

# **Desenvolvimento de aplicativo de controle automatizado no processo de produção de cerveja artesanal**

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**Universidade Regional Integrada do Alto Uruguai e das Missões -  
Campus Erechim**

**Jackson Felipe Magnabosco**

**Orientador: Neilor Tonin**

# Só é sexta-feira após o primeiro copo de cerveja

(Tenório Cavalcanti)





# Introdução

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**Era da Conectividade.**

**Tecnologia a nosso favor.**

**Cerveja artesanal e seu mercado competitivo.**

**Ranking mundial de produção de cerveja artesanal.**

**Auxiliar o pequeno produtor.**

**Aplicação de tecnologias modernas.**



# Materials

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- **Hardware**

**Sensor DS18B20**

**Módulo ESP8266**

**BreadBoard**

- **Software**

**Flutter**

**Firebase**

**OneSignal**





# Flutter

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Google



Dart

HYBRID APP

# Flutter

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**Multiplataforma.**

**Fácil aprendizado.**

*Dart Virtual Machine.*

**Arquitetura em C++.**

*Just in Time.*

**Performance e limitação.**

*Widgets.*





# Flutter


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## HTML/CSS

```
<div class = "greybox" >  
  Lorem ipsum  
</div>  
  
.greybox {  
  background-color: #e0e0e0;  
  width: 320px;  
  height: 240px;  
  font: 900 24px Georgia;  
}
```

## Flutter

```
var container = Container(  
  child: Text(  
    "Lorem ipsum",  
    style: TextStyle(  
      fontSize: 24.0  
      fontWeight: FontWeight.w900,  
      fontFamily: "Georgia",  
    ),  
  ),  
  width: 320.0,  
  height: 240.0,  
  color: Colors.grey[300]  
);
```



# Firestore

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Firestore





# Firestore

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**Orientado a documentos.**

**Padrão JSON.**

**Melhor performance com grandes volumes de dados.**

**Linguagem de consulta simples.**



# Firebase

The screenshot displays the Firebase console interface. The breadcrumb navigation at the top shows the path: Home > places > gwRDFIEdlCEBtruTLZIN. The interface is divided into three main sections:

- Left Panel (Database Structure):** Shows a tree view of the database. The 'places' collection is selected and highlighted. Other collections visible include 'coupons', 'orders', 'products', 'temperature', and 'users'.
- Middle Panel (Collection Overview):** Displays the 'places' collection. It includes a '+ Adicionar documento' button and a list of documents. The document 'gwRDFIEdlCEBtruTLZIN' is selected and highlighted, with a right-pointing arrow indicating it can be viewed in detail.
- Right Panel (Document Details):** Shows the details for the selected document 'gwRDFIEdlCEBtruTLZIN'. It includes a '+ Adicionar coleção' button and a list of fields. The fields are: 'address' (Rua Comendador Caetano Munareto, 110), 'cep' (99711278), 'city' (Erechim), 'lat' (-27.6357597), 'long' (-52.2812656), 'phone' ((54)984354004), and 'title' (Cervejaria Velha Guarda).



# OneSignal

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# OneSignal

# OneSignal

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**Impulsionar push móvel.  
Integração com Flutter e  
Firebase.**





## New Message

### 1. Audience

- ☒ Send to Subscribed Users  
☐ Send to Particular Segment(s)

### 2. Message

[Add Languages](#)




TITLE

Ultima Stout !

MESSAGE

A cerveja stout está prestes a acabar

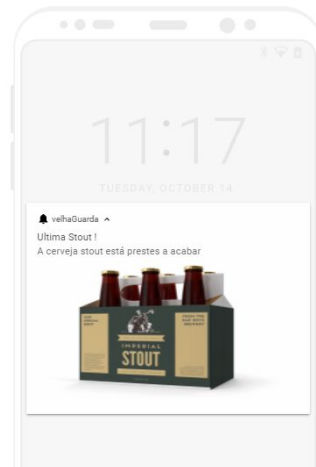
IMAGE

[+ Upload](#)

