



***Globalcode***

# USING IOT SURFBOARD WITHOUT PROGRAMMING



# FILES FOR THIS CLASS

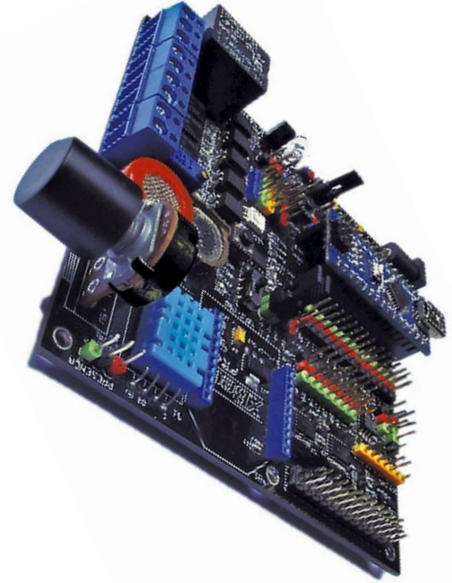
[HTTPS://PORTALALUNO.TOOLSCLOUD.NET/REDMINE/PROJECTS/IOTSURFBOARD/FILES](https://portalaluno.toolscloud.net/redmine/projects/IOTSURFBOARD/files)

- PRESENTATION: IOT\_SURFING\_CLASS\_3\_EN.PDF
- ARDUINO USB DRIVER AND ARDUINO IDE



# IOT SURFBOARD AND ARDUINO

- ☐ IOT SURFBOARD USES AN **ARDUINO NANO** BY DEFAULT
- ☐ IT'S IMPORTANT TO LEARN ABOUT ARDUINO TO USE THE IOT SURFBOARD
- ☐ ADVANCED USERS COULD USE OTHER BOARDS TO CONTROL THE SURFBOARD INSTEAD OF ARDUINO



# WHY ARDUINO ?

- ☐ PLATFORM FOR ELECTRONIC PROTOTYPING
- ☐ OPEN-SOURCE HARDWARE
- ☐ MANUFACTURED AND USED WORLDWIDE
- ☐ DOWNLOAD AND INSTALLATION:

[HTTPS://WWW.ARDUINO.CC/EN/MAIN/SOFTWARE](https://www.arduino.cc/en/main/software)



# ARDUINO OFICIAL PRODUCTS

ENTRY LEVEL	ARDUINO UNO	ARDUINO 101	ARDUINO PRO	ARDUINO PRO MINI	ARDUINO MICRO
	ARDUINO NANO	ARDUINO STARTER KIT	ARDUINO BASIC KIT	ARDUINO MOTOR SHIELD	
ENHANCED FEATURES	ARDUINO MEGA	ARDUINO ZERO	ARDUINO DUE	ARDUINO PROTO SHIELD	
INTERNET OF THINGS	ARDUINO YÚN	ARDUINO MKR1000	ARDUINO ETHERNET SHIELD	ARDUINO GSM SHIELD	
	ARDUINO WIFI SHIELD 101				
WEARABLE	ARDUINO GEMMA	LILYPAD ARDUINO USB	LILYPAD ARDUINO MAIN BOARD		
	LILYPAD ARDUINO SIMPLE	LILYPAD ARDUINO SIMPLE SNAP			
3D PRINTING	MATERIA 101				

