



Globalcode

INTRODUCTION TO IOT SURFBOARD



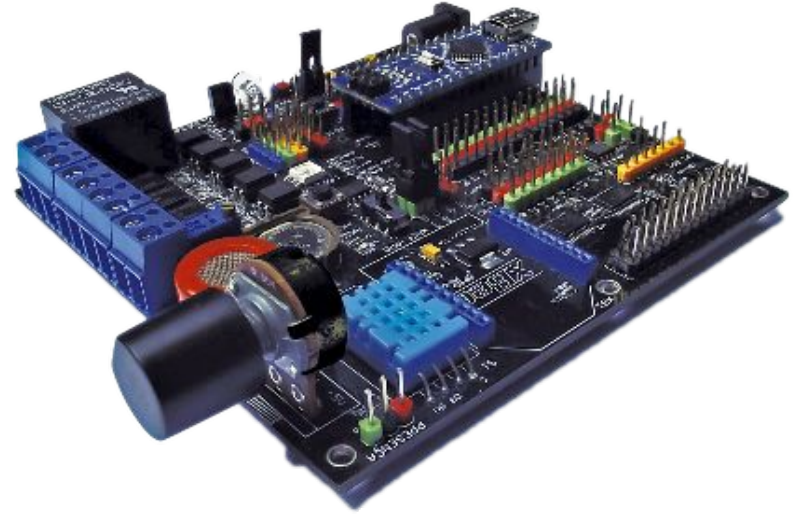
FILES FOR THIS CLASS

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


□ PRESENTATION: IOT_SURFING_CLASS_2_EN.PDF



IOT SURFBOARD IS SWISS ARMY FOR INTERNET OF THINGS



IOT SURFBOARD: 20 ITEMS FOR INTERNET OF THINGS PROJECTS!

 Voltage Level Converter:
UART / I2C / SPI

 Raspberry Pi
Integration

 ZigBee Connector
Exclusive ESP8266
WIFI Bee **INCLUDED!**

 Temperature
Humidity Sensor

Connector for ultrasonic
sensor and servo-motor
(sensor & servo not included)