LAUNCH URL




http://bit.ly/abc



## Messages

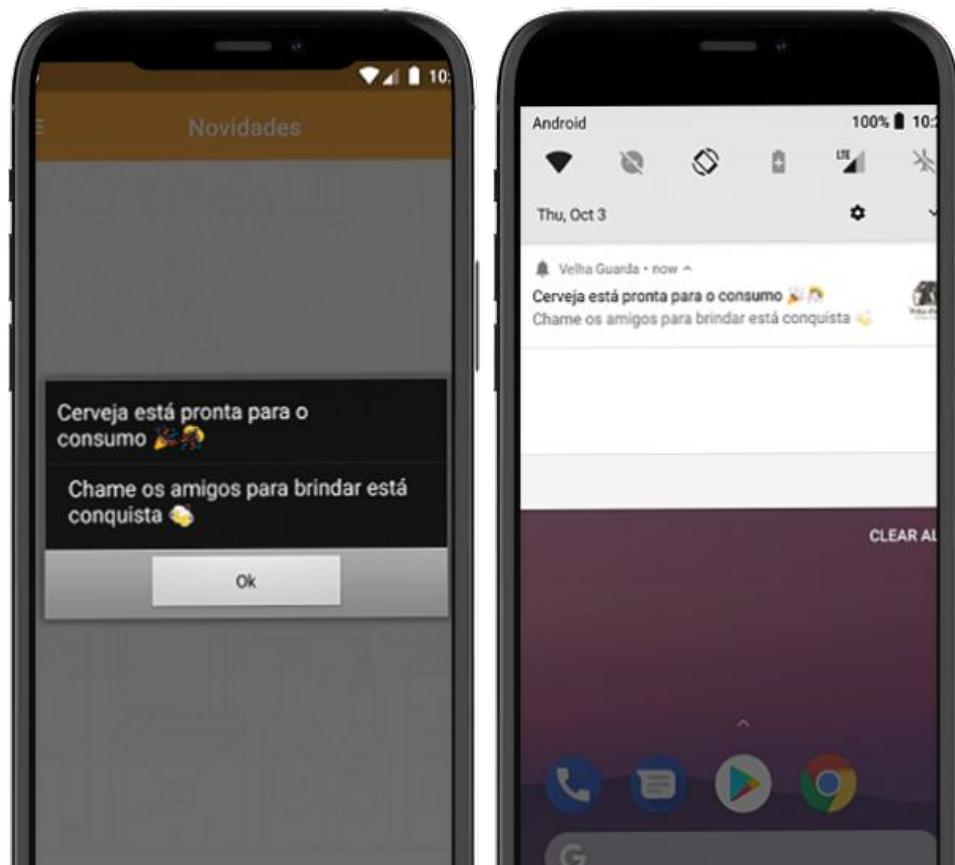
[+ New Push](#) ▾

[Messages](#) ▾ [See All Messages](#)

 <b>A cerveja stout está prestes a acabar</b> <span>Scheduled</span> 11/06/20, 4:14:32 pm	0 Sent	N/A Clicked	<a href="#">⋮</a>
 <b>Chame os amigos para brindar está conquista 🥳</b> <span>Delivered</span> 10/03/19, 11:27:00 am	2 Sent	50.00 % Clicked	<a href="#">⋮</a>
 <b>Chame os amigos para brindar está conquista 🥳</b> <span>Delivered</span> 10/03/19, 11:26:06 am	2 Sent	50.00 % Clicked	<a href="#">⋮</a>

Messages sent through our API or WordPress Plugin can be found in Delivery.

# OneSignal



# MÓDULO WIFI ESP8266 NODEMCU V3 CP2102 ESP-12E



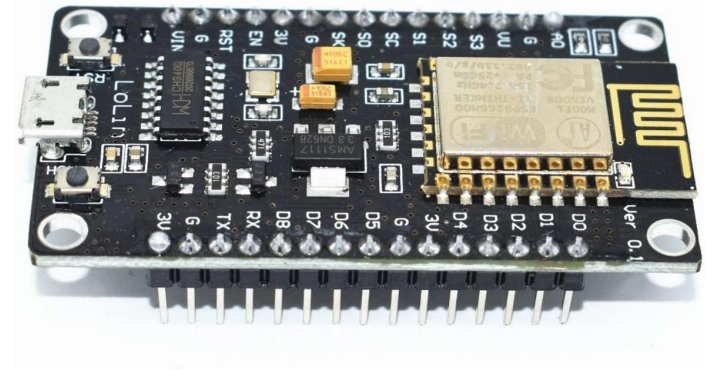


# MÓDULO WIFI ESP8266 NODEMCU V3 CP2102 ESP-12E

Placa de desenvolvimento. 🛠️

Esp8266 📶

Potencial maior que do  
Arduino.