# ARDUINO CERTIFIED PRODUCTS



INTEL GALILEO GEN 1



GALILEO GEN 2

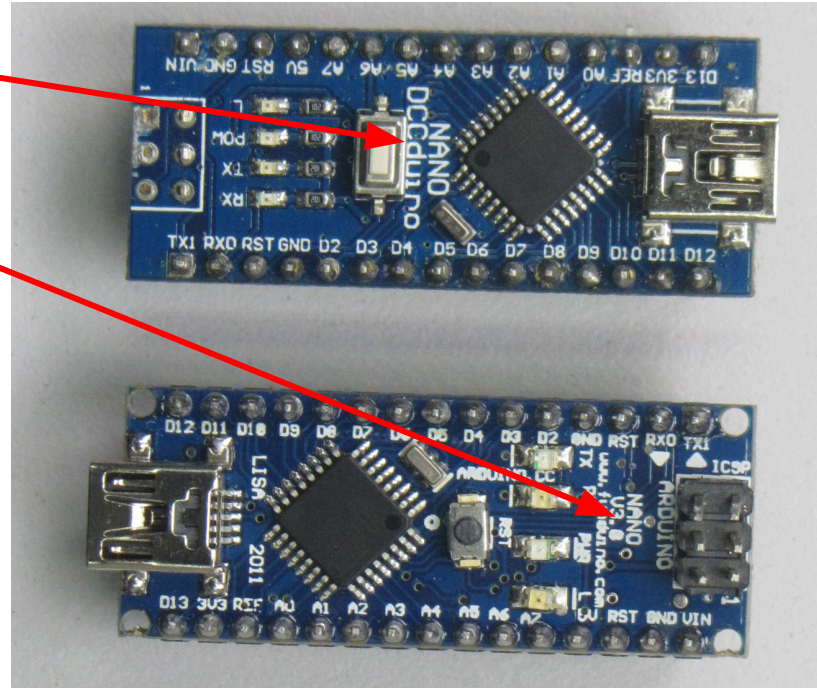


EDISON



THE IOT SURFBOARD USES THE **ARDUINO NANO** AND MAY HAVE TWO DIFFERENT ARDUINO CHIPSETS:

- CH340
- FTDI





# ARDUINO INSTALLATION

1. DOWNLOAD & INSTALL ARDUINO IDE
2. WINDOWS AND MAC USERS: DOWNLOAD AND INSTALL THE ARDUINO USB FTDI DRIVER OR CH340 ACCORDING TO YOUR ARDUINO CHIPSET

FTDI: [HTTP://WWW.FTDICHIP.COM/DRIVERS/VCP.HTM](http://www.ftdichip.com/drivers/vcp.htm)

CH340: [ATUALIZAR SITE](#)



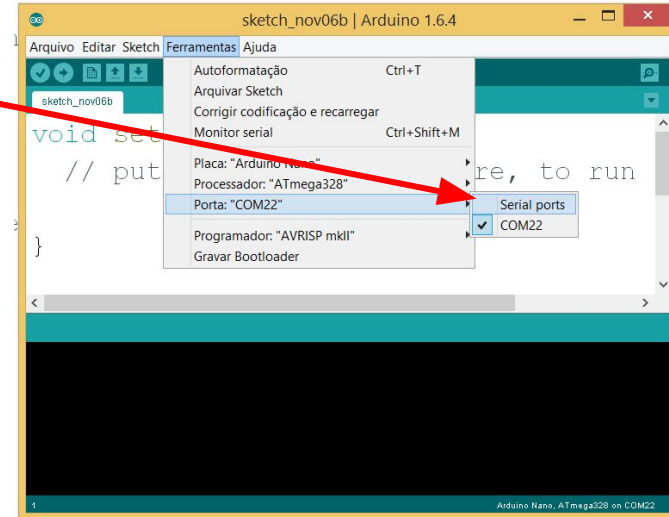
# ARDUINO CONFIGURATION

1. OPEN ARDUINO IDE
2. BEFORE CONNECTING YOUR COMPUTER TO YOUR ARDUINO / SURFBOARD

GO TO -> TOOLS-> PORTS AND SEE THE LISTED PORTS.

THERE MIGHT BE NO PORTS, DON'T WORRY.

