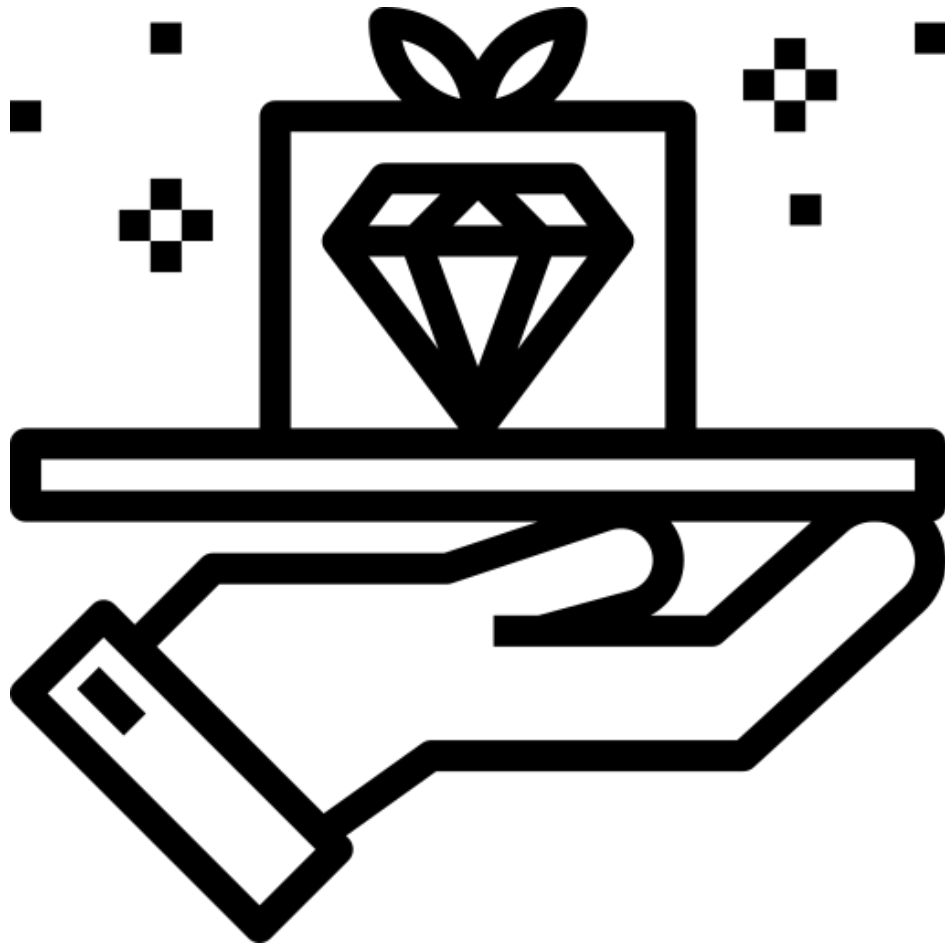

Hardware hacking with your Rails app

Ramón Huidobro



@SenorHuidobro



Takeaway.io

Takeaway.io

Catering

Takeaway.io

Catering

Cafeteria lunch
for workers in the
industrial areas

Takeaway.io

Catering

Cafeteria lunch
for workers in the
industrial areas

Restaurant

Takeaway.io

Catering

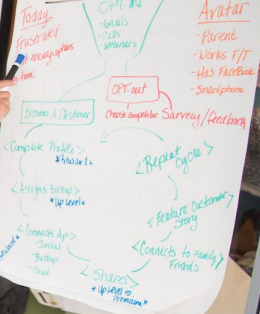
Cafeteria lunch
for workers in the
industrial areas

Restaurant





Customer Journey









Project Hairnet



1. Scan chip card
2. Place orders
3. Get food
4. Nom







Imagine what you could build if you learned Ruby on Rails...

Learning to build a modern web application is daunting. Ruby on Rails makes it much easier and more fun. It includes **everything you need** to build fantastic applications, and **you can learn it** with the support of **our large, friendly community**.



Latest version — Rails 5.2.2 released December 4, 2018

Requirements

- Hardware





Software

- **Ubuntu 16.04**
- **Chromium**



Requirements

- Hardware
- Security



Caps Lock

Page
Down

Ctrl

Enter

D

K

Alt

S

M

V

Y

\$
4

8

@

P

!

U

Ctrl

*

5

Q

Ins

X

↑

&

a

M

C

↩

↩

```
$ chromium-browser https://takeaway.io --start-fullscreen
```



```
$ chromium-browser https://takeaway.io --start-fullscreen
```