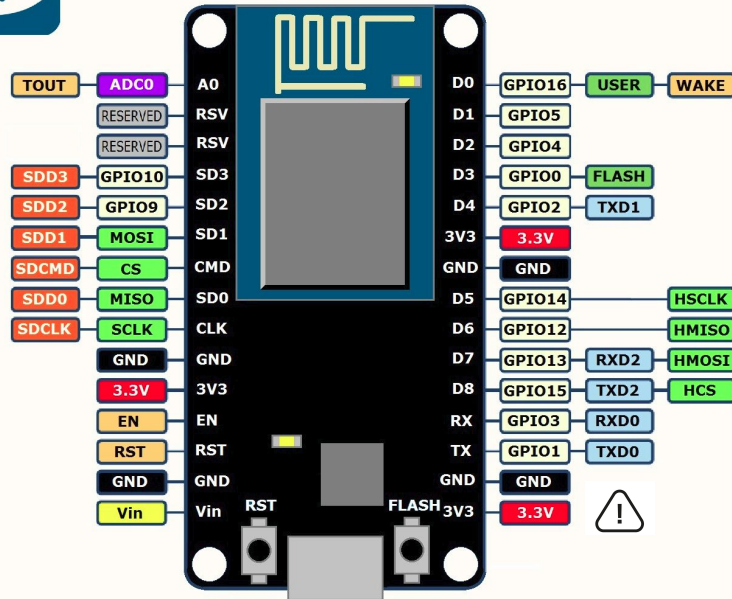


# MÓDULO WIFI ESP8266 NODEMCU V3 CP2102 ESP-12E



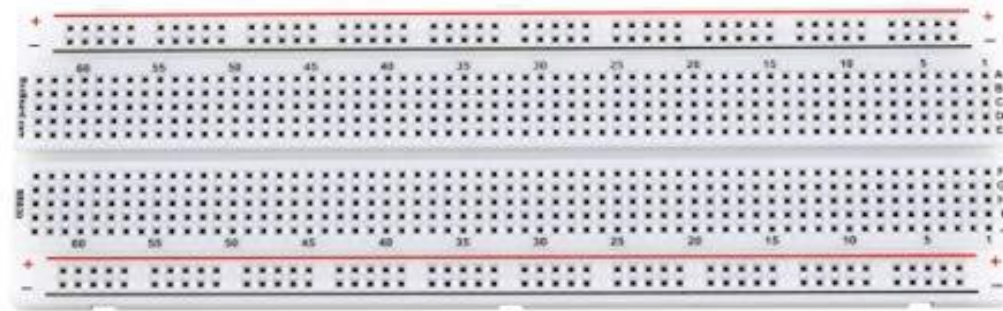
## NodeMCU ESP-12 development kit V1.0

### PIN DEFINITION



# BreadBoard

Alojar e interconectar componentes



# Sensor DS18B20

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**DALLAS**  
Instruments

# Sensor DS18B20

---

