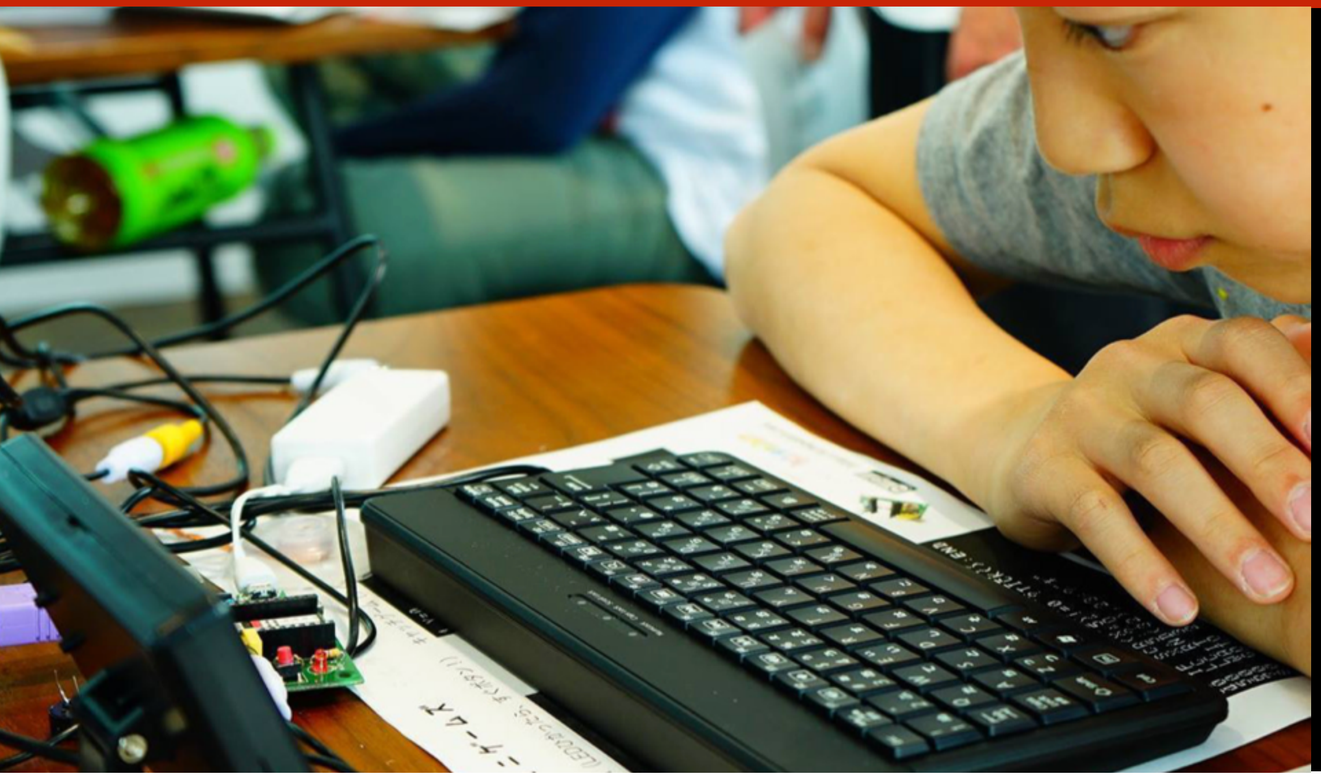
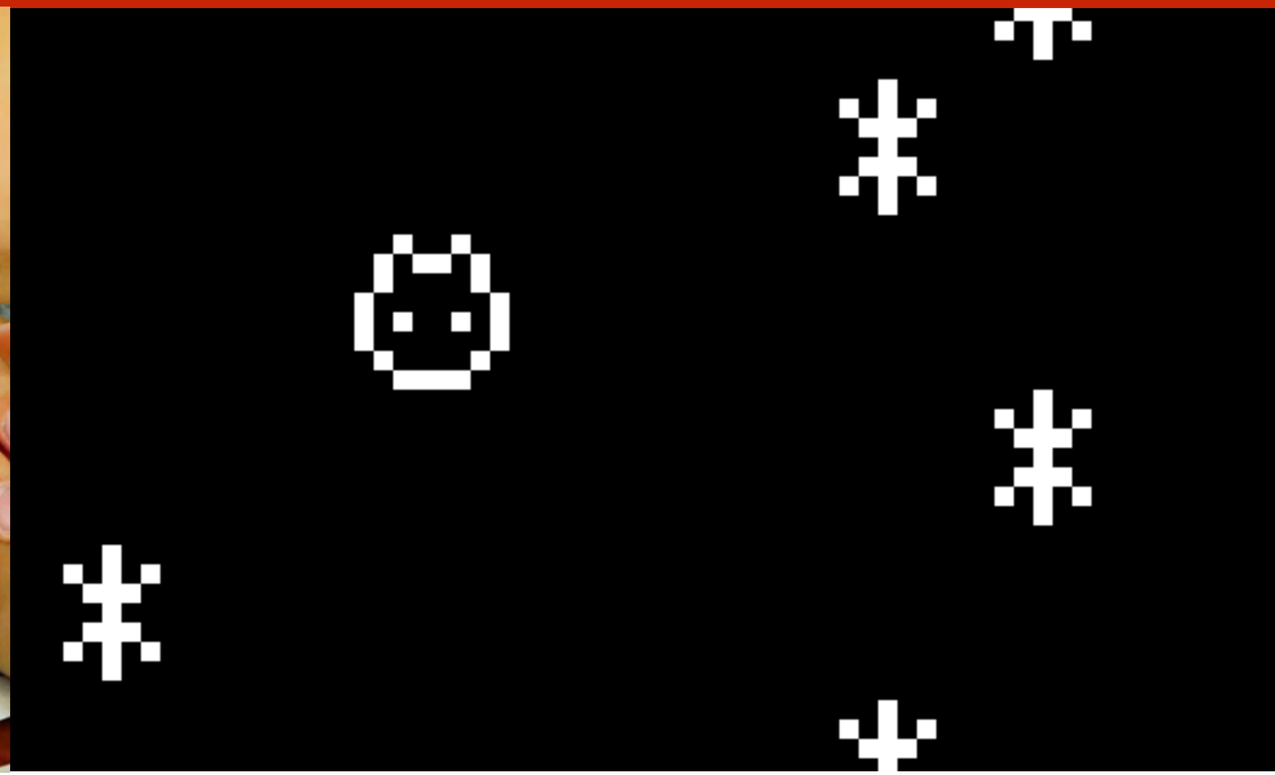
First Programming with IchigoJam

IchigoJam P





FONT: こども丸ゴシック

FONT: IchigoJam 1.4 / IchigoJam-GRAPH CC BY IchigoJam / 🎈 BALLOON | FU-SEN

https://ichigojam.net/

PCN
プログラミング クラブ ネットワーク

We’re PCN (Programming Club Network)

for Sri Lanka and Türkiye with JICA in Japan

Robot Contest for Kids
Echizen Crab Robot Contest from FUKUI

Kids Lecture
in companies on Saturday

Every Winter
This year Japan cup!

https://kani-robocon.com/

IchigoJam & IT Boot Camp→Creative Person

First Programming
in Elementary School

Robot and
Software Contests

Innovators!

Do you like computers?

Let’s befriend computers more!

