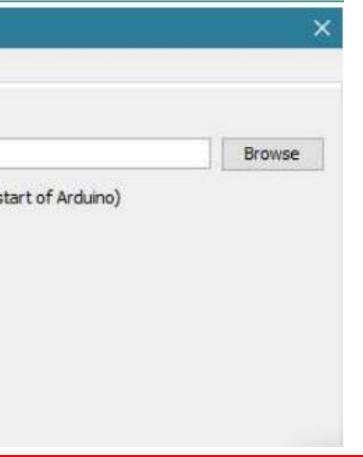
When you want to add a library manually, you need to download it as a ZIP file, expand it and put in the proper directory.

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

 \succ 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	nts\Arduino	
Editor language:	English (English)	✓ (requires res
Editor font size:	16	
Interface scale:	Automatic 100 🗘 % (requires	restart of Arduino)
Show verbose output duri	ng: 🗌 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.

0	Verify/Compile	Ctrl+R	2
sketch	Upload Upload Using Programmer	Ctrl+U Ctrl+Shift+U	
id se	Export compiled Binary	Ctrl+Alt+S	*
// pu	Show Sketch Folder	Ctrl+K	Robot Motor
	Include Library	2	SD
id lo	Add File		Servo
	your main code here, to	run repeate	SpacebrewYun TFT Temboo









INTRODUCTION TO ARDUINO/19ECT213-IoT SYSTEM

3/28/2024

ARCHITECTURE/Dr.J.Geetha Ramani/ECE/SNSCT