**Termometro digital.**

**Calcula temperatura de  $-55^{\circ}\text{C}$  até  $125^{\circ}\text{C}$ .**

**Ótima compatibilidade com o módulo Esp8266.**

**Utiliza o protocolo One Wire.**



# Produção



# Automação





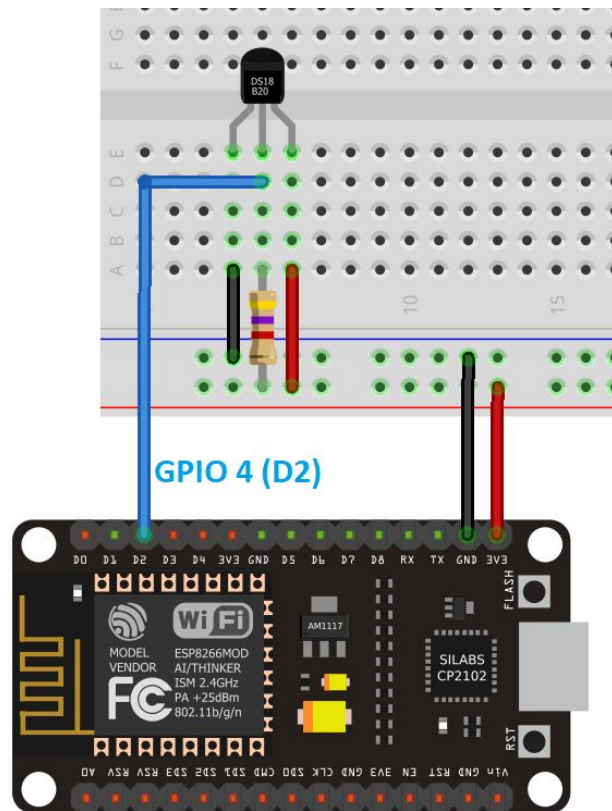
# Automação

O sensor dispõe de três fios.

**Preto** que vai ser unido ao GND.

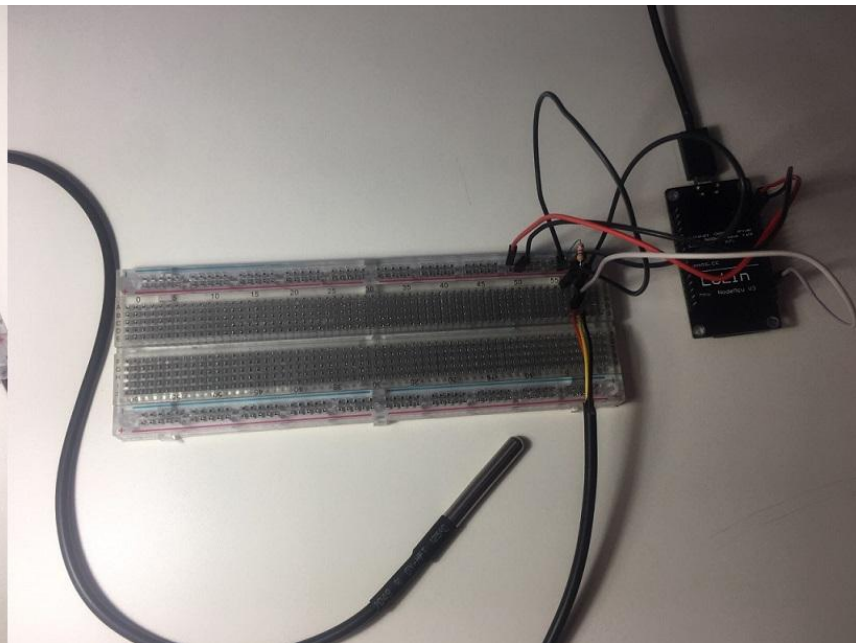
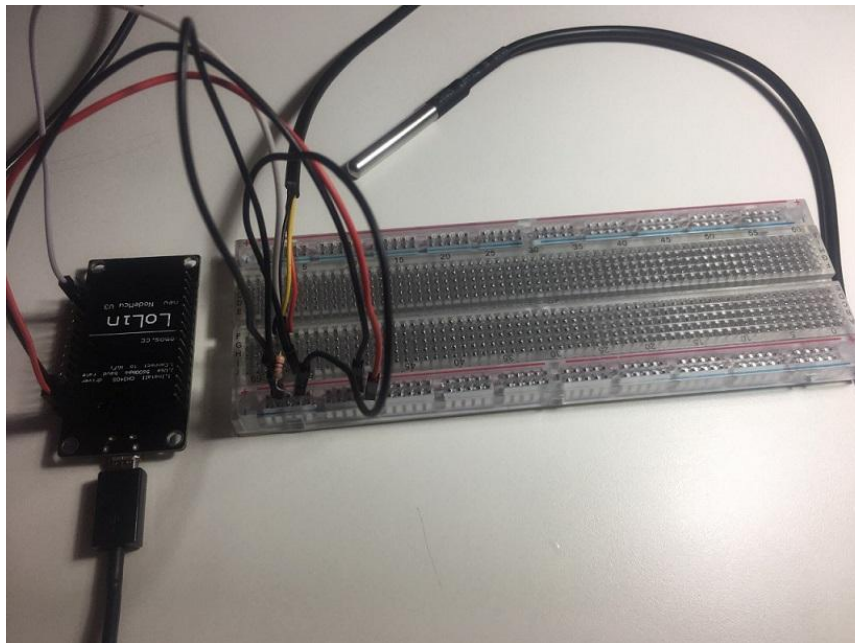
**Vermelho** que vai ser unido ao 3v3.