IchigoJam
$15 personal compute

TV
at home

$10 keyboard

$1 microUSB
as power src

https://hello002.stores.jp/items/5b39eae95496ff652b0001a7

IchigoJam
= Strawberry Jam
&
$15 PC

#社会にいいこと #子ども・教育 #国際協力 #発展途上国 #貧困

アフリカの子ども達に継続的なプログラミング学習機会を提供したい！

NPO法人エル・コミュニティ

支援総額

1,355,000 円

支援者 **74人**

募集終了日 **2024年7月2**

支援履歴の確認

https://readyfor.jp/projects/I... コピー

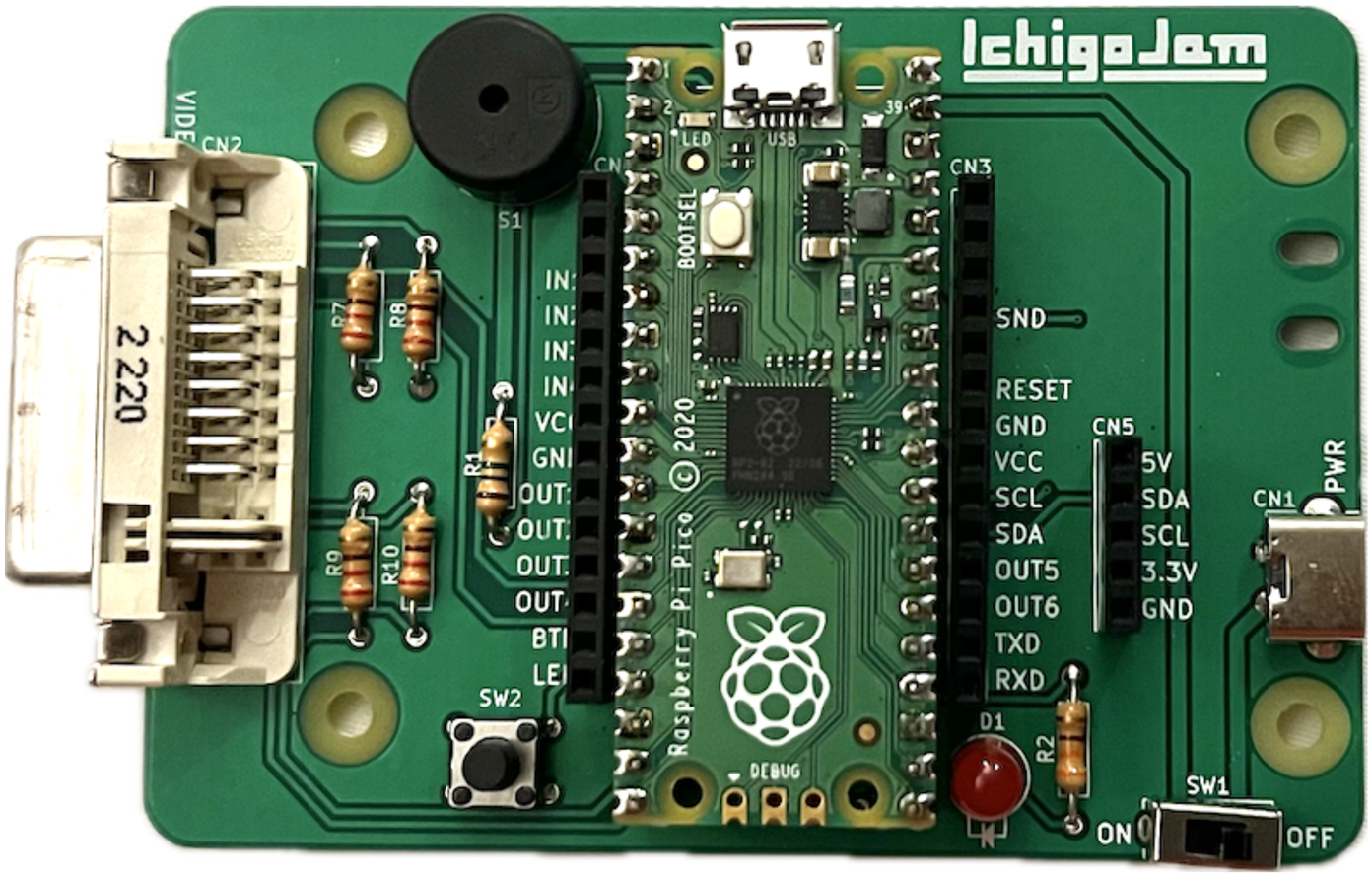
Embassy of
the United Republic of Tanzania
H.E. Mr. Ambassador Baraka Luvanda
Ambassador Extraordinary and Plenipotentiary

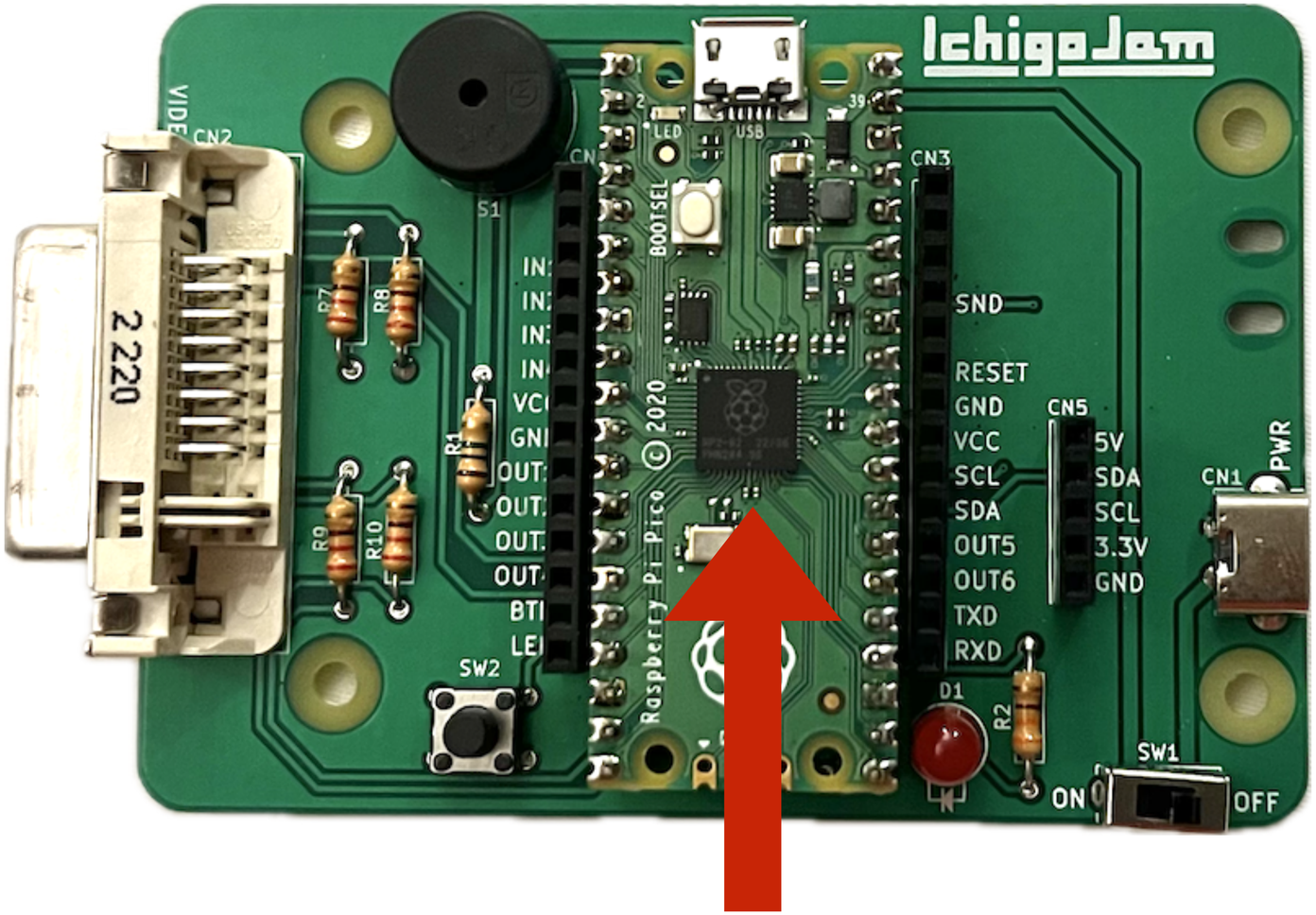
Latest Version

IchigoJam P

IchigoJam P

featuring Raspberry Pi Pico





This is a computer!

Just $1 !