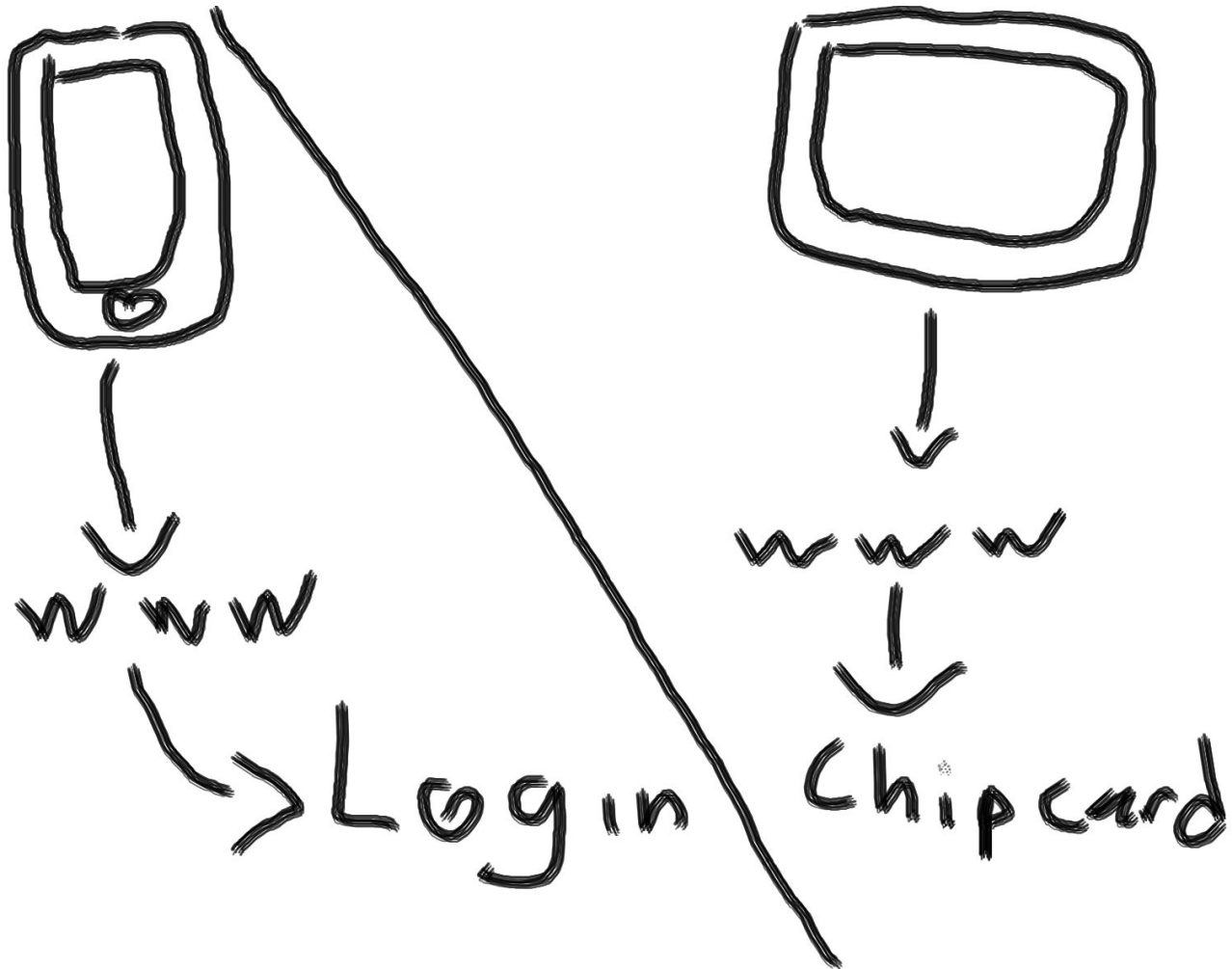






How to make an Ubuntu Kiosk

<https://obrienlabs.net/setup-kiosk-ubuntu-chromium/>



```
# application_controller.rb
```

```
before_action :check_kiosk_mode
```

```
def check_kiosk_mode
```

```
  token = request.env['HTTP_CHIP_AUTH_TOKEN']
```

```
  if token
```

```
    session[:chip_auth_token] = token
```

```
    session[:mode] = :kiosk
```

```
  end
```

```
end
```

```
# application_controller.rb
def is_in_kiosk_mode?
  session[:chip_auth_token] == 'SUPER_SECRET'
  && session[:mode] == :kiosk
end
```

```
# root_controller.rb
def index
  if is_in_kiosk_mode?
    render :kiosk_login
  else
    # Go to regular login
  end
end
end
```


How do we pass the header to our app?





ModHeader

Remove from Chrome

Offered by: <https://mod-header.appspot.com>

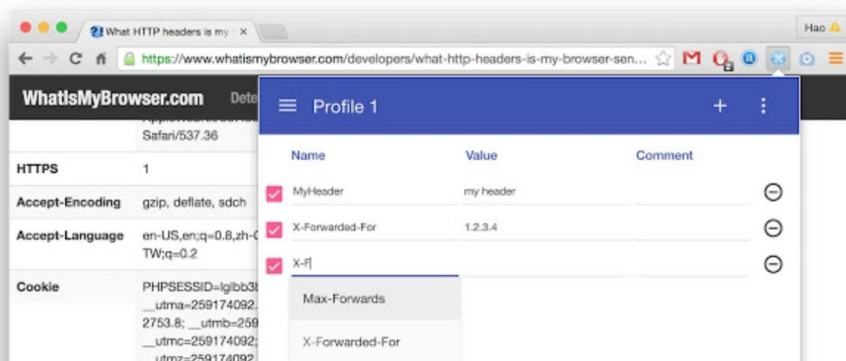
★★★★☆ 432 | [Developer Tools](#) | 👤 308,413 users