3. CONNECT YOUR COMPUTER TO THE ARDUINO AND REPEAT, SELECTING THE NEW PORT



# WHAT IF NO NEW PORT APPEARS?

1. IF YOU HAVE TROUBLE WITH THE ARDUINO USB DRIVER ON WINDOWS CHECK MORE INFORMATION ON THE OFFICIAL WEBSITE:

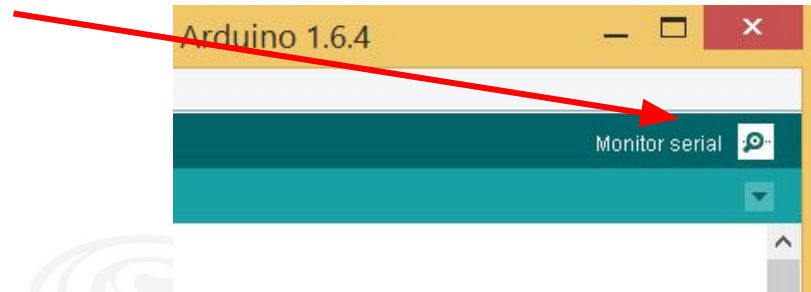
[HTTPS://WWW.ARDUINO.CC/EN/GUIDE/WINDOWS](https://www.arduino.cc/en/Guide/Windows)

2. IF YOU CAN'T FIND A SOLUTION PLEASE, USE THE IOT SURFBOARD FORUM:

[HTTPS://PORTALALUNO.TOOLSCLOUD.NET/REDMINE/PROJECTS/IOTSURFBOARD](https://portalaluno.toolscLOUD.net/redmine/projects/iotsurfboard)

# SURFING PROTOCOL

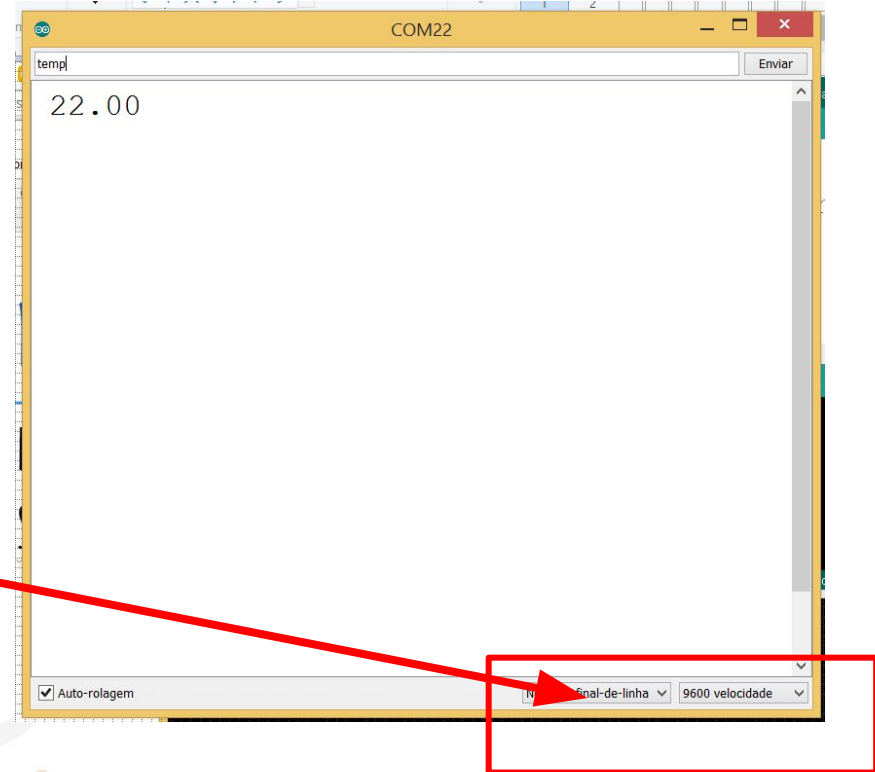
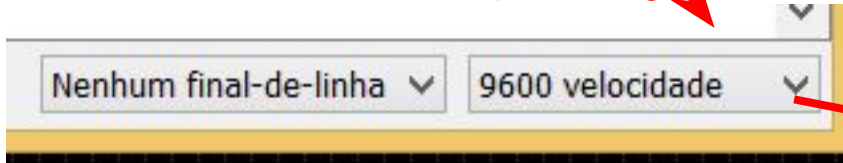
- ❑ SET OF COMMANDS TO READ A SENSOR OR CONTROL YOUR SURFBOARD!
- ❑ TO COMMUNICATE WITH THE SURFBOARD THROUGH THE SERIAL PORT, OPEN THE SERIAL MONITOR ARDUINO.