(IchigoJam P price is $20～)

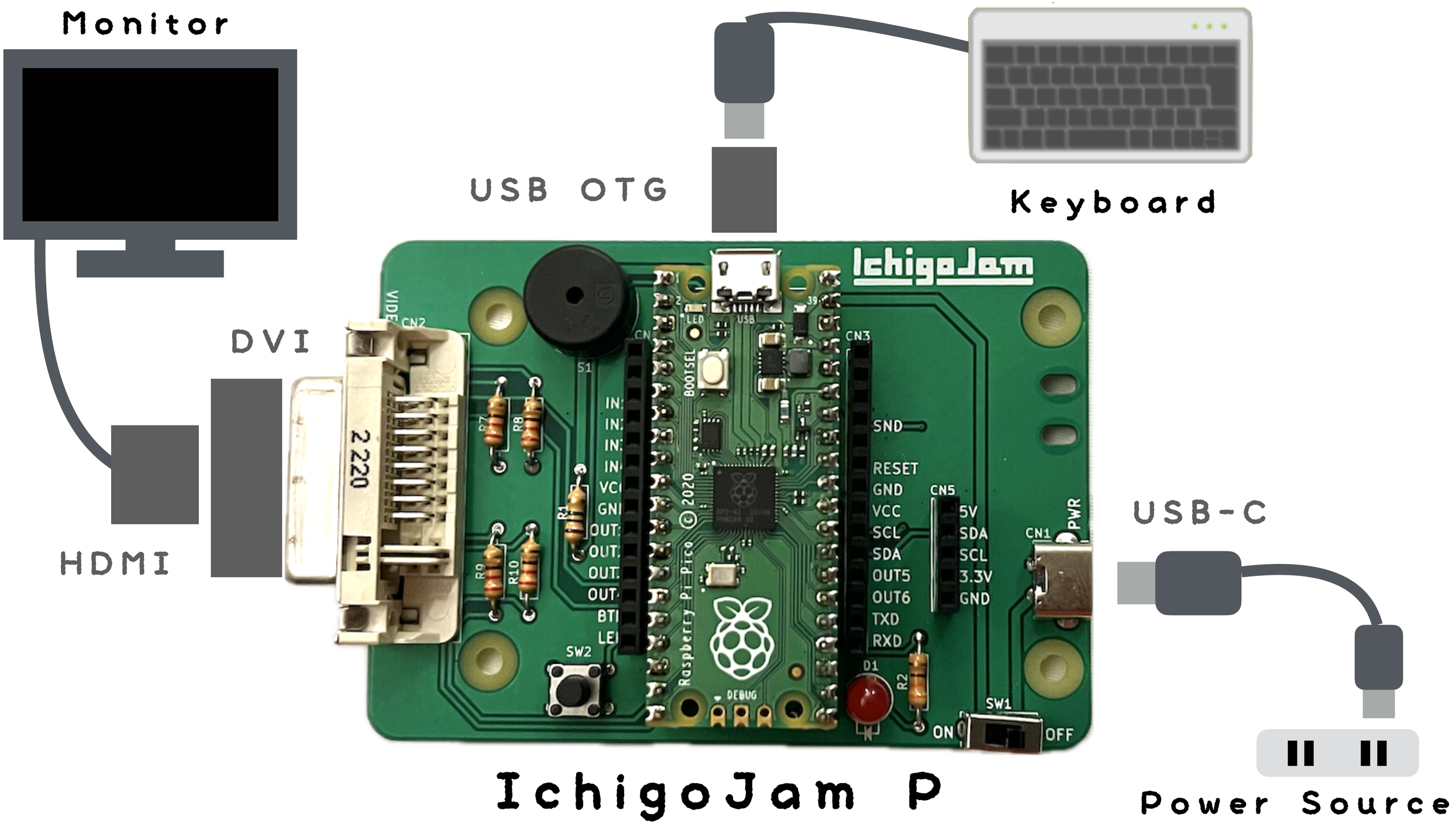
Let’s talk with Computer!

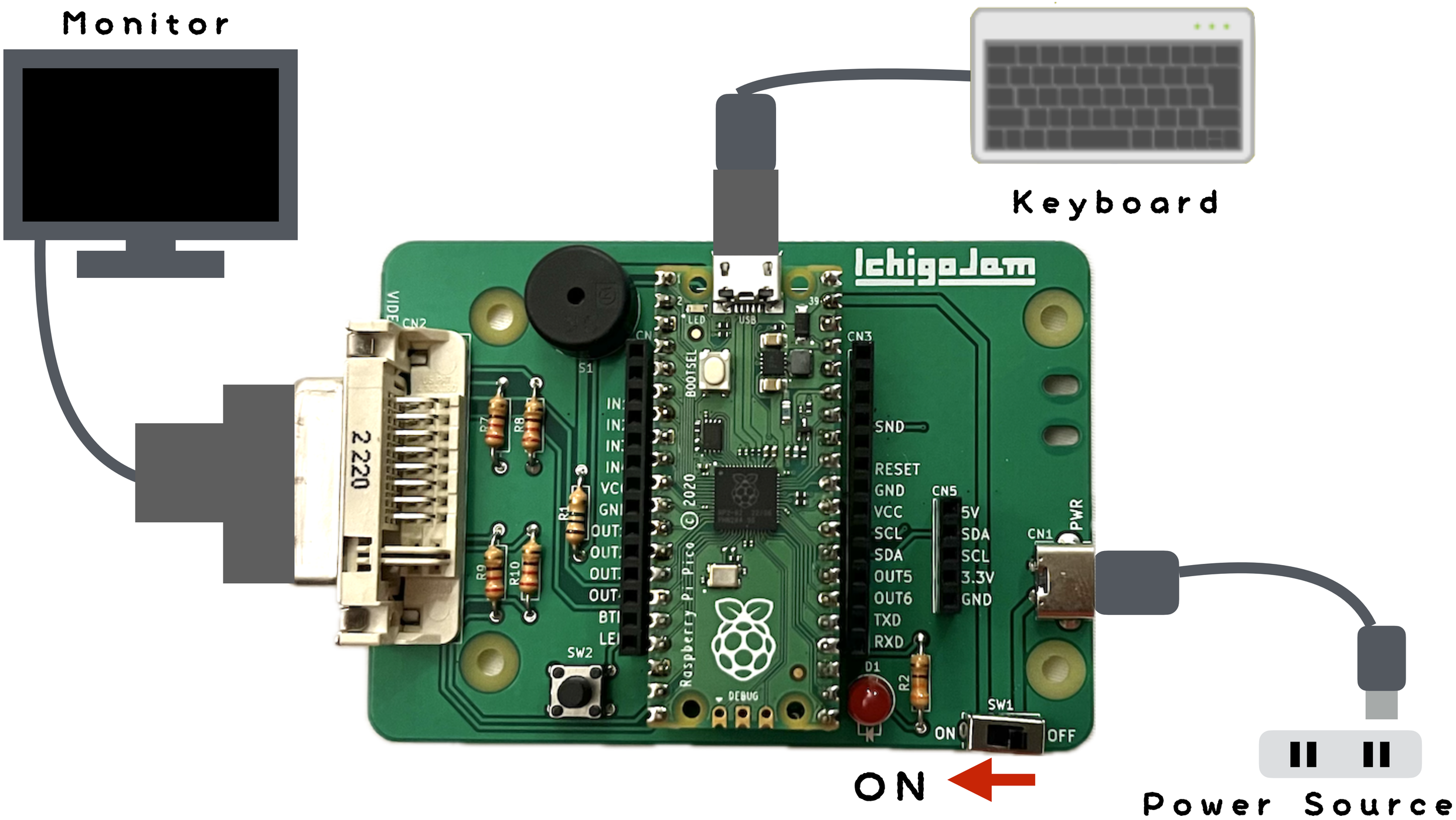
. . .