Overview

Reviews

Support

Related





Build cross platform desktop apps with JavaScript, HTML, and CSS

Releases

```
$ npm i -D electron@latest
# Electron 4.0.5
# Node 10.11.0
# Chromium 69.0.3497.106
```

```
$ npm i -D electron@beta
# Electron 5.0.0-beta.3
# Node 12.0.0
# Chromium 73.0.3683.27
```

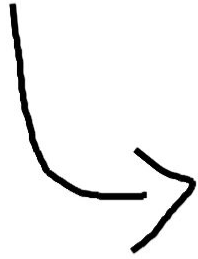
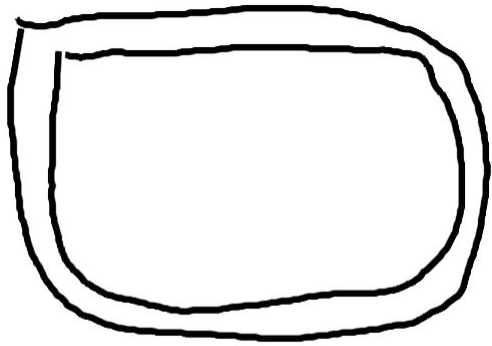
```
$ npm i -D electron-nightly
# Electron 6.0.0-nightly.201
# Node 12.0.0
# Chromium 72.0.3626.110
```

It's easier than you think

If you can build a website, you can build a desktop app. Electron is a framework for creating native applications with web technologies like JavaScript, HTML, and CSS. It takes care of the hard parts so you can focus on the core of your application.

[Watch the video](#)

```
// main.js  
win.setKiosk(true)  
win.loadURL("https://takeaway.io",  
  {  
    extraHeaders:  
      "KIOSK_MODE: 1\nCHIP_AUTH_TOKEN: SUPER_SECRET",  
  }  
);
```



www
+
token



welcome!
please
scan
card

Security Summary

- Impede tampering with Kiosk mode
- Restrict tampering with headers, Electron

Requirements

- Hardware
- Security
- Chipcard scan

Willkommen!

Bitte Chipkarte scannen

Sie haben eine Frage? Bitte rufen Sie uns unter 0676/9391843 an

[Datenschutzerklärung](#)

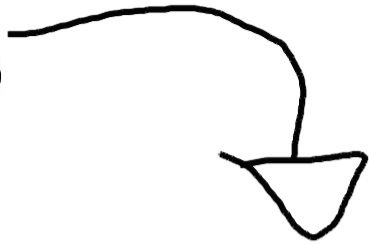




LEGIC[®]
advant innovation in ID technology

www.legic.com

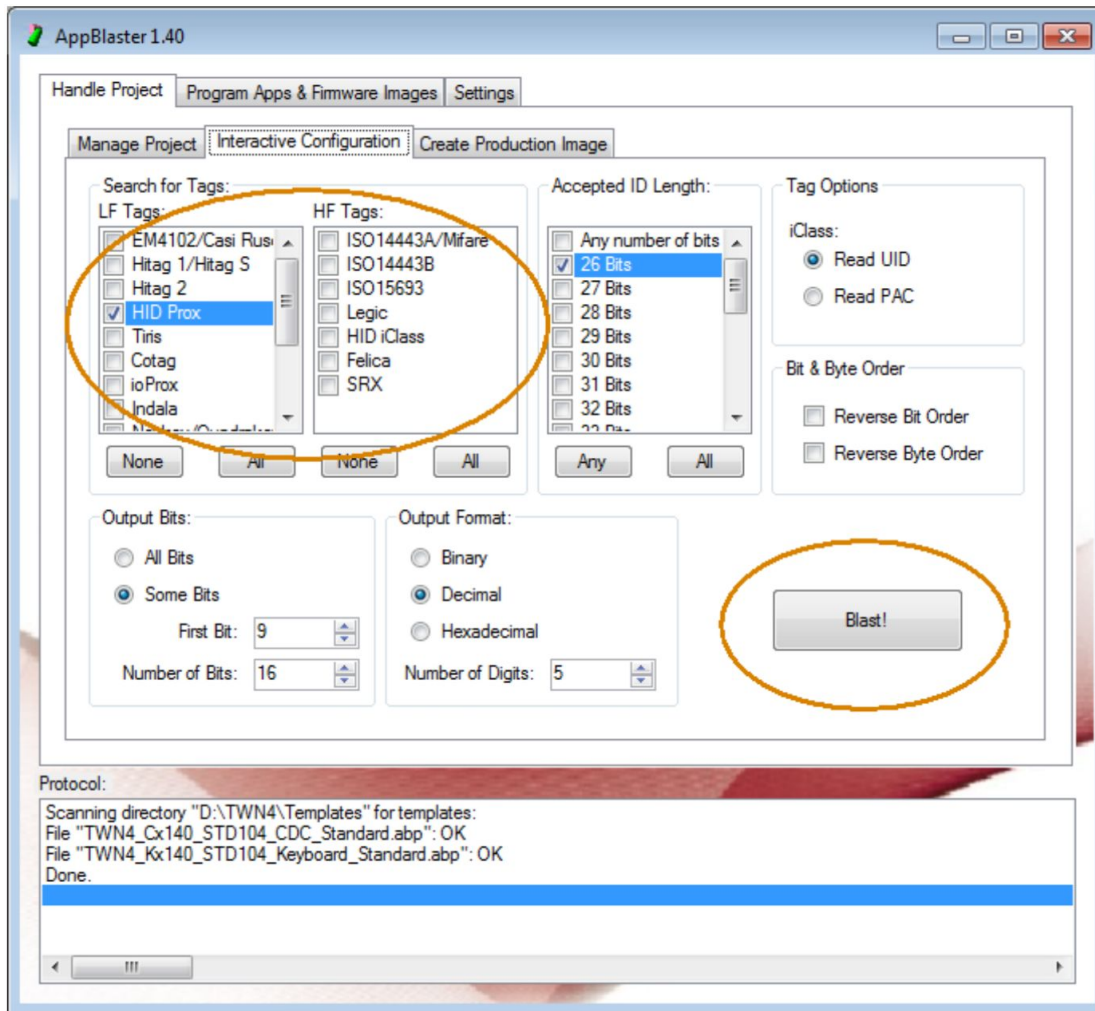
Ramon
H.