Serial Connector: GPRS,
GPS, NFC, RFID

 Action button


 Arduino Nano

 LED RGB

 Buzzer

 Light Sensor LDR


 Infra-red Emitter
and Receiver

 Connector for
Pyro sensor

 Potentiometer

 Gas Sensor Connector

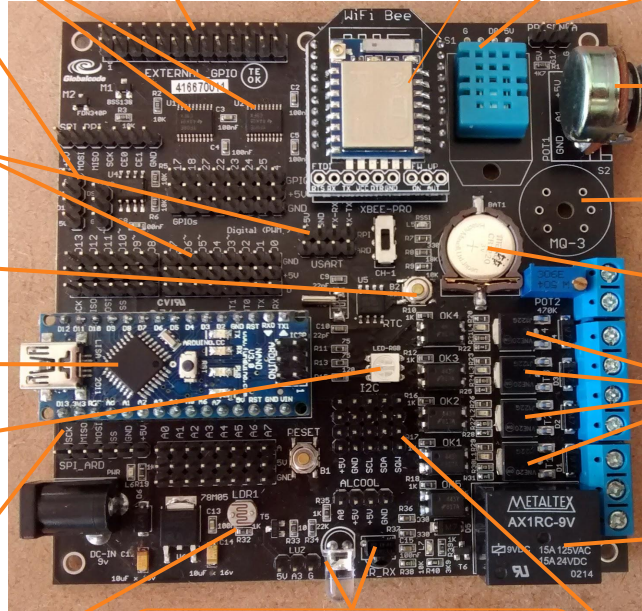
 Real-time Clock

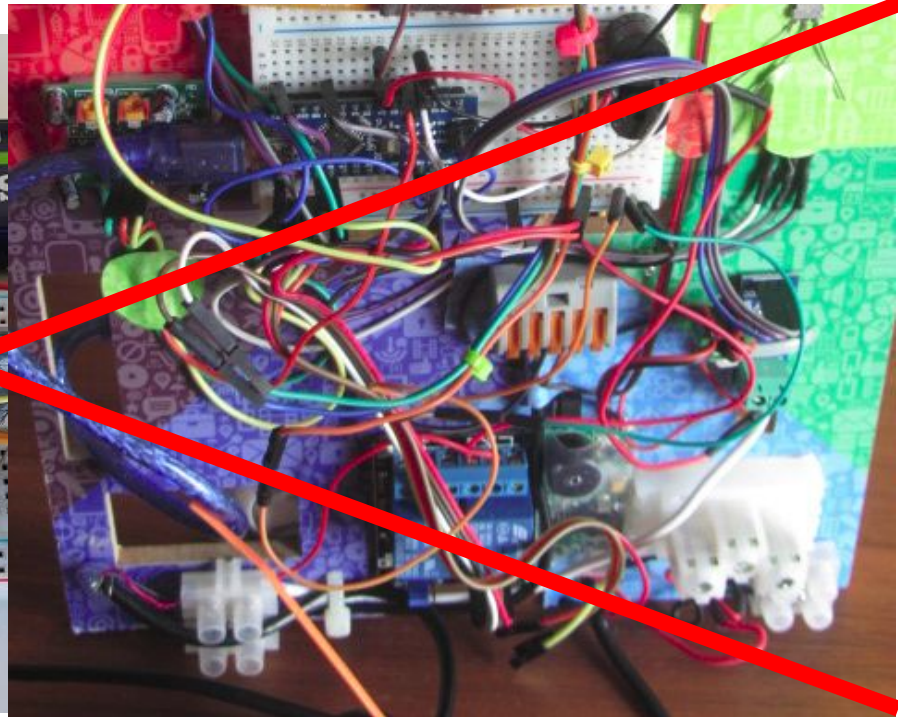
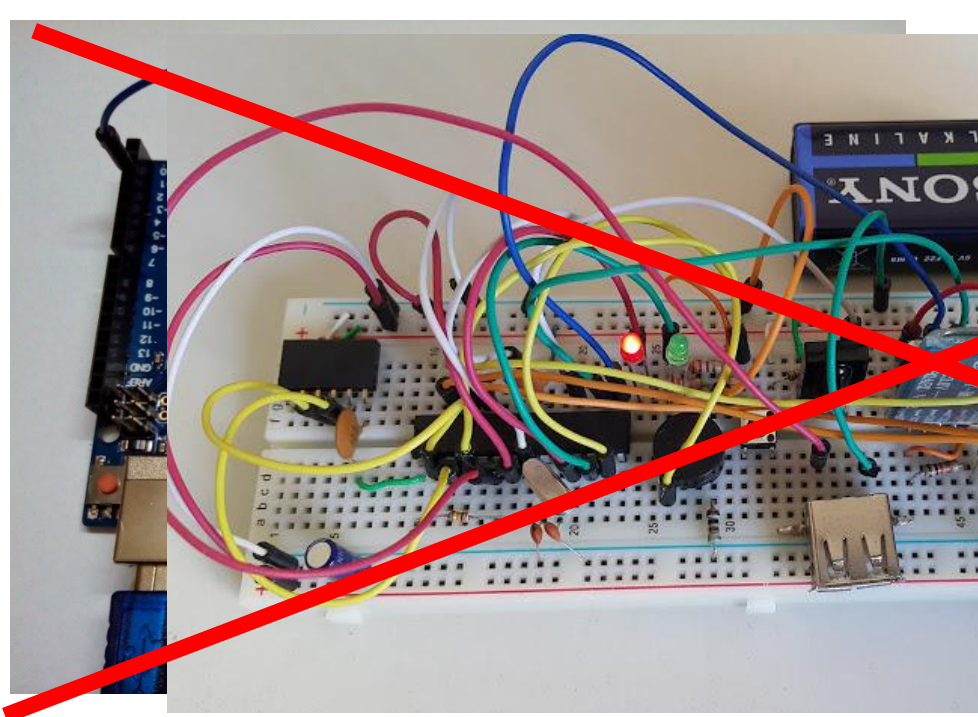
 4 PWM Transistors

 Relay with
Current Sensor

 I2C Hub

**sensors not included
for items in red**

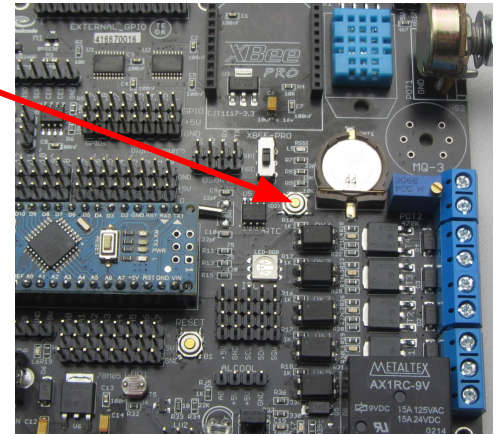




IOT SURFBOARD: BREADBOARDLESS PROTOTYPING

- ★ WE DESIGNED THE IOT SURFBOARD FOR BEGINNERS AND ADVANCED PROFESSIONALS WHO WANT TO CREATE COMMERCIAL PROJECTS
- ★ PLUG AND PLAY: PRE-PROGRAMMED ARDUINO FIRMWARE ALLOWS YOU USE YOUR DEVICE WITHOUT INSTALLING ANY SOFTWARE!

JUST POWER ON YOUR DEVICE AND START PLAYING
USING ACTION BUTTON TO SWITCH MODES!



