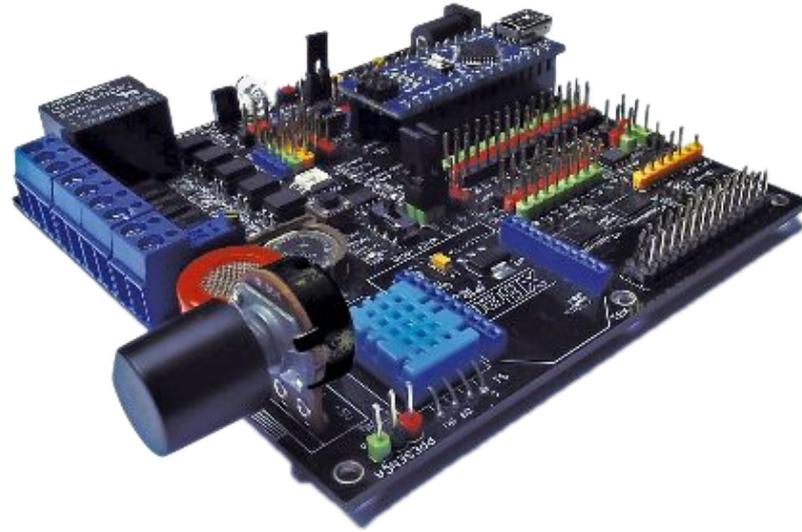




***Globalcode***

# USING IOT SURFBOARD WITHOUT PROGRAMMING



# FILES FOR THIS CLASS

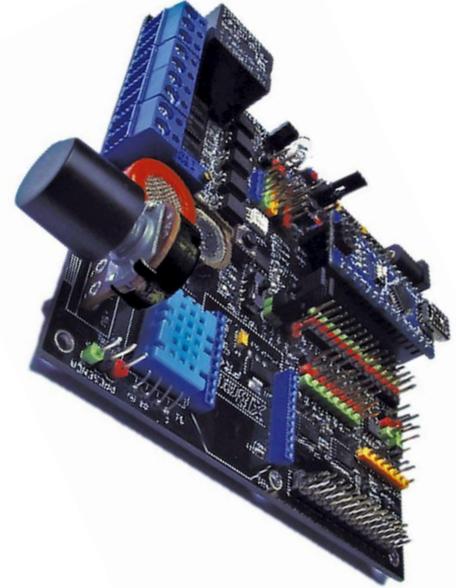
[HTTPS://PORTALALUNO.TOOLSCLOUD.NET/REDMINE/PROJECTS/IOTSURFBOARD/FILES](https://portalaluno.toolscloud.net/redmine/projects/iotsurfboard/files)

- 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	<a href="#">ARDUINO UNO</a> <a href="#">ARDUINO 101</a> <a href="#">ARDUINO PRO</a> <a href="#">ARDUINO PRO MINI</a> <a href="#">ARDUINO MICRO</a> <a href="#">ARDUINO NANO</a> <a href="#">ARDUINO STARTER KIT</a> <a href="#">ARDUINO BASIC KIT</a> <a href="#">ARDUINO MOTOR SHIELD</a>
ENHANCED FEATURES	<a href="#">ARDUINO MEGA</a> <a href="#">ARDUINO ZERO</a> <a href="#">ARDUINO DUE</a> <a href="#">ARDUINO PROTO SHIELD</a>
INTERNET OF THINGS	<a href="#">ARDUINO YÚN</a> <a href="#">ARDUINO MKR1000</a> <a href="#">ARDUINO ETHERNET SHIELD</a> <a href="#">ARDUINO GSM SHIELD</a> <a href="#">ARDUINO WIFI SHIELD 101</a>
WEARABLE	<a href="#">ARDUINO GEMMA</a> <a href="#">LILYPAD ARDUINO USB</a> <a href="#">LILYPAD ARDUINO MAIN BOARD</a> <a href="#">LILYPAD ARDUINO SIMPLE</a> <a href="#">LILYPAD ARDUINO SIMPLE SNAP</a>
3D PRINTING	<a href="#">MATERIA 101</a>