**Azul** que vai ser unido ao pino digital D2.





# Automação



# Automação

```
1 #include <ESP8266WebServer.h>
2 #include <OneWire.h>
3 #include <DallasTemperature.h>
4 #include <FirebaseArduino.h>
5
6 const int oneWireBus = 4;
7 OneWire oneWire(oneWireBus);
8 DallasTemperature sensors(&oneWire);
9 #define FIREBASE_HOST "https://velha-guarda.firebaseio.com/"
10 #define FIREBASE_AUTH "SB4ahzKID0hbPgTtKp7PMQGH10r11"
11
12 float tempSensor1;
13
14 uint8_t sensor1[8] = {0x28, 0xEE, 0xD5, 0x64, 0x1A, 0x16, 0x02, 0xEC};
15 /*Put your SSID & Password*/
16 const char* ssid = "Net Virtua 67"; // Enter SSID here
17 const char* password = "3511598700"; //Enter Password here
18
19 ESP8266WebServer server(80);
20
21 void setup() {
22     // Start the Serial Monitor
23     Serial.begin(115200);
24     // Start the DS18B20 sensor
25     sensors.begin();
26
27     Serial.println("Connecting to ");
28     Serial.println(ssid);
29
30     //connect to your local wi-fi network
31     WiFi.begin(ssid, password);
```

```
32
33     //check wi-fi is connected to wi-fi network
34     while (WiFi.status() != WL_CONNECTED) {
35         delay(1000);
36         Serial.print(".");
37     }
38     Serial.println("");
39     Serial.println("WiFi connected..!");
40     Serial.print("Got IP: "); Serial.println(WiFi.localIP());
41
42     server.on("/", handle_OnConnect);
43     server.onNotFound(handle_NotFound);
44
45     Firebase.begin(FIREBASE_HOST, FIREBASE_AUTH);
46     server.begin();
47     Serial.println("HTTP server started");
48 }
49
50 void loop() {
51     server.handleClient();
52     sensors.requestTemperatures();
53     float temperatureC = sensors.getTempCByIndex(0);
54     Serial.print(temperatureC);
55     Serial.println("°C");
56     delay(5000);
57 }
58
59 void handle_OnConnect() {
60     sensors.requestTemperatures();
61     tempSensor1 = sensors.getTempCByIndex(0);
62     server.send(200, "text/html", SendHTML(tempSensor1));
```