FOR BEGINNERS

★ THOSE WHO LIKE TECHNOLOGY AND
WANT TO IMPLEMENT YOUR OWN IDEAS
FOR THE INTERNET OF THINGS EVEN
WITHOUT PROGRAMMING KNOWLEDGE



★ THE IOT SURFBOARD IS PERFECT FOR
THOSE WHO WANT TO LEARN TO PROGRAM
IN A FUN, PRACTICAL AND EFFICIENT
WAY!



FOR DEVELOPERS

★ SURFBOARD CAN BE USED BY ANY DEVELOPER: JAVA, JAVASCRIPT, PYTHON, C# OR ANY OTHER WHO WANT TO SURF THE INTERNET OF THINGS!

```
        'role_id' => $role_details['id'],  
        'resource_id' => $resource_details['id']  
    );  
    $this->rule_exists( $resource_details['id'], $role_details['id'], $access ) {  
        // Remove the rule as there is currently no rule  
        $details['access'] = !$access;  
        $this->sql->delete( 'acl_rules', $details );  
    } else {  
        // Update the rule with the new access value  
        $this->sql->update( 'acl_rules', array( 'access' => $access )  
        foreach( $this->rules as $key => $rule ) {  
            if ( $details['role_id'] == $rule['role_id'] ) {  
                if ( $access == false ) {  
                    unset( $this->rules[ $key ] );  
                } else {  
                    $this->rules[ $key ]['access'] = $access;  
                }  
            }  
        }  
    }  
}
```



FOR EXPERTS IN ELECTRONICS

- ★ IOT SURFBOARD ALLOWS CONNECTION TO HUNDREDS OF ADDITIONAL COMPONENTS SUCH AS DISPLAY, SENSORS AND ACTUATORS ALLOWING YOU TO CHANGE THE DEFAULT CODE (IT'S OPEN SOURCE!), AND MUCH MORE!

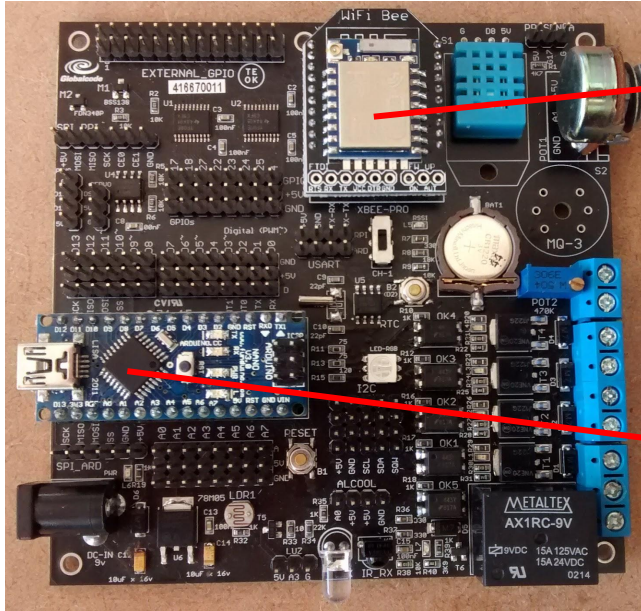


TECHNICAL SPECIFICATIONS:

FUTURE-PROOF

- ★ BASED ON ARDUINO NANO FORM FACTOR
- ★ BASED ON ZIGBEE FORM FACTOR
- ★ SENSORS AND ACTUATORS WORKING TOGETHER
- ★ GPIO CONNECTORS
- ★ ONBOARD INTEGRATION WITH RASPBERRY PI, EDISON, GEMALTO CONCEPT BOARD AND MANY OTHER SINGLE-BOARD COMPUTERS
- ★ 7 YEARS RESEARCHING AND DEVELOPING THIS PROJECT

DUAL MCU: ATMEGA328 + ESP8266



Wifi Bee w/ ESP8266

WIFI Communication ready for ThingSpeak.com Sparkfun Data, IFTTT, firmware can be replaced by MQTT + REST gateway.