1234



Menu
mon Tues weds Thu Fri



```

#include <sys.twn.h>

const byte MAXIDBYTES = 8;
const byte MAXIDBITS = MAXIDBYTES*8;

byte ID[MAXIDBYTES];
byte IDBitCnt;
byte TagType;
secret byte Data[1] = {'1'};

byte LastID[MAXIDBYTES];
byte LastIDBitCnt;
byte LastTagType;

void main()
{
    // Make some noise at strtup at minimum volume
    Beep(BEEPSUCCESS);
    // Set maximum volume
    SetVolume(4);
    // A V24 device is sending the version at startup
    if (GetConnection() == V24)
    {
        HostSendVersion();
        HostSendChar('\r');
    }
    // Turn on green LED
    LEDSet(GREEN,ON);
    // Turn off red LED
    LEDSet(RED,OFF);
    // No transponder found up to now
    LastTagType = TAGTYPE_NONE;

    while (TRUE)
    {
        // Search a transponder
        if (TagSearch(ID,IDBitCnt,TagType))
        {
            // Is this transponder new to us?
            if (TagType != LastTagType || IDBitCnt != LastIDBitCnt || !CompBits(ID,LastID,MAXIDBITS))
            {
                // Save this as known ID, before modifying the ID for proper output format
                CopyBits(LastID,0,ID,0,MAXIDBITS);
                LastIDBitCnt = IDBitCnt;
                LastTagType = TagType;

                // Yes! Sound a beep
                Beep(BEEPHIGH);
                // Turn off the green LED
                LEDSet(GREEN,OFF);
                // Let the red one blink
                LEDSet(RED,BLINK);

                if (TagWrite(0x00,1,Data)) {
                    Beep(BEEPHIGH);
                    Beep(BEEPHIGH);
                    Beep(BEEPHIGH);
                }

                // Start a timeout of two seconds
                StartTimer(0,20);
            }
            if (TestTimer(0))
            {
                LEDSet(GREEN,ON);
                LEDSet(RED,OFF);
                LastTagType = TAGTYPE_NONE;
            }
        }
    }
}

```



**One
Eternity
Later**

```

#include <sys.twn.h>

const byte MAXIDBYTES = 8;
const byte MAXIDBITS = MAXIDBYTES*8;

byte ID[MAXIDBYTES];
byte IDBitCnt;
byte TagType;
secret byte Data[1] = {'1'};

byte LastID[MAXIDBYTES];
byte LastIDBitCnt;
byte LastTagType;

void main()
{
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            {
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                LastIDBitCnt = IDBitCnt;
                LastTagType = TagType;

                // Yes! Sound a beep
                Beep(BEEPHIGH);
                // Turn off the green LED
                LEDSet(GREEN,OFF);
                // Let the red one blink
                LEDSet(RED,BLINK);

                if (TagWrite(0x00,1,Data)) {
                    Beep(BEEPHIGH);
                    Beep(BEEPHIGH);
                    Beep(BEEPHIGH);
                }

                // Start a timeout of two seconds
                StartTimer(0,20);
            }
            if (TestTimer(0))
            {
                LEDSet(GREEN,ON);
                LEDSet(RED,OFF);
                LastTagType = TAGTYPE_NONE;
            }
        }
    }
}