# Automação

```
63 void loop() {
64   server.handleClient();
65   sensors.requestTemperatures();
66   float temperatureC = sensors.getTempCByIndex(0);
67   Serial.print(temperatureC);
68   Serial.println("°C");
69   delay(5000);
70 }
71
72 void handle_OnConnect() {
73   sensors.requestTemperatures();
74   tempSensor1 = sensors.getTempCByIndex(0);
75   server.send(200, "text/html", SendHTML(tempSensor1));
76 }
77
78 void handle_NotFound() {
79   server.send(404, "text/plain", "Not found");
80 }
81
82 String SendHTML(float tempSensor1) {
83   String ptr = "<!DOCTYPE html>";
84   ptr += "<html>";
85   ptr += "<head>";
86   ptr += "<title>Monitor de temperatura</title>";
87   ptr += "<meta charset='UTF-8' />";
```

```
88   ptr += "<meta name='viewport' content='width=device-width, initial
89         -scale=1.0'>";
90   ptr += "<link href='https://fonts.googleapis.com/css?family=Open+Sans
91         :300,400,600' rel='stylesheet'>";
92   ptr += "<link rel='icon' href='favicon.ico' type='image/x-icon'>";
93   ptr += "<style>";
94   ptr += "html { font-family: 'Open Sans', sans-serif; display: block;
95         margin: 0px auto; text-align: center; color: #444444; }";
96   ptr += "body { margin-top: 50px; }";
97   ptr += "h1 { margin: 50px auto 30px; }";
98   ptr += ".side-by-side { display: table-cell; vertical-align: middle
99         ; position: relative; }";
100  ptr += ".text { font-weight: 600; font-size: 19px; width: 200px; }";
101  ptr += ".temperature { font-weight: 300; font-size: 50px; padding-right:
102        15px; }";
103  ptr += ".living-room .temperature { color: #F29C1F; }";
104  ptr += ".superscript { font-size: 17px; font-weight: 600; position:
105        absolute; right: -5px; top: 15px; }";
106  ptr += ".data { padding: 10px; }";
107  ptr += ".container { display: table; margin: 0 auto; }";
108  ptr += ".icon { width: 82px; }";
109  ptr += "</style>";
110  ptr += "</head>";
111  ptr += "<body>";
112  ptr += "<h1>Monitor de temperatura</h1>";
113  ptr += "<div class='container'>";
114  ptr += "<div class='data living-room'>";
115  ptr += "<div class='side-by-side icon'>";
```

# Automação



The image shows a screenshot of a terminal window titled "COM4". The window has a standard Windows-style title bar with minimize, maximize, and close buttons. Below the title bar is a text input field and an "Enviar" (Send) button. The main area of the window displays the following text:

```
....  
WiFi connected..!  
Got IP: 192.168.0.36  
HTTP server started  
77.00°C  
77.13°C  
77.13°C  
77.00°C  
76.88°C  
76.63°C  
76.50°C  
76.31°C  
75.94°C  
75.63°C
```

At the bottom of the window, there is a status bar with several controls:

- On the left, two checkboxes: ☒ Auto-rolagem and ☐ Show timestamp.
- In the center, a dropdown menu labeled "Nova-linha" with a downward arrow.
- To the right of the dropdown, another dropdown menu showing "115200 velocidade" with a downward arrow.
- On the far right, a button labeled "Deleta a saida".