# ARDUINO CERTIFIED PRODUCTS



INTEL GALILEO GEN 1



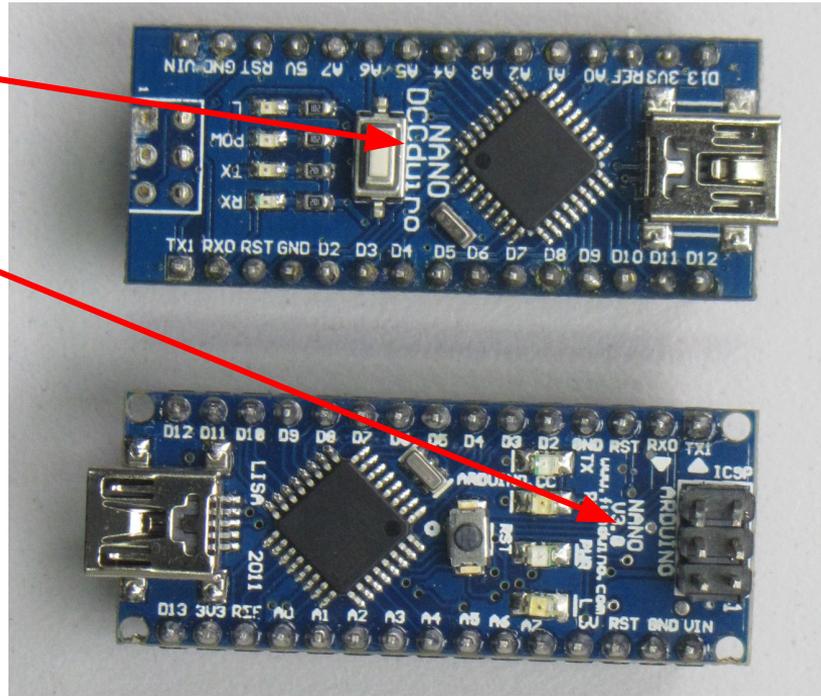
GALILEO GEN 2



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](#)



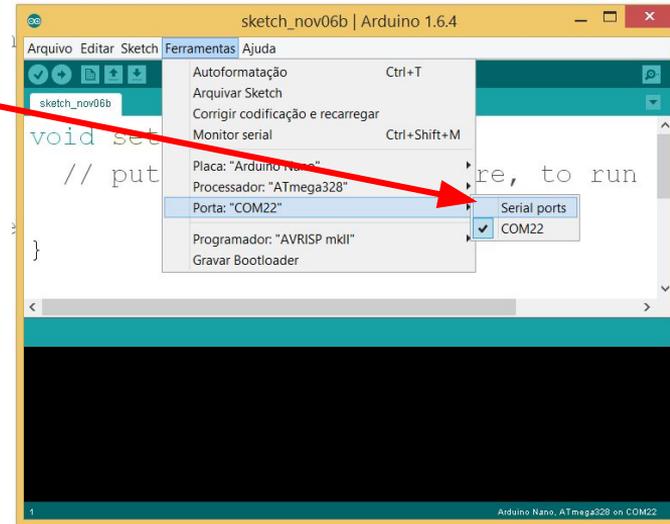
# ARDUINO CONFIGURATION

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:

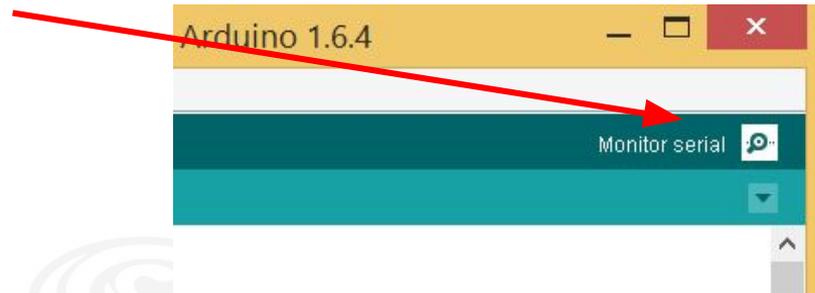
[HTTPS://WWW.ARDUINO.CC/EN/GUIDE/WINDOWS](https://www.arduino.cc/en/Guide/windows)