+

Arduino w/ Atmega328

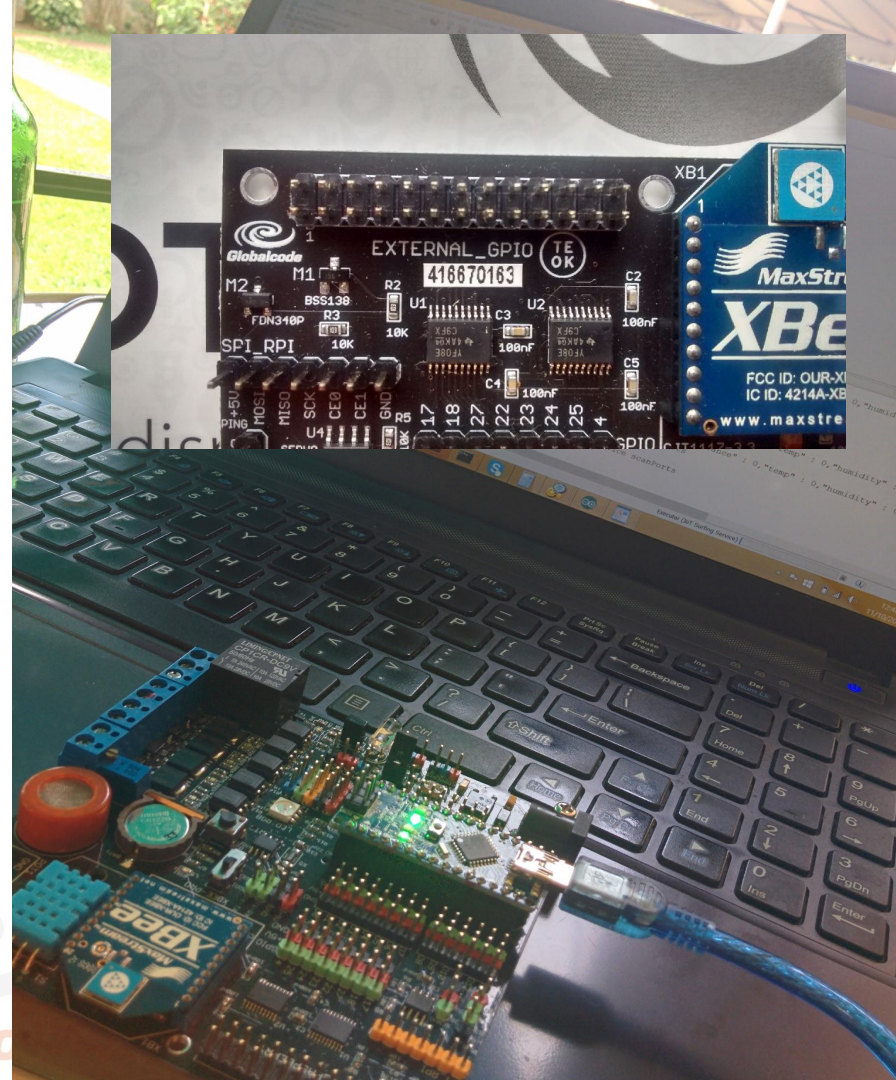
Dedicated controller to manage actuators and sensors provides communication abstraction for USB Cable, Bluetooth, WIFI, Zigbee and 2g / 3g Modems.