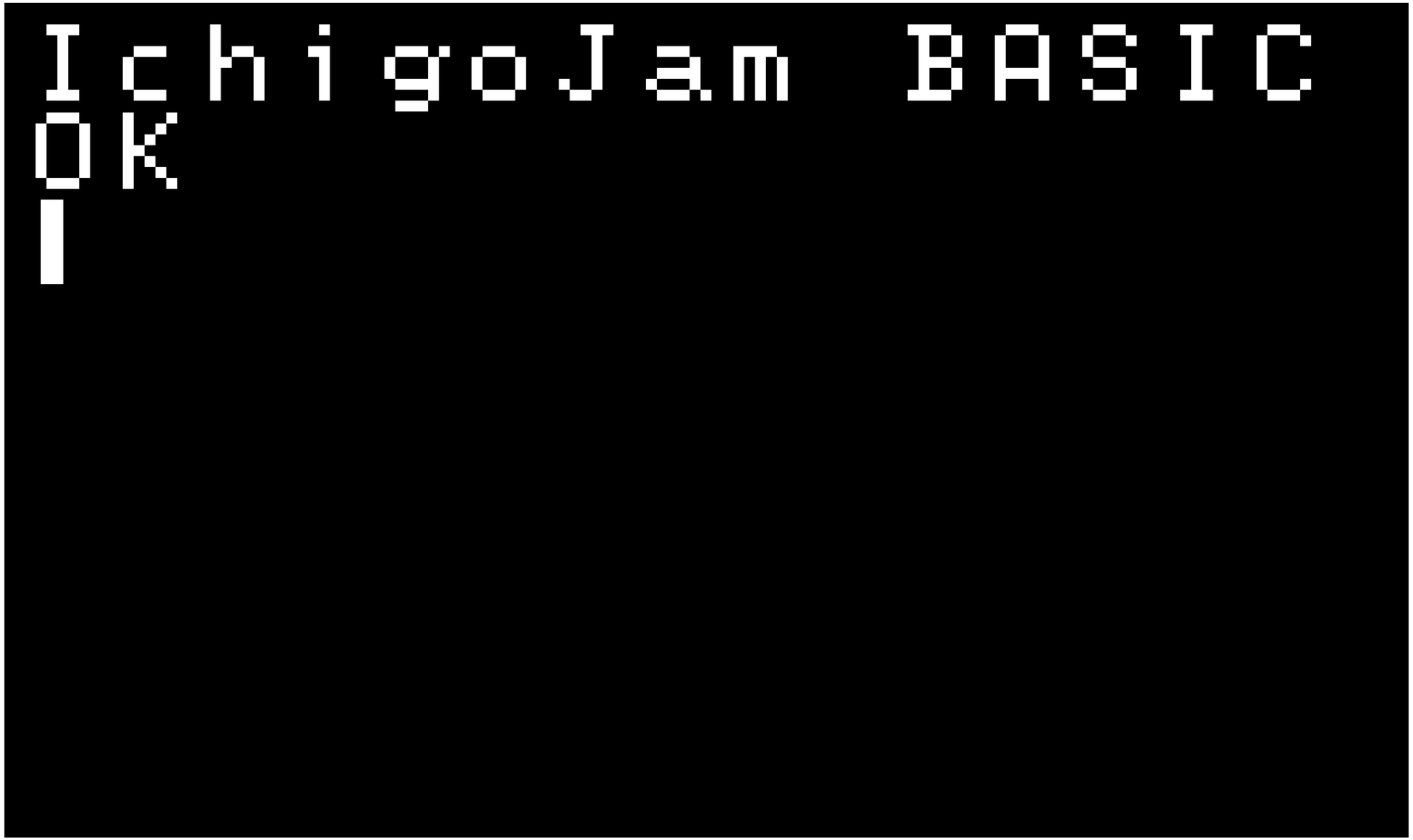
(I have no ears)

Hello!

Let’s Set up!


Monitor
USB OTG
Keyboard
DVI
HDMI
USB-C
Power Source
IchigoJam P
IchigoJam
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
ON
OFF


Monitor
Keyboard
IchigoJam
VIDEO
CN2
CN3
CN5
CN1
PWR
LED
USB
BOOTSEL
S1
SW2
SW1
D1
R1
R2
R7
R8
R9
R10
DEBUG
Raspberry Pi Pico © 2020
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
ON
OFF
ON
Power Source



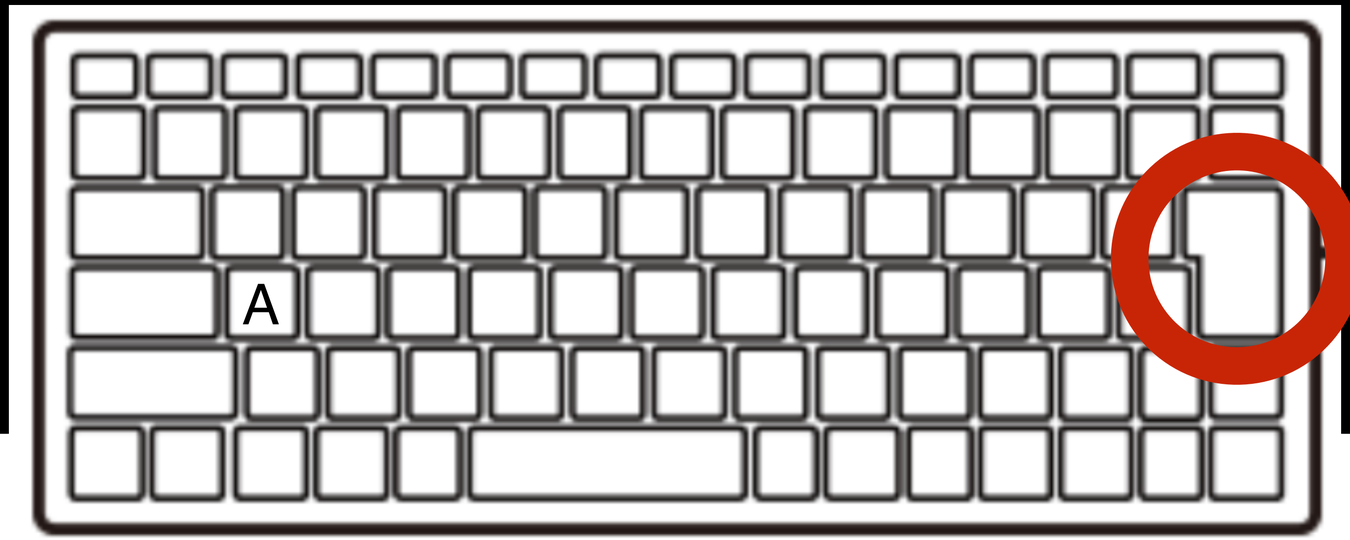
Blinking is the cursor!

```
IchigoJam BASIC
OK
A
```