```

```

#include <sys.twn.h>
const byte MAXIDBYTES = 8;
const byte MAXIDBITS = MAXIDBYTES*8;

byte ID[MAXIDBYTES];
byte IDBitCnt;
byte TagType;
secret byte Data[1] = {'1'};

byte LastID[MAXIDBYTES];
byte LastIDBitCnt;
byte LastTagType;

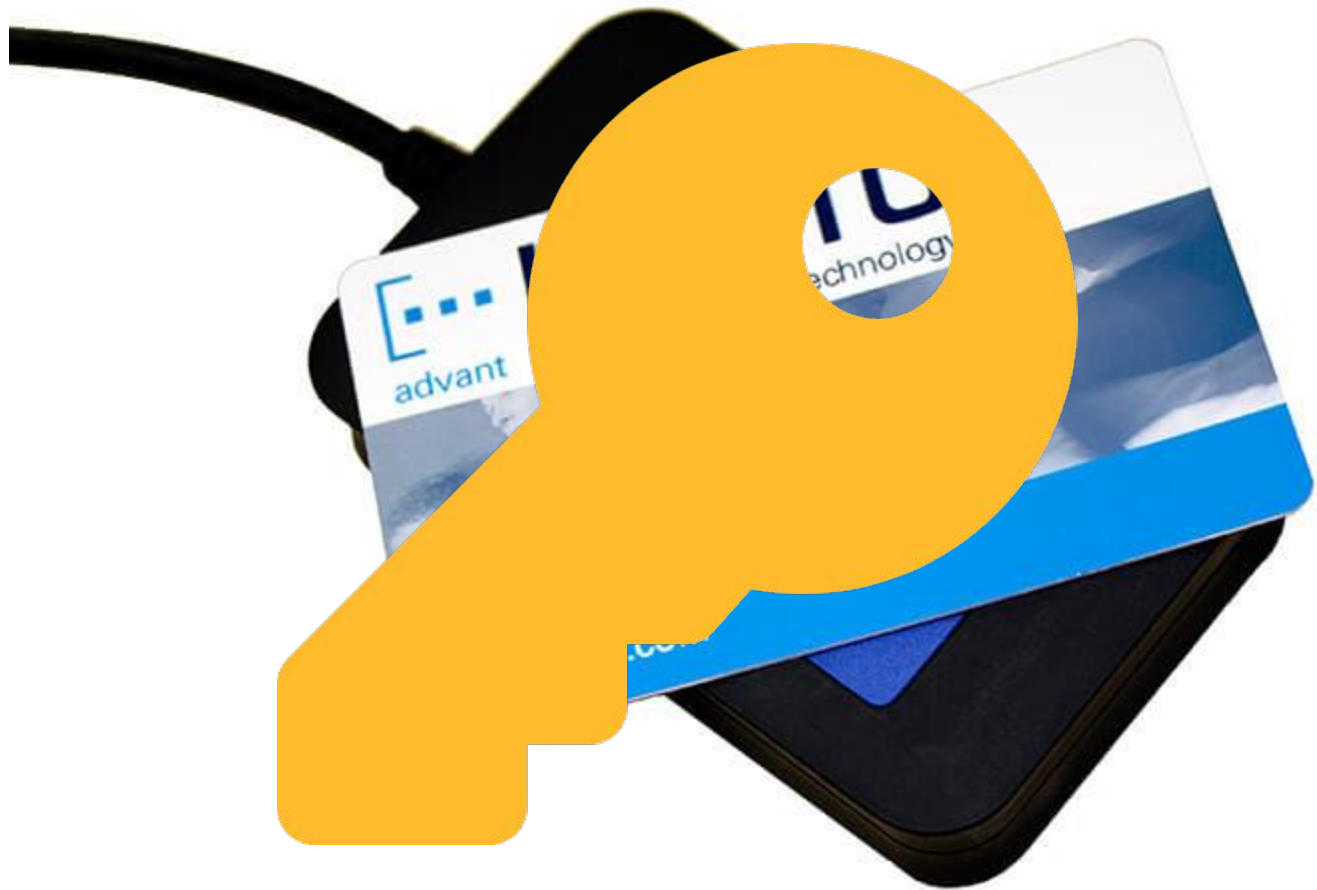
void main()
{
    // Make some noise at strtup at minimum volume
    Beep(BEEPSUCCESS);
    // Set maximum volume
    SetVolume(4);
    // A V24 device is sending the version at startup
    if (GetConnection() == V24)
    {
        HostSendVersion();
        HostSendChar('\r');
    }
    // Turn on green LED
    LEDSet(GREEN,ON);
    // Turn off red LED
    LEDSet(RED,OFF);
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            // Is this transponder new to us?
            if (TagType != LastTagType || IDBitCnt != LastIDBitCnt || !CompBits(ID,LastID,MAXIDBITS))
            {
                // Save this as known ID, before modifying the ID for proper output format
                CopyBits(LastID,0,ID,0,MAXIDBITS);
                LastIDBitCnt = IDBitCnt;
                LastTagType = TagType;
            }
        }
        if (TagWrite(0x00,1,Data)) {
            // Start a timeout of two seconds
            StartTimer(0,20);
        }
        if (TestTimer(0))
        {
            LEDSet(GREEN,ON);
            LEDSet(RED,OFF);
            LastTagType = TAGTYPE_NONE;
        }
    }
}

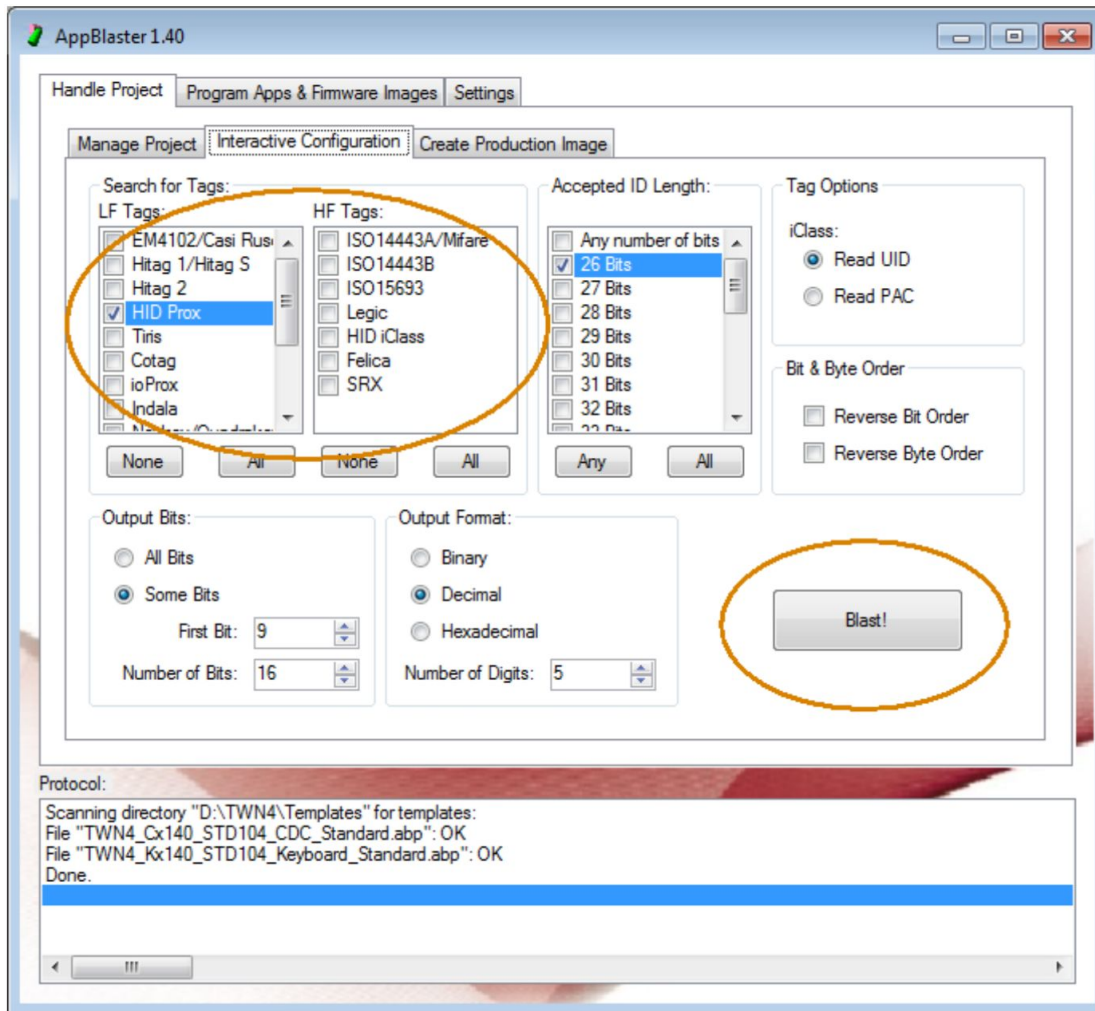
```



