

SNS COLLEGE OF TECHNOLOGY Coimbatore-35 An Autonomous Institution

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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		







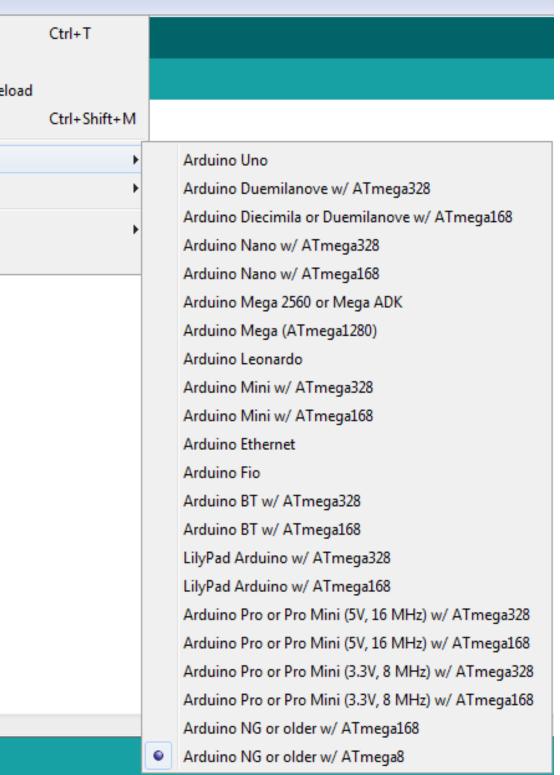
ARDUINO IDE

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sketch_feb15a	Auto Format Archive Sketch Fix Encoding & Rel Serial Monitor
	Board
	Serial Port
	Programmer Burn Bootloader

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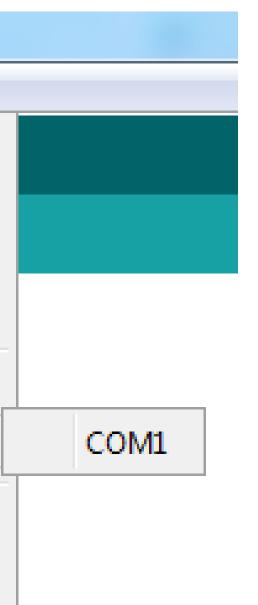




ARDUINO IDE

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		Board	
		Serial Port	•
		Programmer Burn Bootloader	•





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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





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File Edit	Sketch Tools Help			
00	Verify / Compile	Ctrl+R	Manage Libraries	Ø.
sketc	Show Sketch Folder	Ctrl+K	Add .ZIP Library	-
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			Robot Motor	
			Scheduler	
			SD	
			Servo	
			SoftwareSerial	
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			SPI	
			Stepper	
			Temboo	
			TFT	
9			USBHost	ún on /dev/ttyACM0
			WiFi	
			Wire	
			Contributed libraries	
			Bridge	

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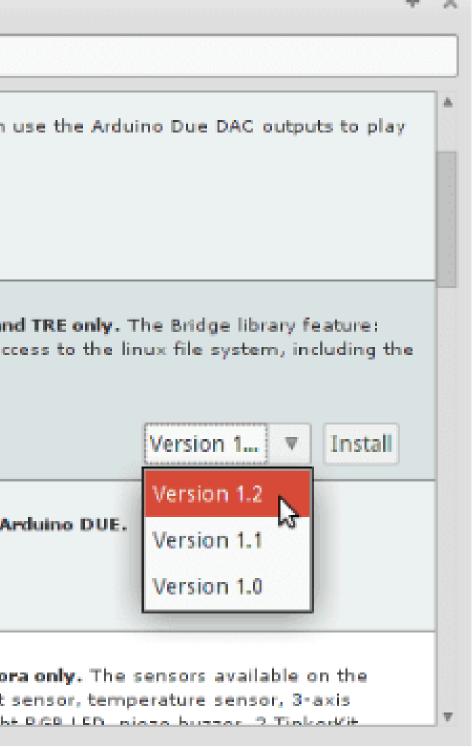


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Audio Built-In by Ardu Allows playing audio fi audio files. The audio files must b <u>More info</u>	iles from an SD c	ard. For Arduino D	UE or	ily. With this library you can
	torage, run and	manage linux proc		the AVR. For Arduino Yún a , open a remote 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