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

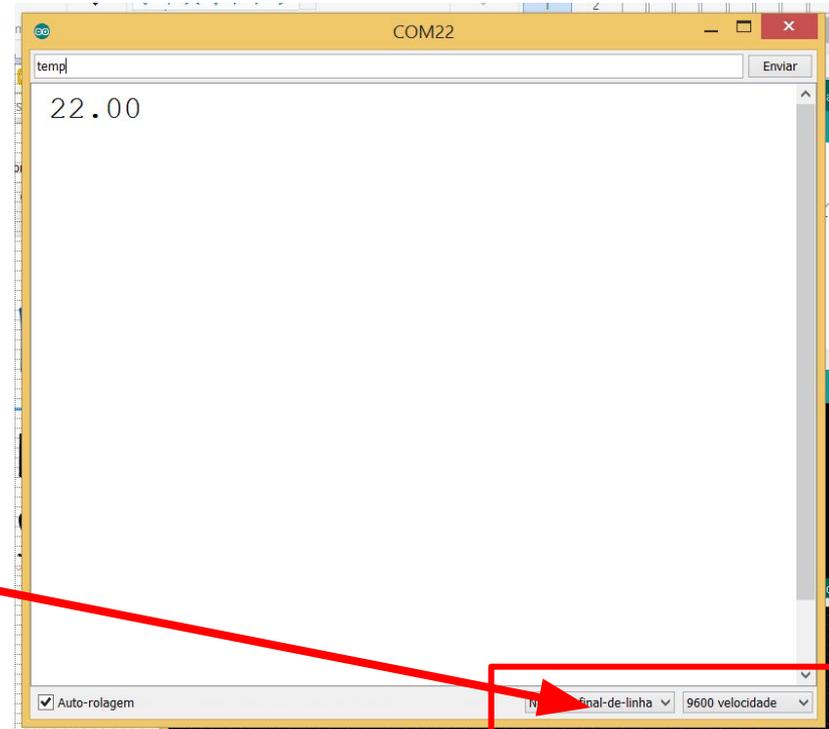
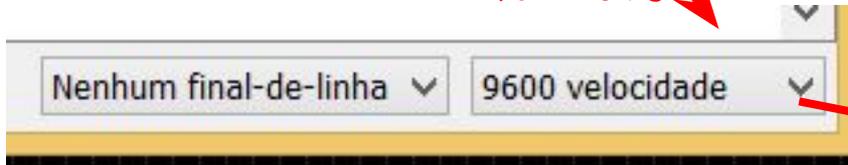
- SET OF COMMANDS TO READ A SENSOR OR CONTROL YOUR SURFBOARD!
- TO COMMUNICATE WITH THE SURFBOARD THROUGH THE SERIAL PORT, OPEN THE SERIAL MONITOR ARDUINO.