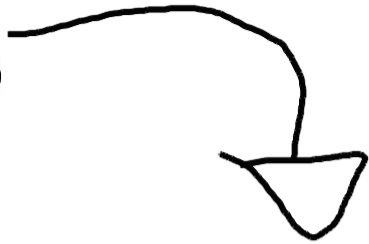








Ramon
H.

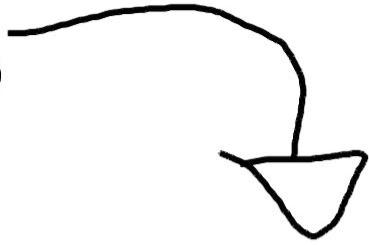


1234

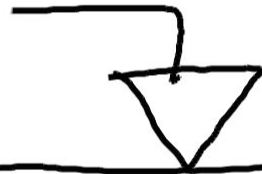


Menu
mon Tues weds Thu Fri

Ramon
H.



1234r



Menu
mon Tues weds Thu Fri

Willkommen!

Bitte Chipkarte scannen

Sie haben eine Frage? Bitte rufen Sie uns unter 0676/9391843 an

[Datenschutzerklärung](#)

```
<%= text_field_tag 'chip_number', '' %>
```

Willkommen!

Bitte Chipkarte scannen

Sie haben eine Frage? Bitte rufen Sie uns unter 0676/9391843 an

[Datenschutzerklärung](#)

```
<%= text_field_tag 'chip_number', '',  
autofocus: true %>
```


Willkommen!

Bitte Chipkarte scannen

Sie haben eine Frage? Bitte rufen Sie uns unter 0676/9391843 an

[Datenschutzerklärung](#)

```
<%= text_field_tag 'chip_number', '',  
autofocus: true, onblur:  
"this.focus()" %>
```

Willkommen!