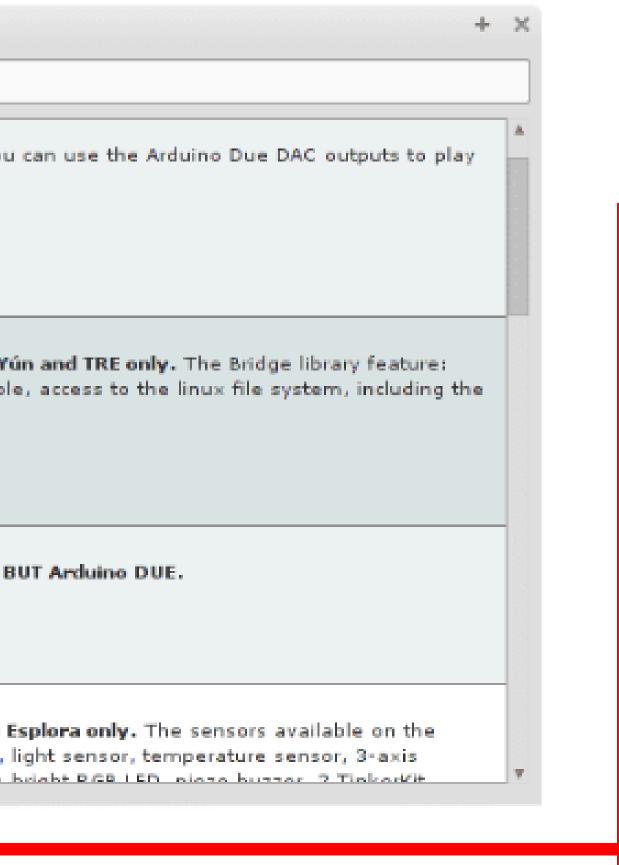




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access to the shared s SD card, enstablish htt <u>More info</u>	ation between the Linux torage, run and manage	•	
	rduino, Christopher And riting to the permanent		
Grants easy access to board are:2-Axis analo	duine Version 1.0 INSTA the various sensors and og joystick with center pu sekit input connectors. Th	l actuators of the Esplo ush-button,4 push-butto	ons, microphone, I







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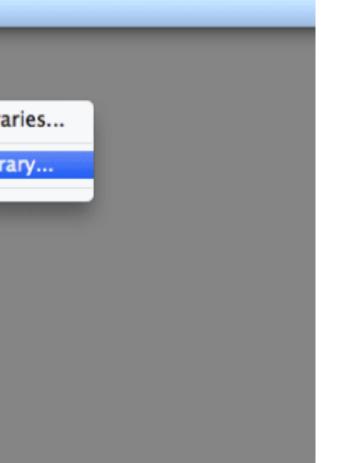
Libraries are often distributed as a ZIP file or folder. The name of the folder is the name of the library. Inside the folder will be a .cpp file, a .h file and often a keywords.txt file, examples folder, and other files required by the library. Starting with version 1.0.5, you can install 3rd party 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".



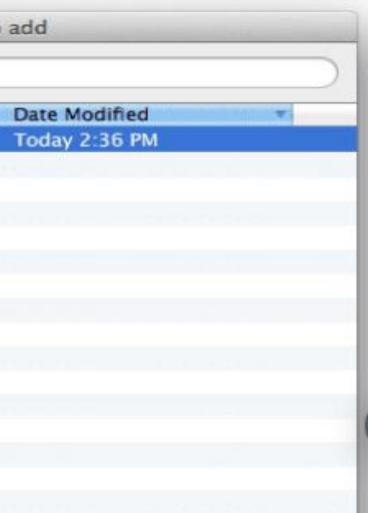




Return to the *Sketch > Include Library menu*. menu. You should now see the library at the bottom of the drop-down menu. It is ready to be used in your sketch. The zip file will have been expanded in the *libraries* folder in your Arduino sketches directory. NB: the Library will be available to use in 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 		
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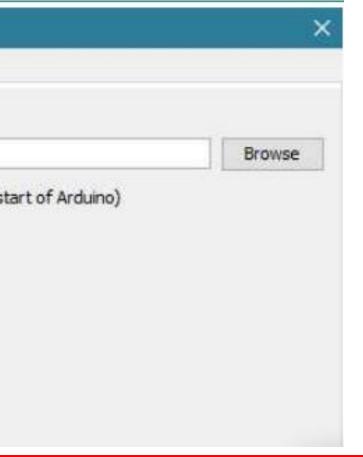
When you want to add a library manually, you need to download it as a ZIP file, expand it and put in the proper directory.

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

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