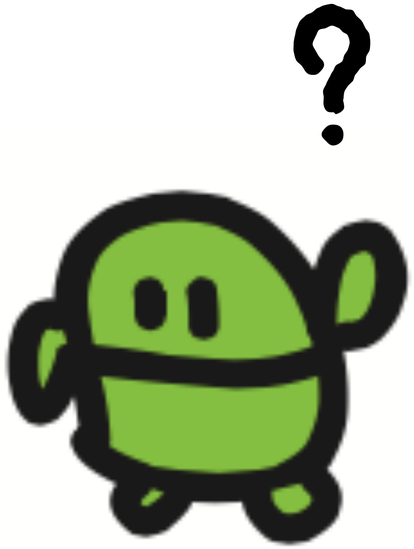
Type 「A」 by your keyboard

Enter key

```
IchigoJam BASIC
OK
A
Syntax error
```



エンターキー

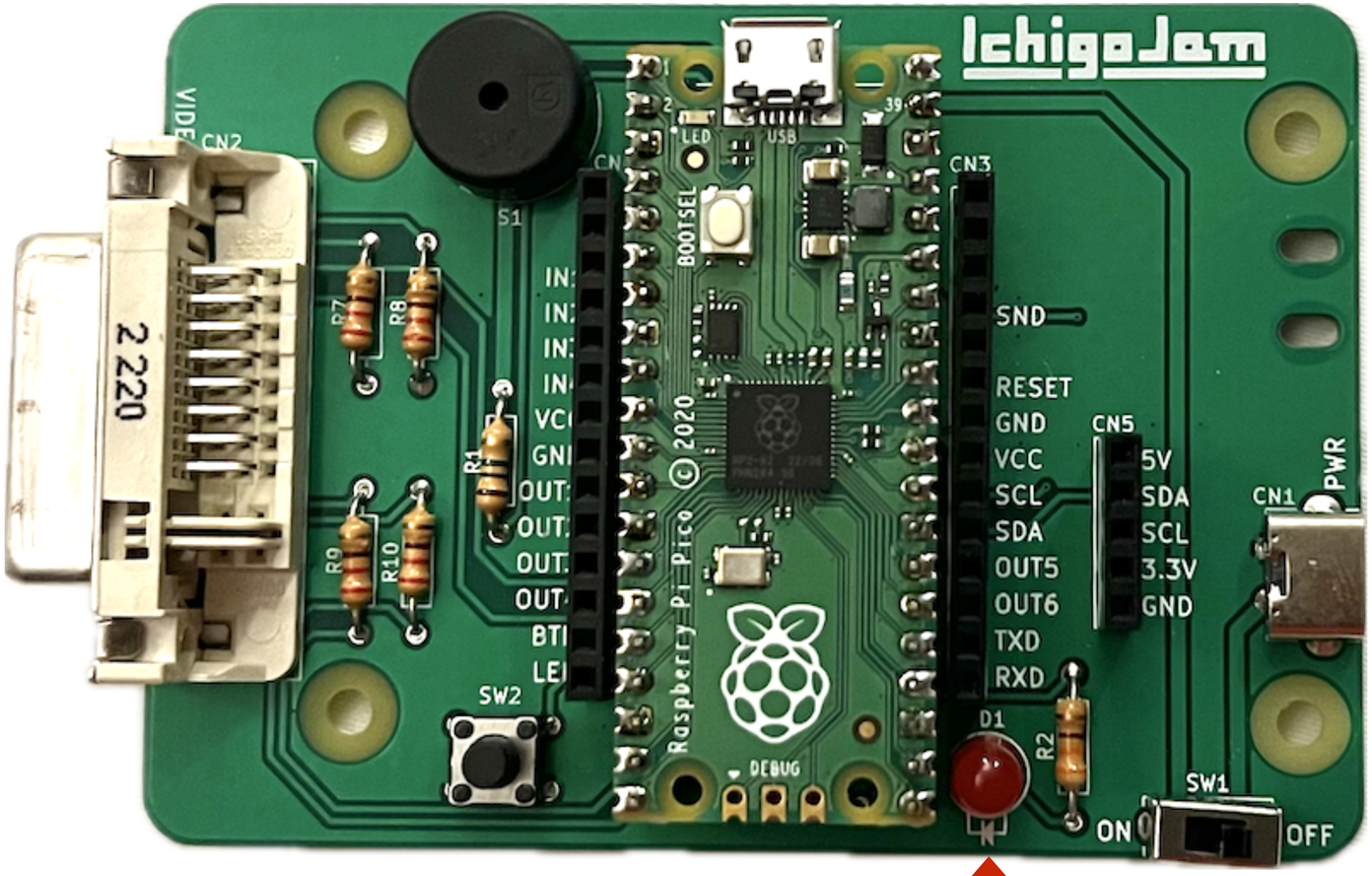


I don’ t Know.