Bitte Chipkarte scannen

Sie haben eine Frage? Bitte rufen Sie uns unter 0676/9391843 an

[Datenschutzerklärung](#)

```
<%= text_field_tag 'chip_number', '',  
autofocus: true, class: 'disappear',  
onblur: "this.focus()" %>
```

Scanning Summary

- Don't let yourself get stuck: Ask for help!
- A hack-ey solution isn't the worst solution

Requirements

- Hardware
- Security
- Chipcard scan
- Stability







HEWLETT-PACKARD COMPUTER SETUP

File Storage Security Power **Advanced****Power-On Options**BIOS Power-On
Onboard Devices
Bus Options
Device Options

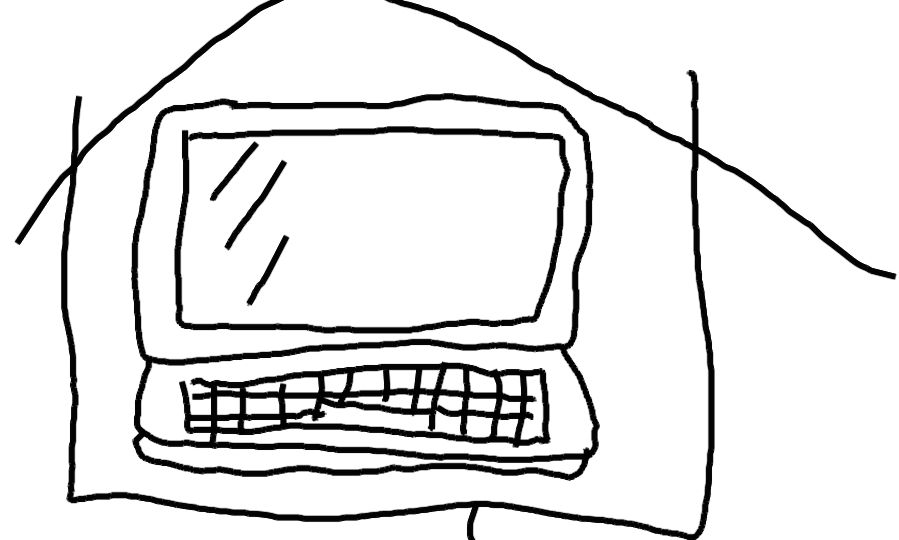
Power-On Options

POST Mode	QuickBoot
POST Messages	Disabled
Press the ESC key for Startup Menu	Enabled
Option ROM Prompt	Enabled
After Power Loss	▶Off
POST Delay (in seconds)	None
Remote Wakeup Boot Source	Local Hard Drive
Factory Recovery Boot Support	Disabled
Bypass F1 Prompt on Configuration Changes	Disabled

F10=Accept, ESC=Cancel



1	2	3
4	5	6
7	8	9
*	0	#



How do I remote access?

- SSH

BUSINESS!



How do I remote access?

- **SSH**

- **VNC**

BUSINESS!



How do I remote access?



A hand-drawn diagram on a dark blue background. On the left, a computer monitor and keyboard are sketched. A line extends from the computer towards the right, ending in an arrowhead pointing to a rectangular box. Inside this box, the word 'BUSINESS!' is written in a cursive, hand-drawn style. Below the word is another smaller rectangular box. To the left of the computer, there is a list of three items, each preceded by a small orange circle and a horizontal line. The items are 'SSH', 'VNC', and 'Physical maintenance'.

• SSH

• VNC

• Physical maintenance

How do I remote access?



A hand-drawn diagram on a dark blue background. On the left, a computer monitor and keyboard are sketched. A line extends from the computer towards the right, ending in an arrowhead that points to a rectangular box. Inside this box, the word 'BUSINESS!' is written in a cursive, hand-drawn style. To the left of the computer, a list of three items is shown, each preceded by a small orange circle and a horizontal line that crosses through the text:

- ~~SSH~~

- ~~VNC~~

- ~~Physical maintenance~~

BUSINESS!

—

*“Why not try **REVERSE SSH TUNNELLING** to do
the job?”*

- My Client, 2018



Set up reverse SSH tunnel on the terminal

```
$ autossh -fN -v -R 57124:localhost:22 website-url.com
```

Port I'll connect to from my laptop to website-url.com



```
$ autossh -fN -v -R 57124:localhost:22 website-url.com
```

```
$ autossh -fN -v -R 57124:localhost:22 website-url.com
```



**Port on the terminal that
website-url.com will relay to**

```
$ autossh -fN -v -R 57124:localhost:22 website-url.com
```



**Port on the terminal that
website-url.com will relay to**

Connect to the terminal remotely

```
$ ssh terminaluser@website-url.com -p 57124
```



Stability Summary

- Automatic startup on power loss in the BIOS
- REVERSE SSH TUNNELS

Requirements

- Hardware
- Security
- Chipcard scan
- Stability

A person wearing a white lab coat is using a handheld device. The device has a blue panel on the left side with a white antenna symbol. The person's hand is positioned over a screen or control area on the right side of the device. The background is a blurred laboratory setting.

Project Hairnet



And then what happened?



- Automatic logout?

Can we have...