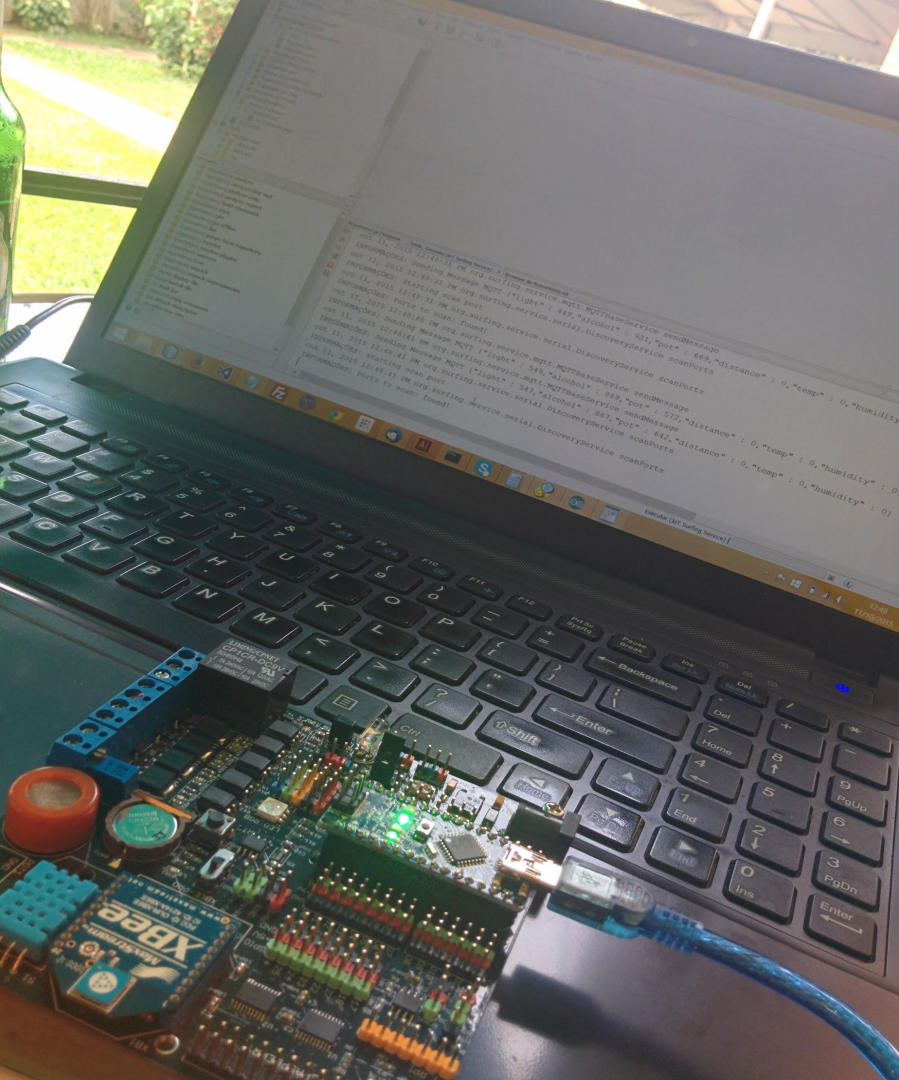
Internet

REST
MQTT
ThingSpeak
Sparkfun Data
ifttt.org
NodeRed
IBM Bluemix
Amazon IoT

IT'S NOT JUST A BOARD

- ☐ ARDUINO FIRMWARE
- ☐ SERIAL PROTOCOL , MQTT AND REST
- ☐ IOT SURFING SERVICE
- ☐ JAVA API
- ☐ SUPPORTS WIFI, XBEE, BT, 2G E 3G





BEYOND THE BOARD

□ INTEGRATION WITH :