A ↵

Syntax error

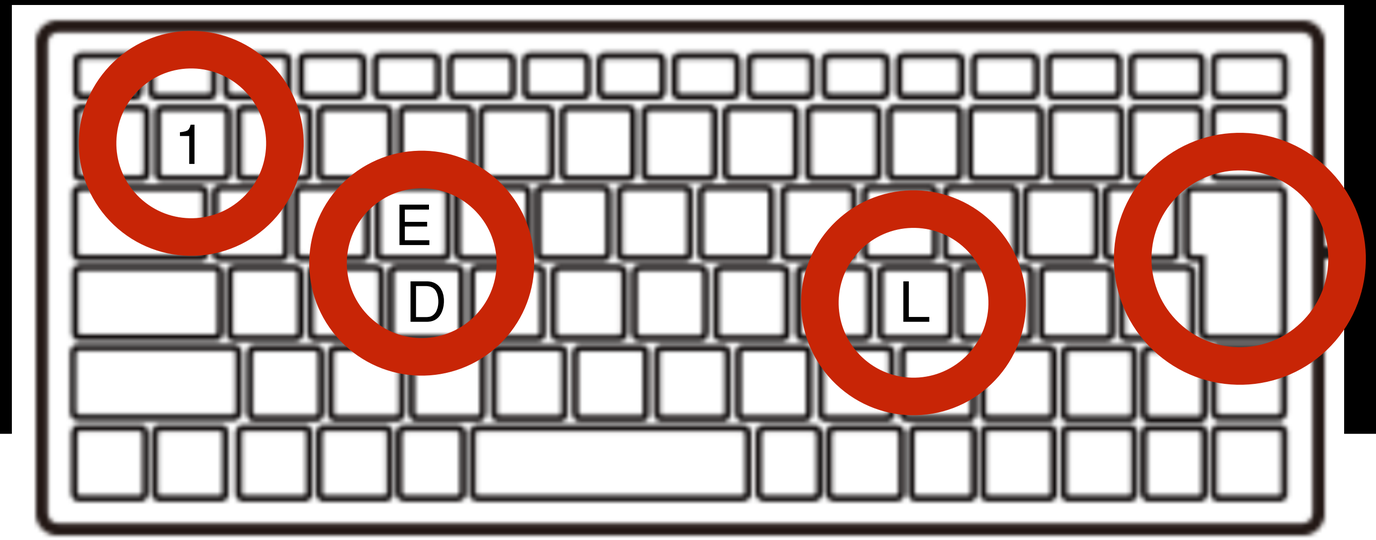
IchigoJam P



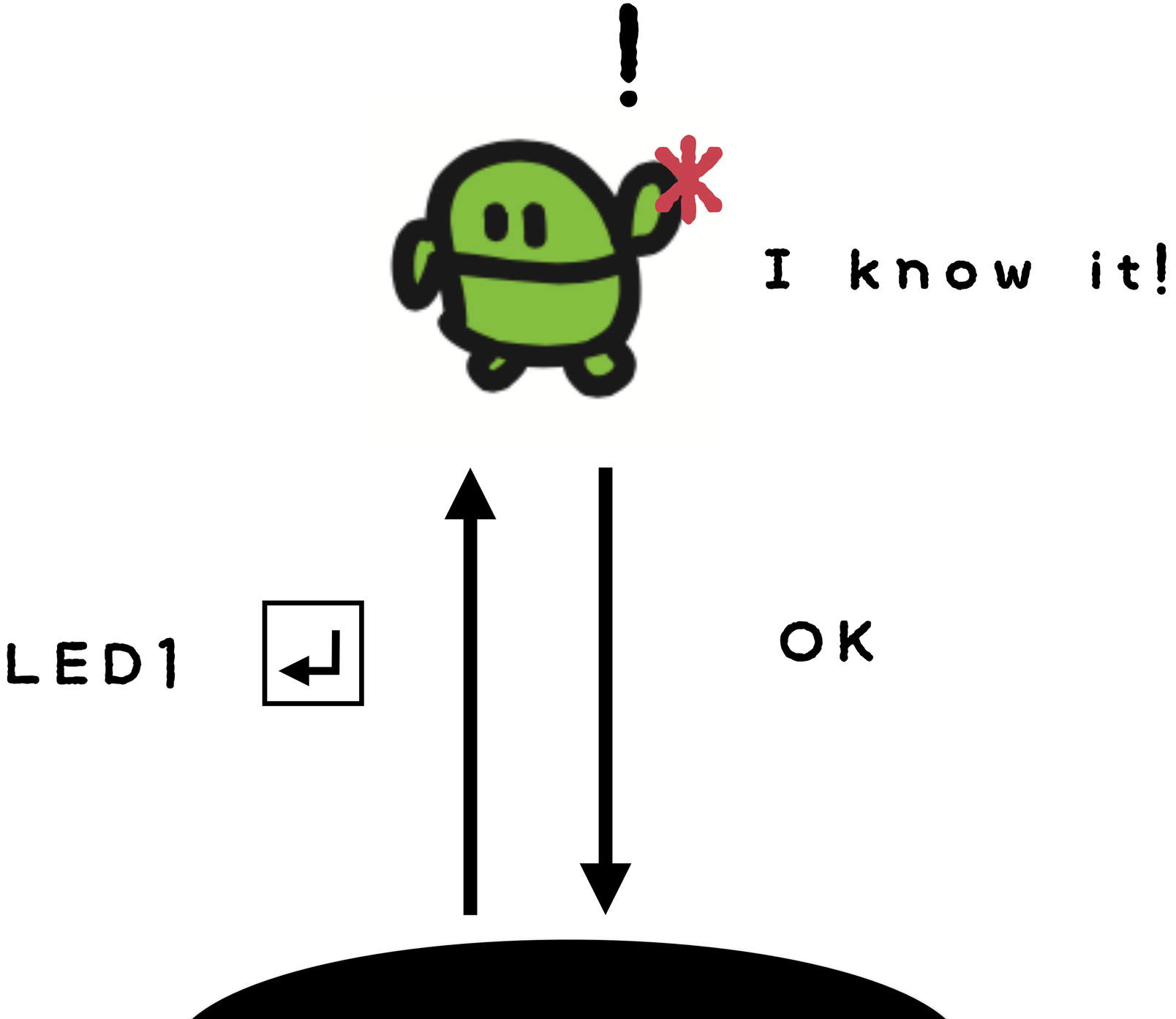
To light up this LED

by the computer

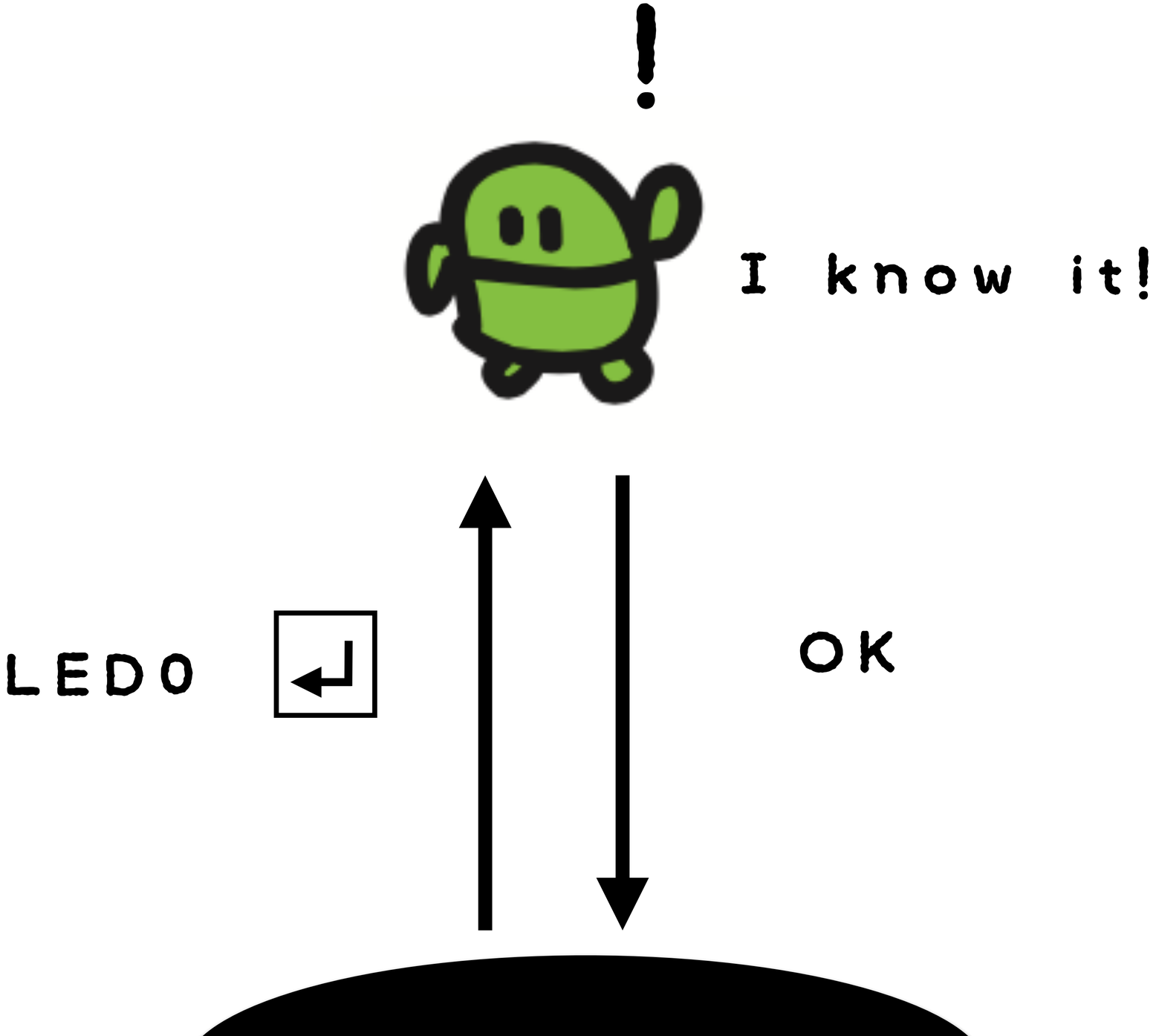
LED1



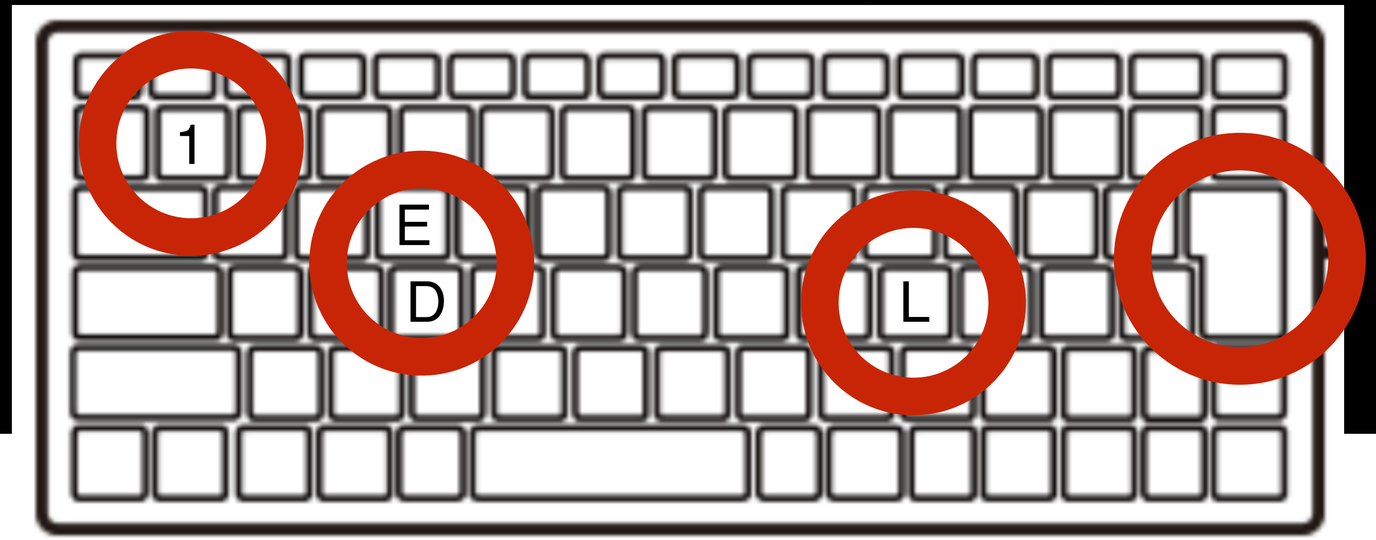
L E D 1 Enter


!
I know it!
LED1
OK

L E D 0 Enter


!
I know it!
LEDO
OK

LED1

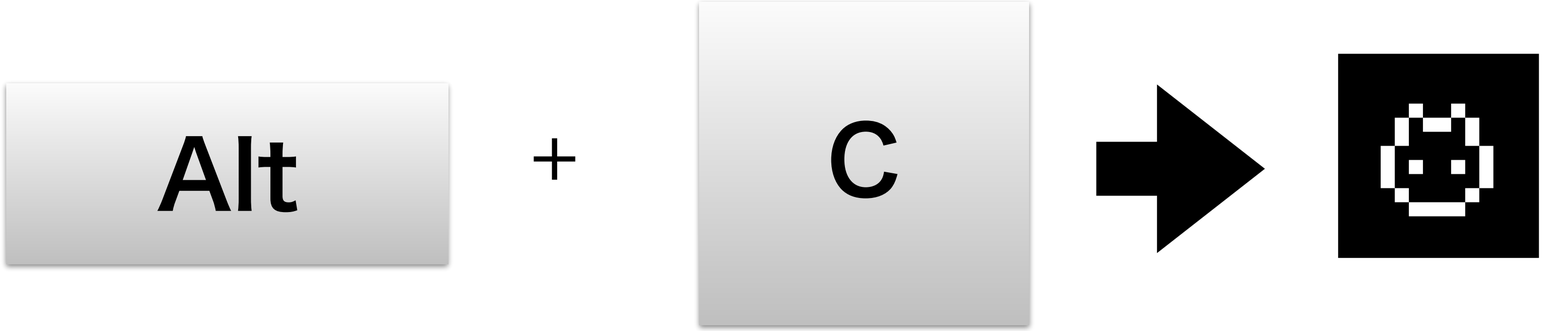


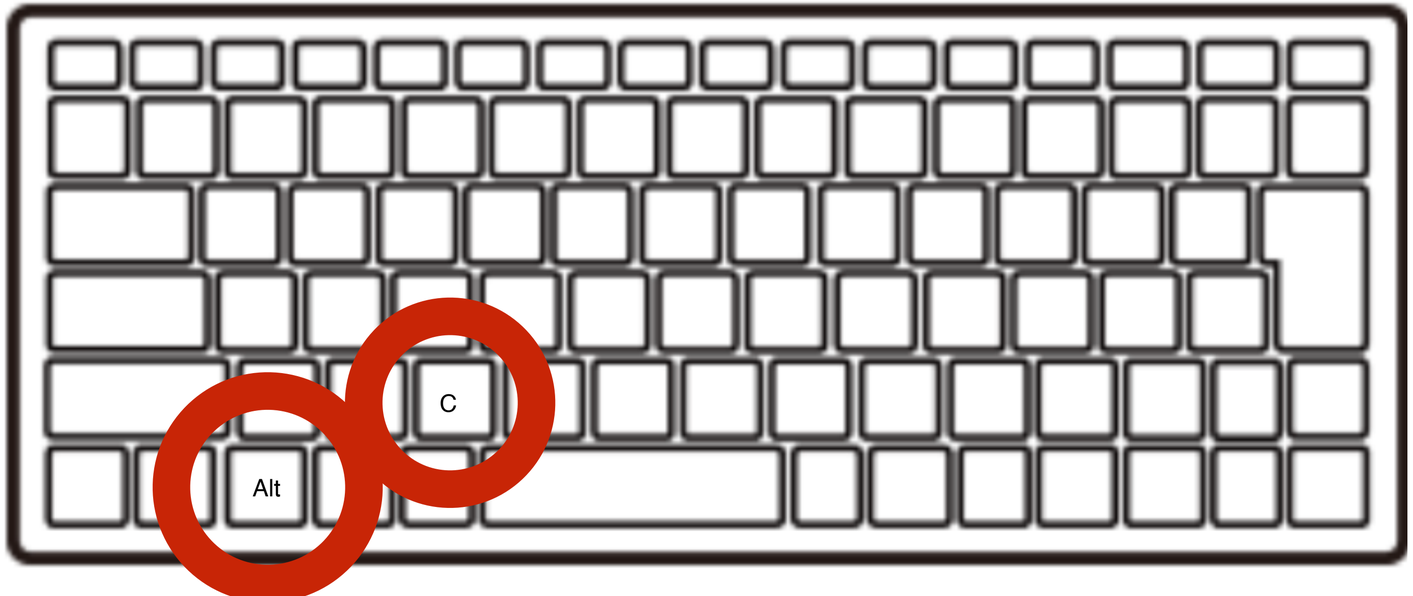
L E D 1 Enter

L E D 0 Enter

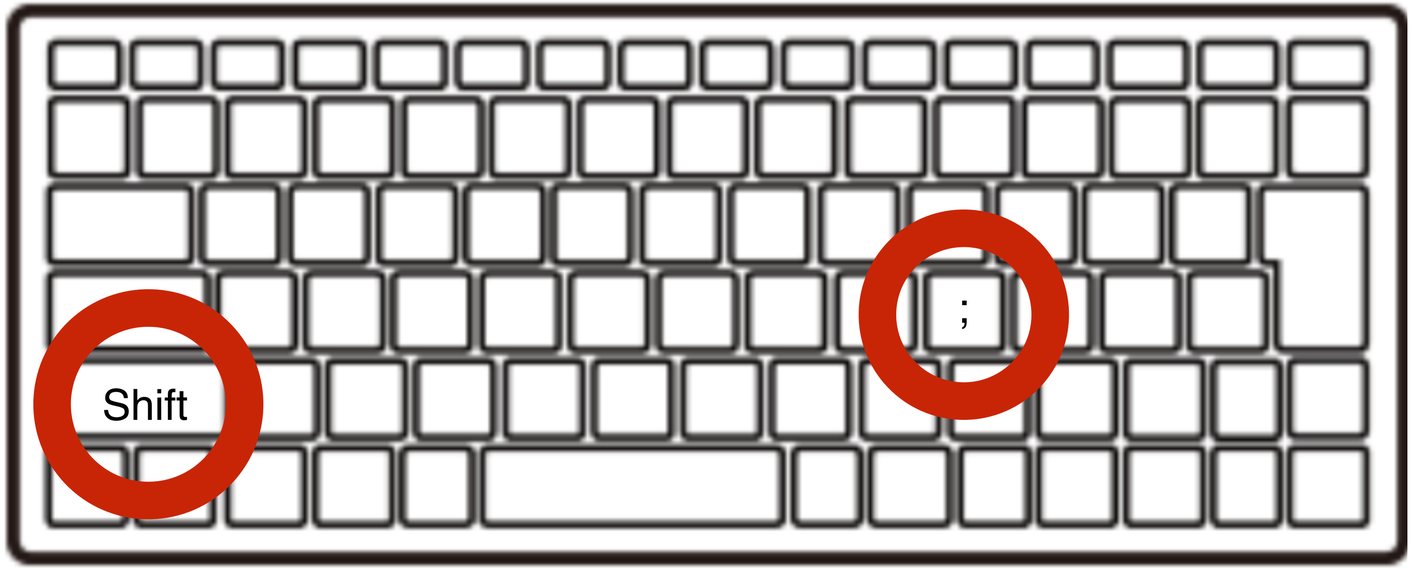
IchigoJam Special

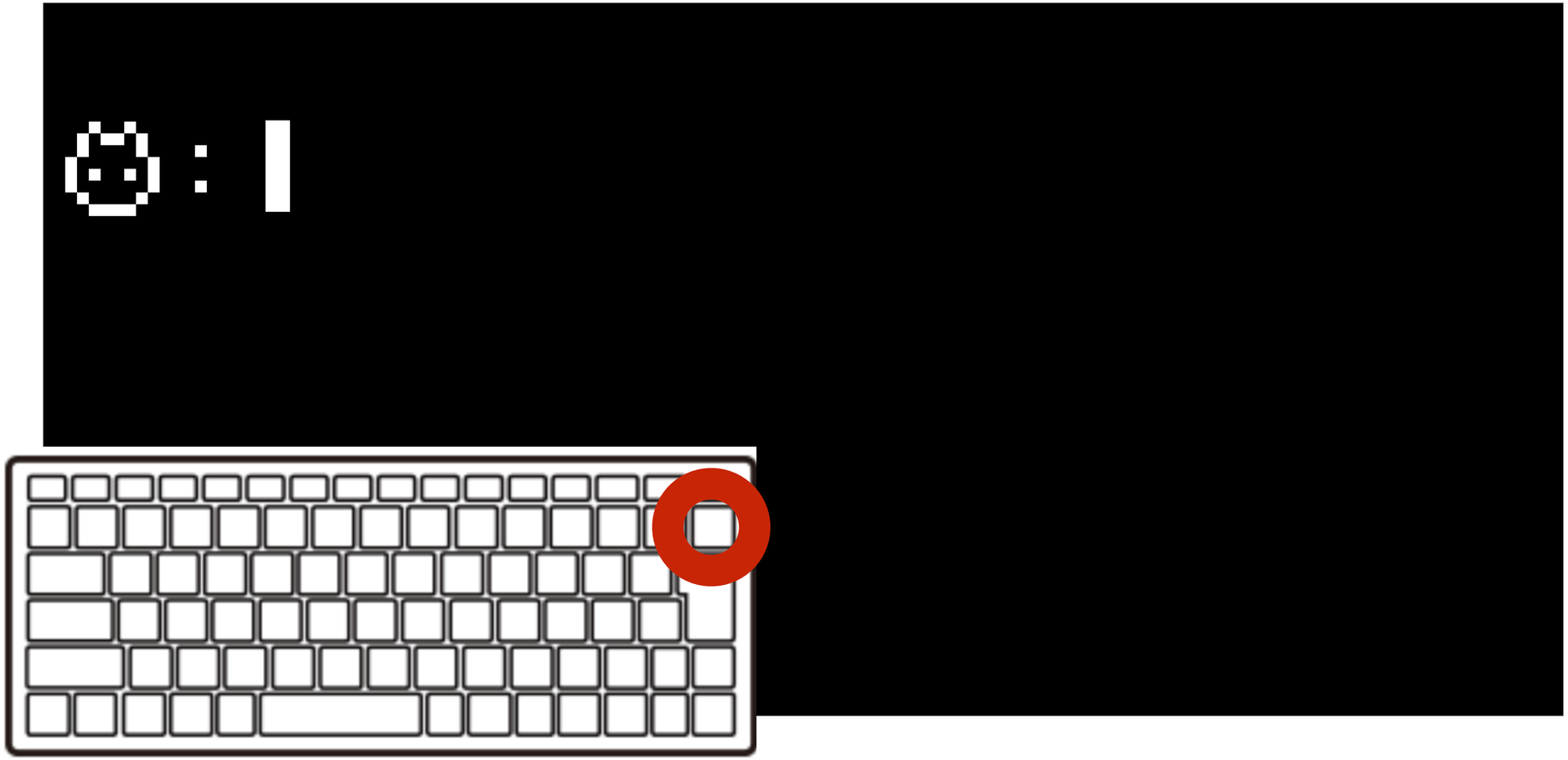
Pressing Alt Key and type 「C」





If you want to type the character on above, be pressing 「shift」key





Hit the Backspace key