# Automação

← → × ⚠ Não seguro | 192.168.0.36

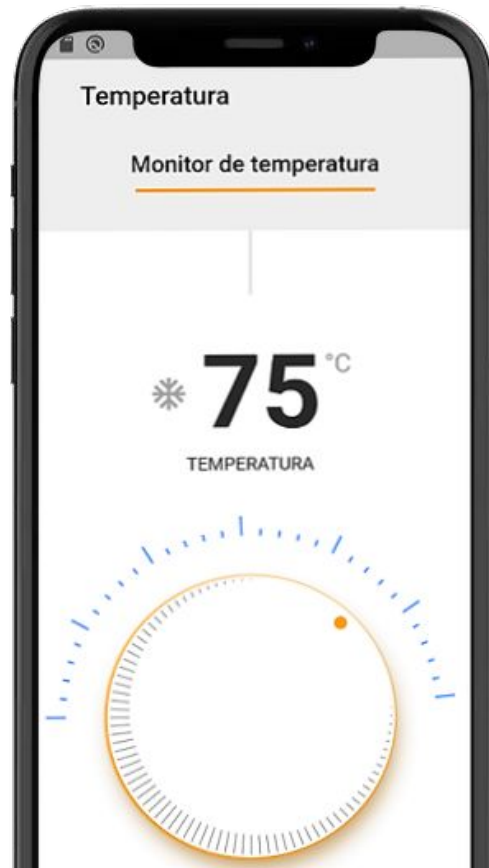
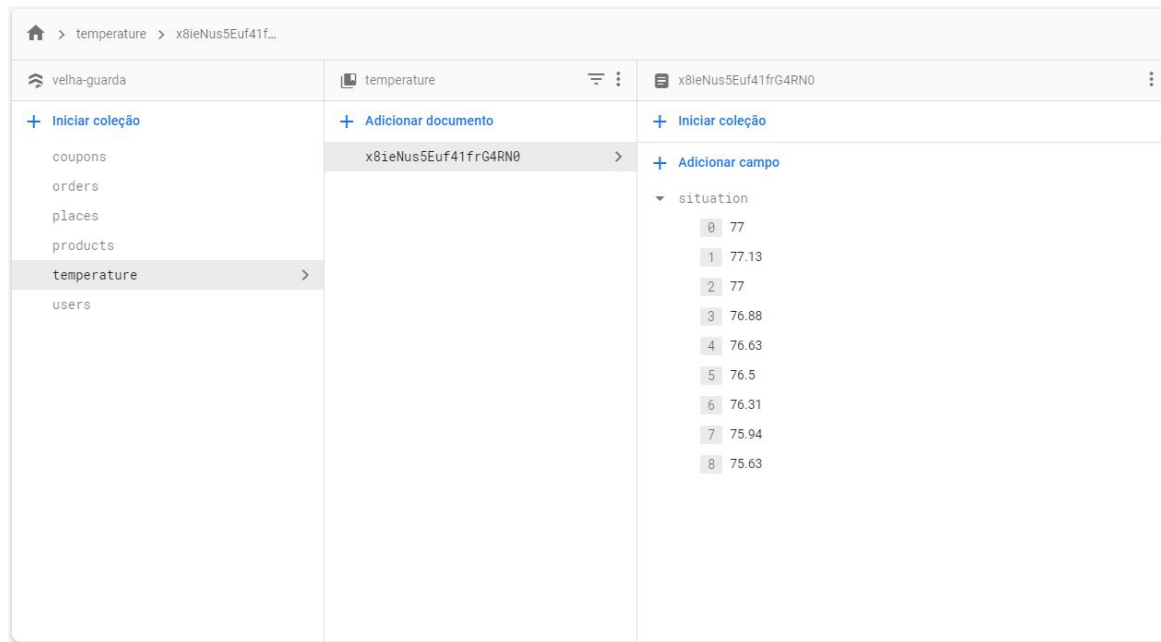
## Monitor de temperatura