MINECRAFT

INTEL REALSENSE CAMERA

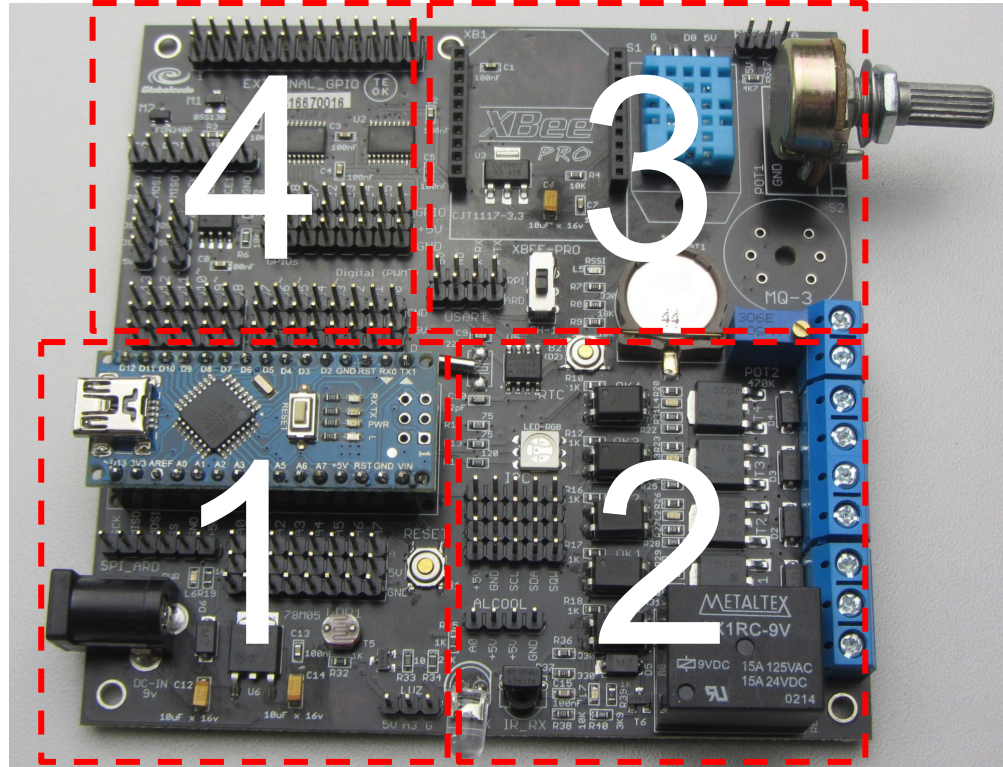
IBM BLUEMIX,

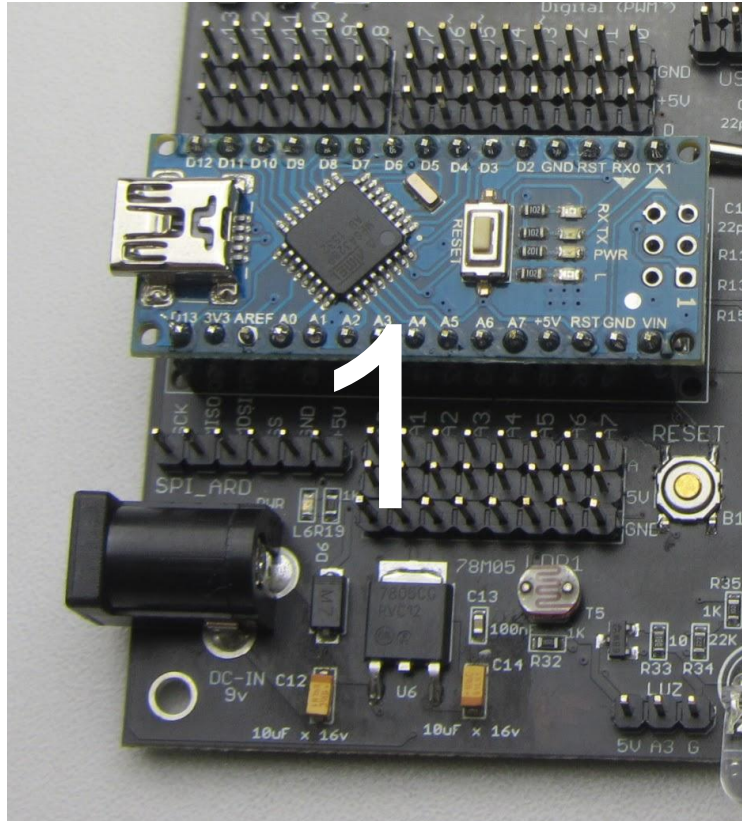
ANDROID

□ WEBINARS AND ONLINE TRAINING

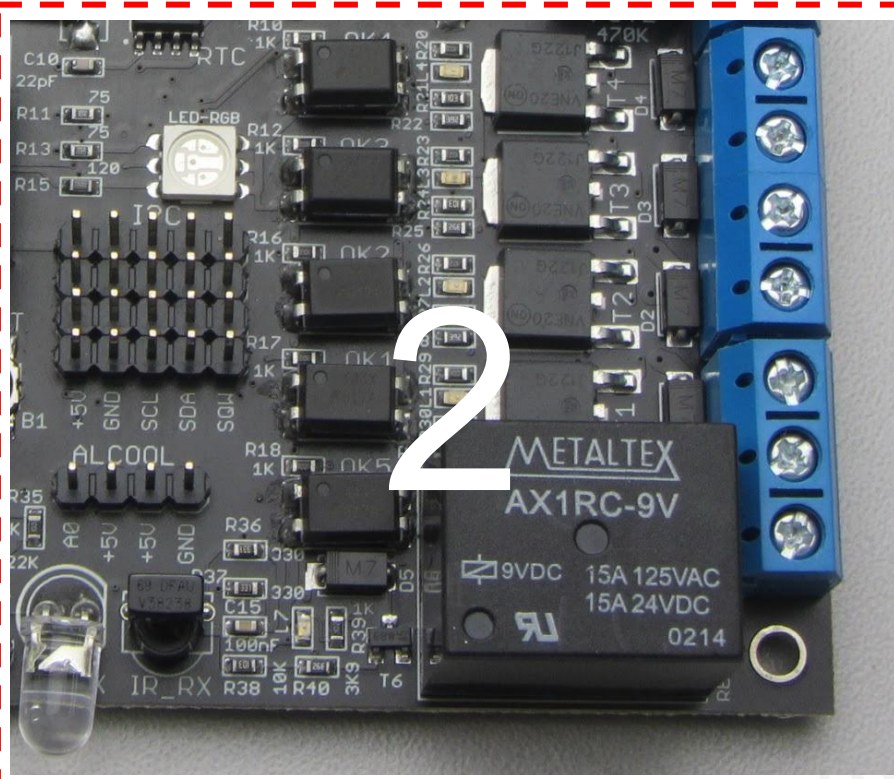
□ FORUM AND WIKI

KNOWING THE IOT SURFBOARD

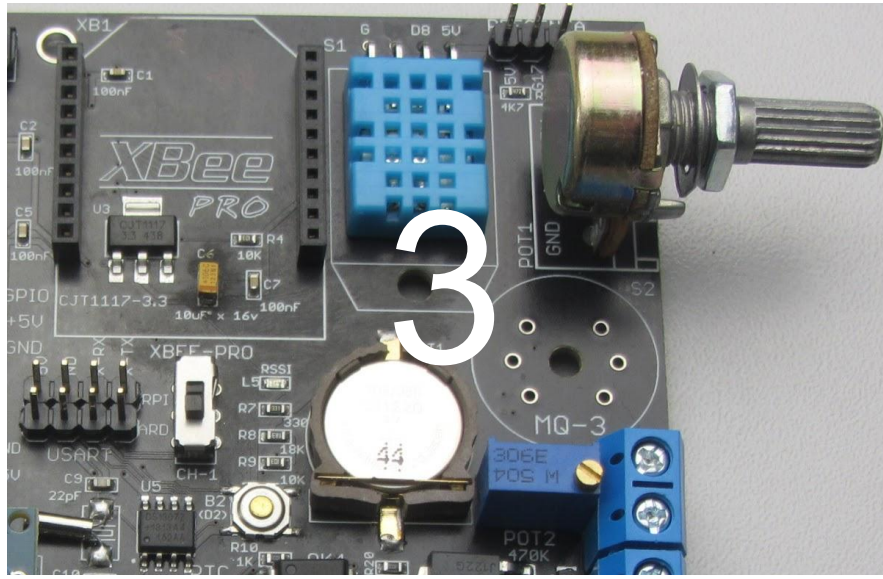




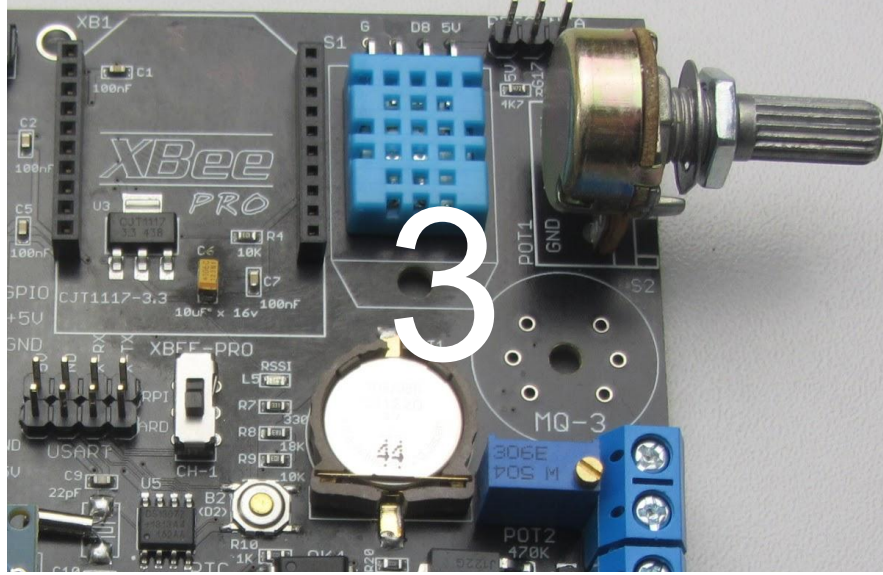
- ☐ ARDUINO NANO
- ☐ RESET BUTTONS
- ☐ DIGITAL AND ANALOG PINS
- ☐ EXTERNAL POWER
- ☐ VOLTAGE REGULATOR
- ☐ LDR SENSOR AND EXTERNAL CONNECTOR
- ☐ SPI ARDUINO CONNECTOR