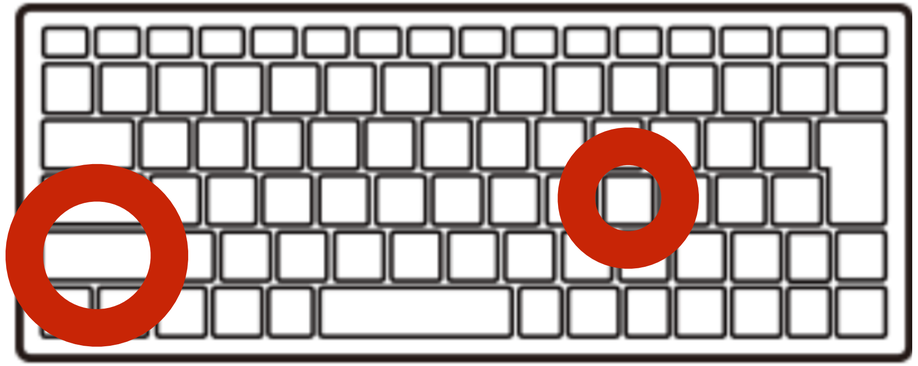
to remove a character.

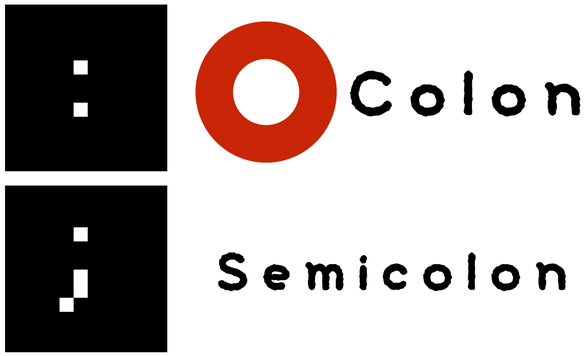
Turn the light on.

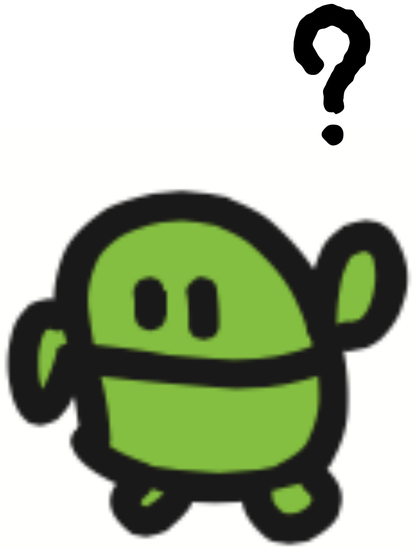
Turn the light off.

LED1:LED0↵

Shift+;







I know it!

LED1:LED0 ↵

OK

Hit the UP cursor key twice

Press enter key again

Quiz time!

IchigoJam

CPU

How many times

can this $1 computer

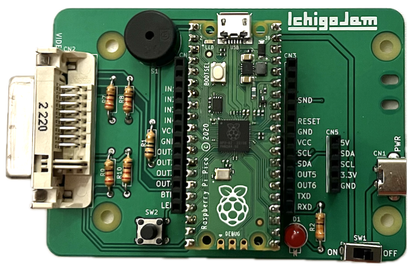
calculate in 1 second?

Ichigojam

CPU

250 million times

in 1 second

			
CC BY IchigoJam	(C)Apple	(C)NVIDIA	(C)NVIDIA
IchigoJam P	iPhone 16 Pro	NVIDIA 4090	NVIDIA DGX GH200
250M	36T	1300T	1E
IchigoJam x n?	**144k**	**5M**	**4G**
$15	$1500	$3000	$?M

WAIT

To wait seconds