# SERIAL MONITOR CONFIGURATION

- THIS CONFIGURATION IS PROBABLY THE DEFAULT CONFIGURATION ON YOUR MACHINE, BUT IT'S GOOD TO REVIEW.

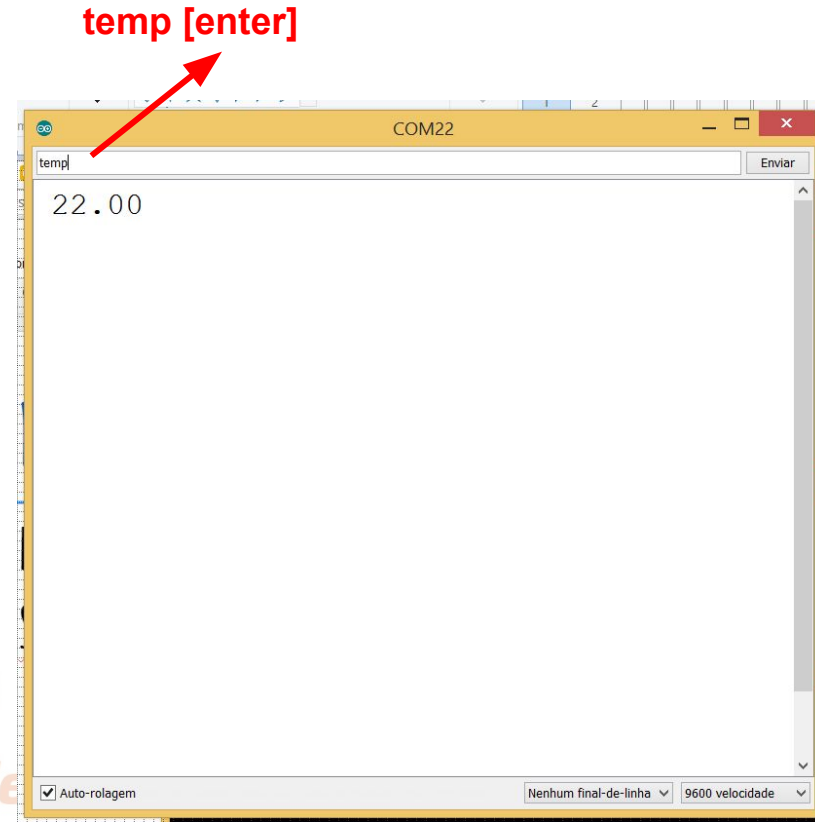
9600 BPS ↘



# USING THE SURFING PROTOCOL ON THE SERIAL MONITOR

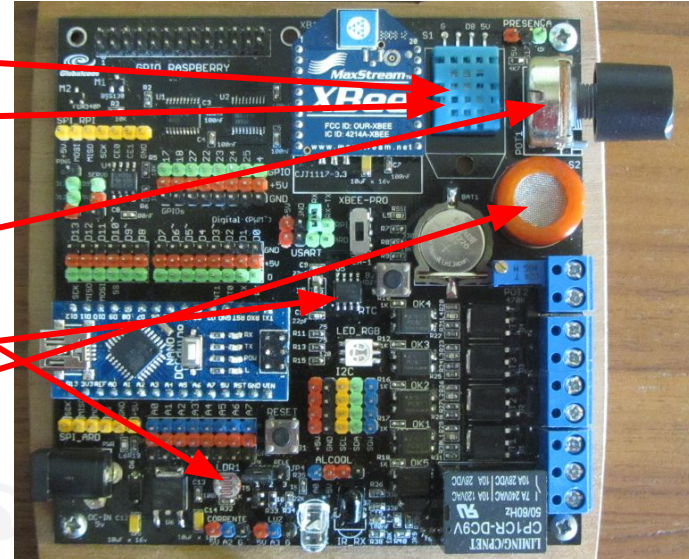
ON THE SERIAL MONITOR YOU CAN TYPE ANY OF THE COMMANDS THAT ARE PART OF THE SURFING PROTOCOL.

TYPE **TEMP** AND PRESS **ENTER** TO GET THE TEMPERATURE IN CELSIUS



# SURFING PROTOCOL: READING SENSORS

Command	Sensor
temp	temperature
humidity	humidity
light	light
pot	potentiometer
clock	date and time
alcohol	alcohol sensor

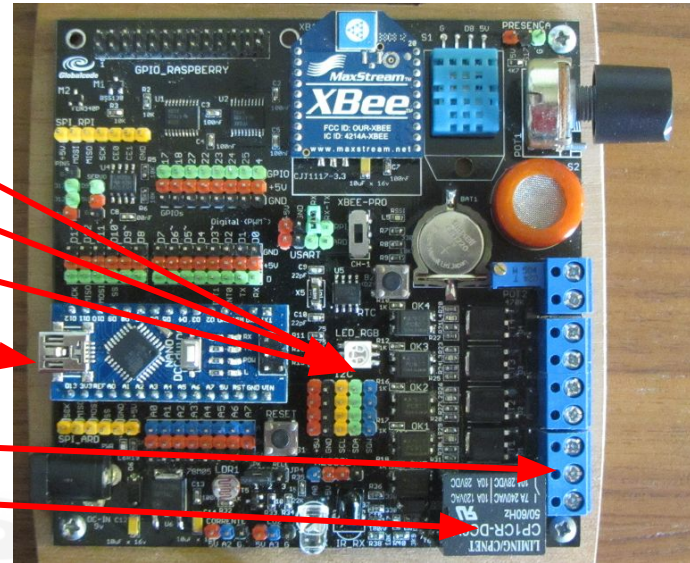




# PROTOCOLLO DA SURFBOARD: COMMANDING ACTUATORS

<COMMAND>?<PARAMETER>

Command	Parameters	Actuator
red	0 or 1	red LED
green	From 0 to 255	green LED
blue	From 0 to 255	blue LED
speaker	0 or 1	buzzer
transistor	0 or 1	transistor
relay	0 or 1	relay



# SURFING PROTOCOL: MORE COMMANDS

⟨COMMAND⟩?⟨PARAMETER⟩

Command	Parameter	Description
<b>?</b>		The IoT Surfboard describes its resources
<b>??</b>		Returns a JSON with ID, and Serial Key your surfboard
<b>mode</b>	<b>0-10</b>	Changing the operating mode / function
<b>discovery</b>		Returns a file with information separated by   with the descriptive plate
<b>sensors</b>		Returns a JSON with all sensors and their values



# SURFING PROTOCOL SUMMARY

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alcohol	alcohol sensor



# LIVE DEMOS



# SUMMARY

- ❑ IOT SURFBOARD USES ARDUINO NANO AS CONTROLLER
- ❑ INSTALLING ARDUINO IDE AND ARDUINO USB DRIVER IS NECESSARY TO START CONTROLLING YOUR SURFBOARD
- ❑ IOT SURFBOARD COMES READY TO RESPOND TO THE SURFING PROTOCOL (A SET OF COMMANDS)



# INTERNET OF THINGS WITHOUT PROGRAMMING?



YES, WE CAN!

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