- ☐ 4 TRANSISTORS AND TERMINALS
- ☐ 1 RELAY AND TERMINALS
- ☐ INFRARED TRANSMITTER & RECEIVER
- ☐ ALCOHOL SENSOR CONNECTOR
- ☐ LED RGB
- ☐ I2C PINS



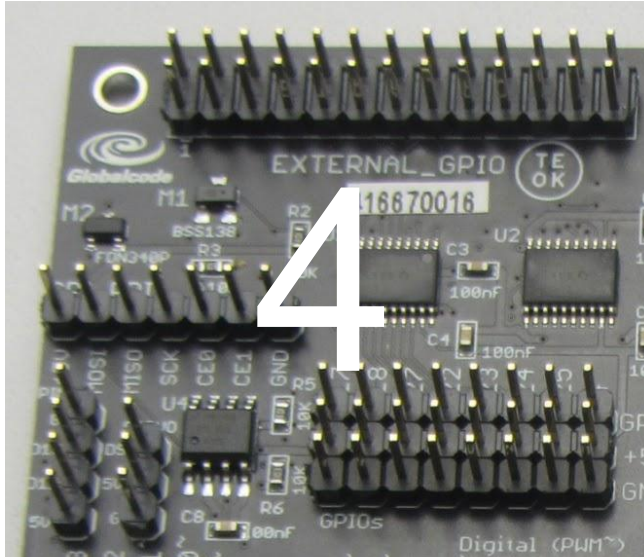
- ☐ POTENTIOMETER
- ☐ SENSOR TEMPERATURE AND HUMIDITY
- ☐ CONNECTOR FOR GAS SENSOR (MQ) AND THE ADJUSTMENT TRIMPOT
- ☐ REAL TIME CLOCK E BATTERY
- ☐ ACTION BUTTON



- ☐ ZIGBEE CONNECTOR
- ☐ SELECTOR SWITCH ARDUINO / RASPI
- ☐ SERIAL CONNECTOR
- ☐ PRESENCE SENSOR CONNECTOR (PIOR SENSOR)

(GOES TO THE GENERIC GPIO OR RASPI!)