# SERIAL MONITOR CONFIGURATION

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

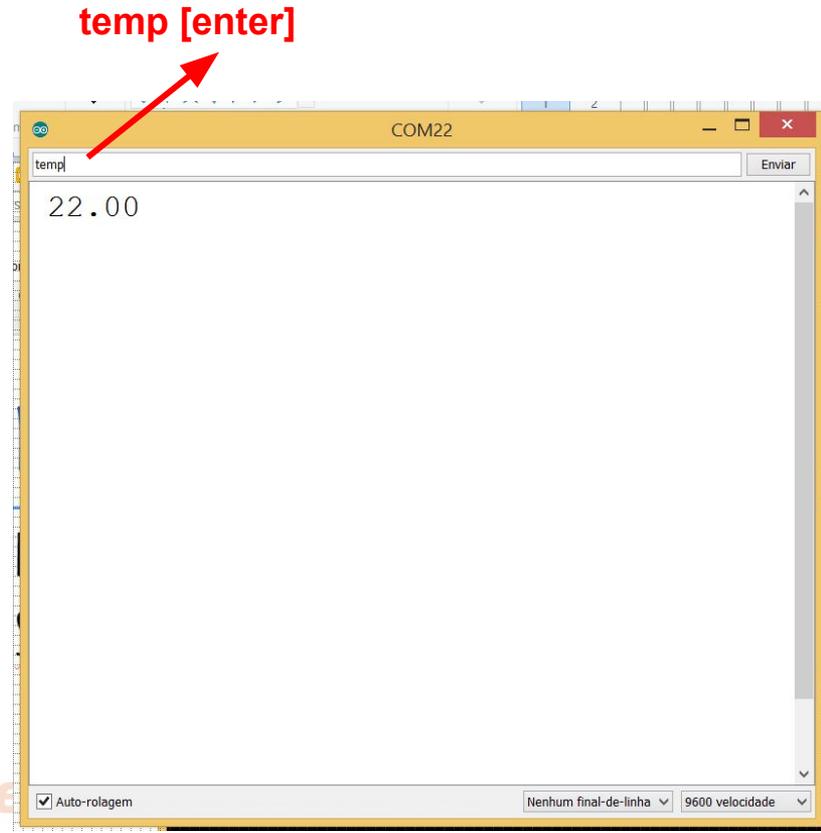
9600 BPS →



# USING THE SURFING PROTOCOL ON THE SERIAL MONITOR

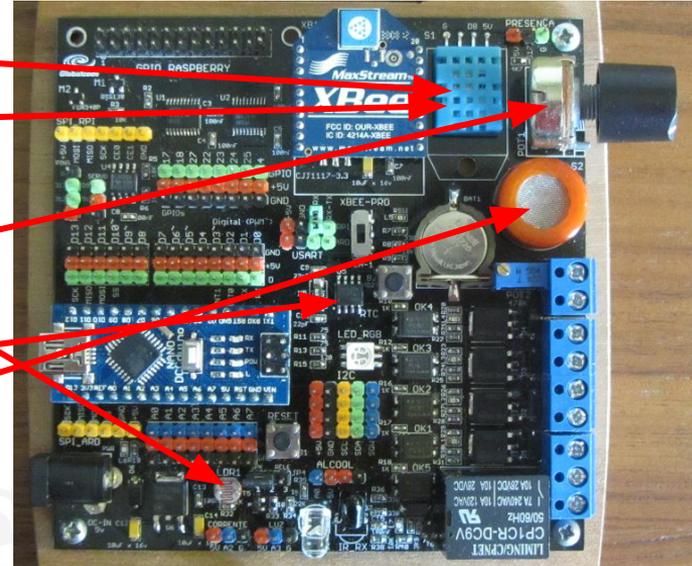
ON THE SERIAL MONITOR YOU CAN TYPE ANY OF THE COMMANDS THAT ARE PART OF THE SURFING PROTOCOL.

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



# SURFING PROTOCOL: READING SENSORS

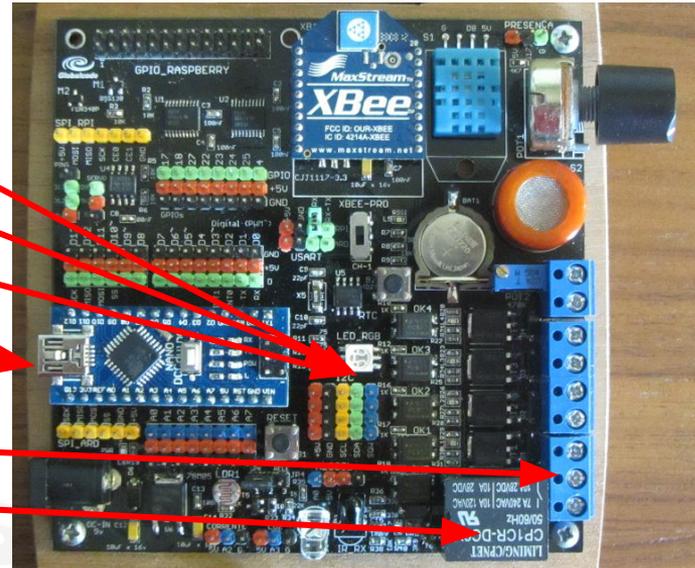
Command	Sensor
temp	temperature
humidity	humidity
light	light
pot	potentiometer
clock	date and time
alcohol	alcohol sensor



# 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
?		The IoT Surfboard describes its resources
??		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

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

Command	Sensor
temp	temperature
humidity	humidity
light	light
pot	potentiometer
clock	date and time
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!  
Globalcode