[View On GitHub](#)

DOWNLOADS

[TAR](#)

[ZIP](#)

jQuery Inactivity Timeout

Notify and redirect users after a period of inactivity. Works across multiple tabs/windows.

Inactivity Timeout Demo

Welcome to the demo for the **jQuery Inactivity Timeout Plugin**.

The inactivity notification will display after 10 seconds of inactivity. [Click here](#) to open a new tab/window to watch it work in multiple windows.

```
$(document).inactivityTimeout(  
  {  
    inactivityWait: 20,  
    dialogWait: 10,  
    dialogMessage : 'You will be logged out in %s  
seconds',  
    logoutUrl: "LOG_OUT_PATH"  
  }  
);
```

[Letzte Woche](#)

[Allergene anzeigen](#)

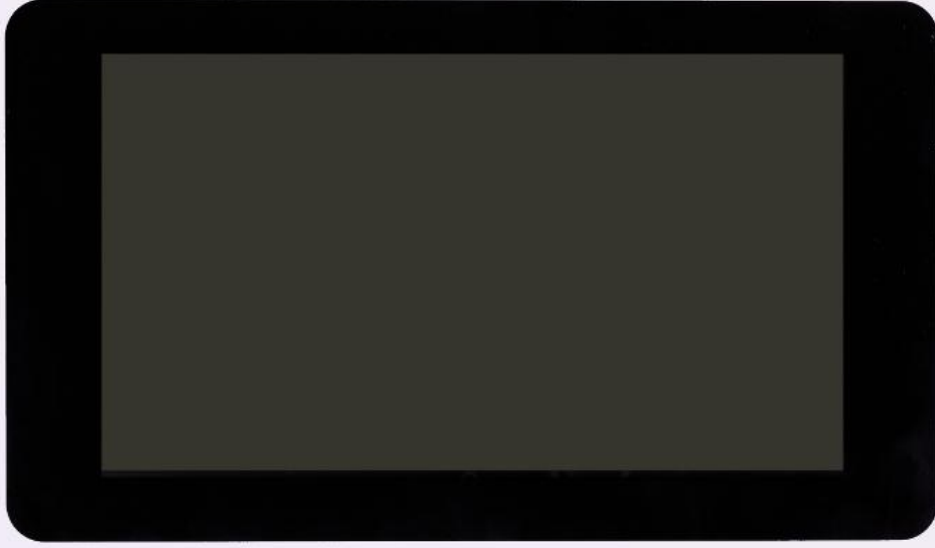
[Nächste Woche](#)

Menü KW 08 vom 18. bis 24. Februar

Montag	Dienstag	Mittwoch	Donnerstag	Freitag	Samstag	Sonntag
				Bestellen	Bestellen	Bestellen
Schinken-Käse Nudelsalat Salat mit Putenschinken, Käse, Gemüse & Rahm- Majo	Schinken-Käse Nudelsalat Salat mit Putenschinken, Käse, Gemüse & Rahm- Majo	Schinken-Käse Nudelsalat Salat mit Putenschinken, Käse, Gemüse & Rahm- Majo	Schinken-Käse Nudelsalat Salat mit Putenschinken, Käse, Gemüse & Rahm-Majo	Schinken-Käse Nudelsalat Salat mit Putenschinken, Käse, Gemüse & Rahm-Majo		
Mozzarella- Tomaten-Salat Bunter Salatteller mit Topping aus Mozzarella und Tomaten	Mozzarella- Tomaten-Salat Bunter Salatteller mit Topping aus Mozzarella und Tomaten	Mozzarella- Tomaten-Salat Bunter Salatteller mit Topping aus Mozzarella und Tomaten	Mozzarella- Tomaten-Salat Bunter Salatteller mit Topping aus Mozzarella und	Mozzarella- Tomaten-Salat Bunter Salatteller mit Topping aus Mozzarella und Tomaten		

- ~~Automatic logout?~~
- An order pickup confirmation terminal?

Can we have...



Bestellung erfolgreich abgeholt!



Zucchini Cordon Bleu

Rindsuppe

[REDACTED] 21. Februar 2019

Sie haben eine Frage? Bitte rufen Sie uns unter 0676/9391843 an

[Datenschutzerklärung](#)

Bestellung erfolgreich abgeholt!



Schinken-Käse Nudelsalat

Noch 2 verfügbar

Mozzarella-Tomaten-Salat

Noch 2 verfügbar

Pasta Auflauf

Noch 1 verfügbar

Spinat-Feta Strudel

Noch 4 verfügbar

Putenschnitzel mit Reis

Noch 1 verfügbar

Zucchini Cordon Bleu

Ausverkauft

Chili con Carne

Ausverkauft

Pasta alla Carbonara mit Speck &
Parmesan

Klare Gemüsesuppe

Heruntergeladen von: [www.kochrezepte.de](#)

[www.kochrezepte.de](#)

- Automatic logout?
- An order pickup confirmation terminal?

Can we have...



Takeaway(HEH)s

- Reinventing the wheel has its places.
- Cost-effective solutions can flourish into new technologies.
- Play around with your existing tech!



Thank you, frens!

Ramón Huidobro



@SenorHuidobro