4

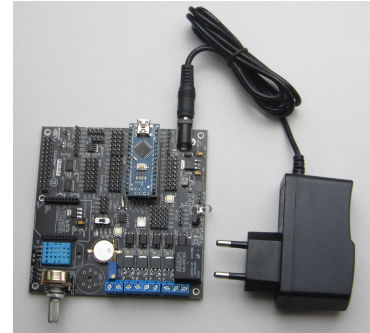
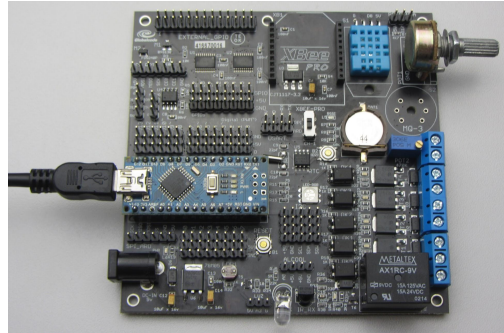


- ☐ GENERIC INTEGRATION GPIO
- ☐ EXTERNAL GPIO COMPATIBLE WITH COM RASPBERRY PI
- ☐ SPI CONNECTOR FOR RASPBERRY PI
- ☐ LOGIC LEVEL CONVERTERS
- ☐ CONNECTORS FOR SERVO AND SONAR

TURNING ON THE IOT SURFBOARD

HOW TO ENERGIZE YOUR SURFBOARD:

1. VIA USB
2. POWER SUPPLY
3. BOTH!



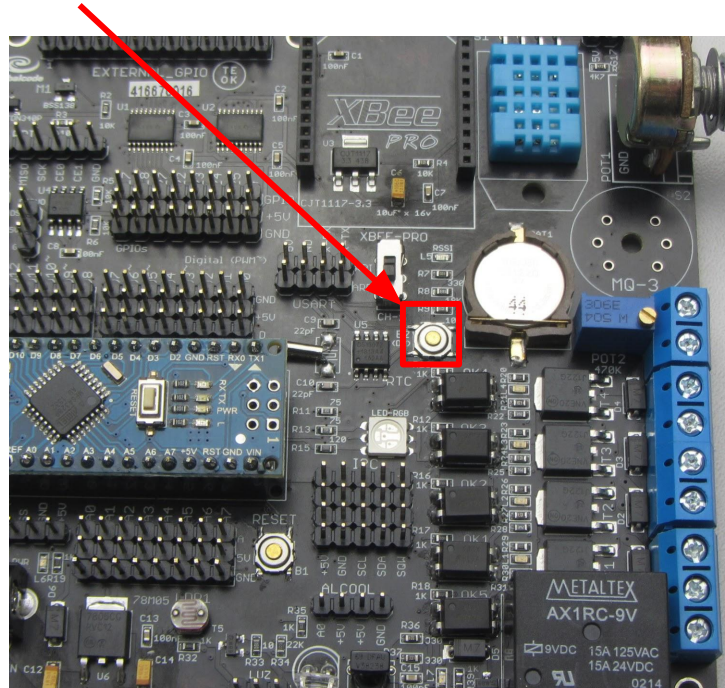
6 BUILT-IN FUNCTIONALITIES

- ☐ MODE 0: WAIT REMOTE COMMANDS
- ☐ MODE 1: RGB LED
- ☐ MODE 2: ACTIVATES SPEAKER AND RELAY ACCORDING TO THE LIGHT SENSOR
- ☐ MODE 3: ACTIVATES SPEAKER AND RELAY ACCORDING TO THE TEMPERATURE SENSOR
- ☐ MODE 4: ACTIVATES SPEAKER AND RELAY ACCORDING TO THE HUMIDITY SENSOR
- ☐ MODE 5: CHANGES THE RGB LED ACCORDING TO THE ALCOHOL SENSOR



CHANGING THE BOARD OPERATION MODE

PRESS THE ACTION BUTTON AND THE NUMBER OF BEEPS YOU HEAR WILL INDICATE THE MODE:



LIVE DEMOS



SUMMARY

- ❑ IOT SURFBOARD IS A **SWISS ARMY** FOR ELECTRONICS
- ❑ IOT SURFBOARD COMES WITH **6 MODES** THAT ALLOWS YOU TO HAVE THE **FIRST INTERACTION BY JUST TURNING THE BOARD ON.**
- ❑ YOU CAN POWER YOUR SURFBOARD VIA **USB CABLE** OR **9-VOLTS** POWER SUPPLY



YOUR THINGS CONNECTED TO THE INTERNET WITH IOT SURFBOARD!