Rampas de  
temperatura

75°C

# Aplicativo



# Demonstração

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# Animações

← → ↺ rive.app/a/jacksonn123/files/recent/all



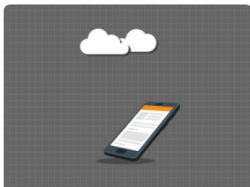
Jackson Felipe Magnabosco

@jacksonn123

<https://jacksonn455.github.io/>

<https://jacksonn455.github.io/>

Public Files Following Followers Likes



products



Jackson Felipe Magnabosco

0 0 0 11

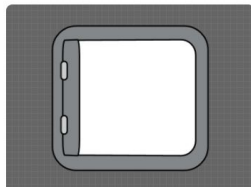


carteira



Jackson Felipe Magnabosco

0 0 0 15



door



Jackson Felipe Magnabosco

0 0 0 45

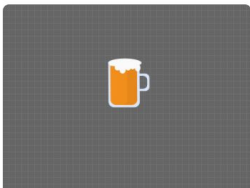


beer8



Jackson Felipe Magnabosco

2 0 0 142

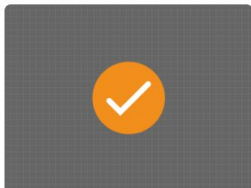


beer3



Jackson Felipe Magnabosco

0 0 0 66



ok8



Jackson Felipe Magnabosco

0 0 0 22

beer8

DESIGN

ANIMATE

HIERARCHY

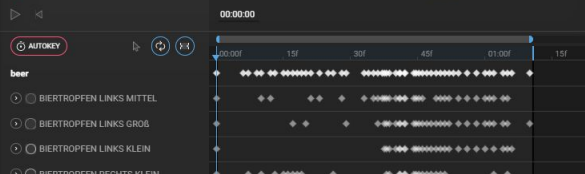
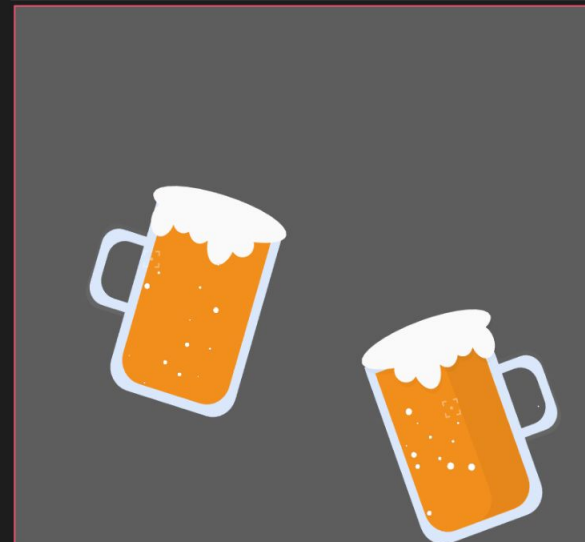
DRAW ORDER

Artboard

- BIERTROPFEN LINKS MITTEL
- BIERTROPFEN LINKS GROß
- BIERTROPFEN LINKS KLEIN
- BIERTROPFEN RECHTS KLEIN
- BIERTROPFEN RECHTS GROß
- BIERTROPFEN RECHTS MITTEL
- BIER SCHATTEN GROß
- Group
- Gruppe 245
- Group
- Gruppe 245
- Ellipse

ANIMATIONS

beer





# Produto Rótulo

## *Belgian Dark Strong Ale*

### *Ingredientes*

Água  
malte de cevada  
lúpulo  
levedura

### *Vol / alc*

600 ml • 12%

### *Fabricado*

Julho de 2020

### *Validade*

Dezembro de 2021

### *Fabricado em Erechim*

#### ALÉRGICOS:

CONTÉM DERIVADOS DE  
CEVADA, PODE CONTER  
TRIGO, AVEIA E CENTEIO

CONSERVAR AO ABRIGO DO SOL  
EM LOCAL SECO E AREJADO  
NÃO CONGELAR



## Velha Guarda



# Produto Pasteurizado



# Produto Final





# Conclusão

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**Acervo tecnológico.**

**Vantagens do desenvolvimento híbrido.**

**Aprofundamento de conhecimento em Flutter.**



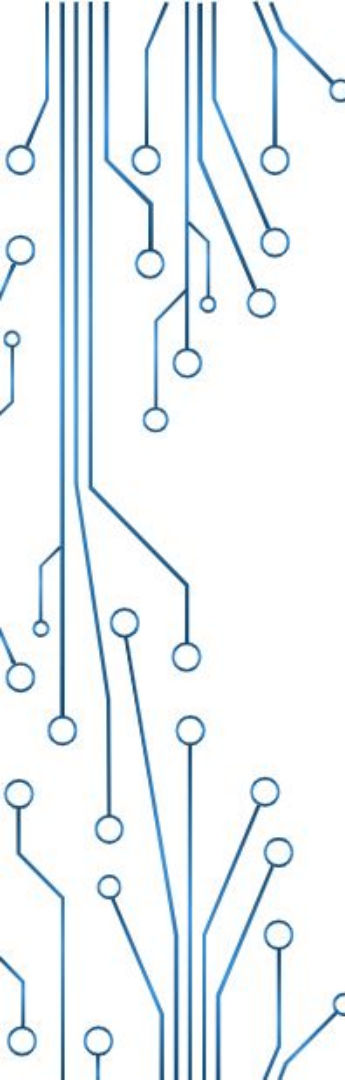
# Trabalhos Futuros

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**Fluxo de caixa completo com parcelamento e lançamento de nota fiscal eletrônica.**

**Implementar mais sensores.**

**Publicar na App Store e na Google Play.**



# **Desenvolvimento de aplicativo de controle automatizado no processo de produção de cerveja artesanal**

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