```
WAIT180↵
```

How long did it take you
to press enter and then “OK”?

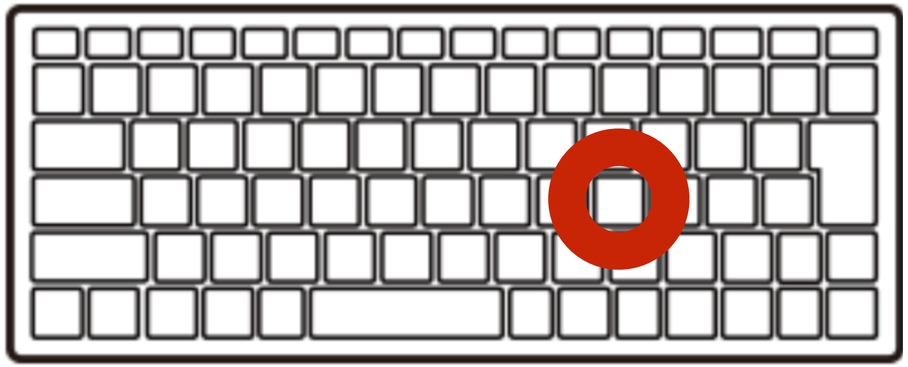
Turn the light on.

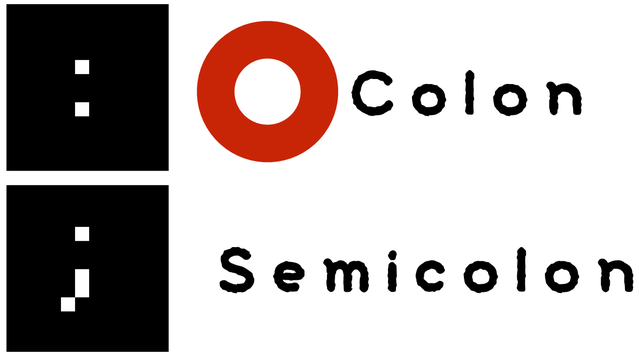
Wait 3 sec.

Turn the light off.

LED1:WAIT180:LED0↵

Shift+;　　Shift+;





Write following it

And press the Enter key

To turn light on/off twice!

```
LED1:WAIT180:LED0:WAIT60:LED1:W
AIT60:LED0 ↵
```

Light on twice

Can you flash that light 100 times?

```
LED1:WAIT10:LED0:WAIT10:
LED1:WAIT10:LED0:WAIT10:
LED1:WAIT10:LED0:WAIT10:
LED1:WAIT10:LED0:WAIT10:
LED1:WAIT10:LED0:WAIT10:
LED1:WAIT10:LED0:WAIT10:
LED1:WAIT10:LED0:WAIT10:
LED1:WAIT10:LED0:WAIT10:
LED1:WAIT10:LED0
```

Light up 10 times

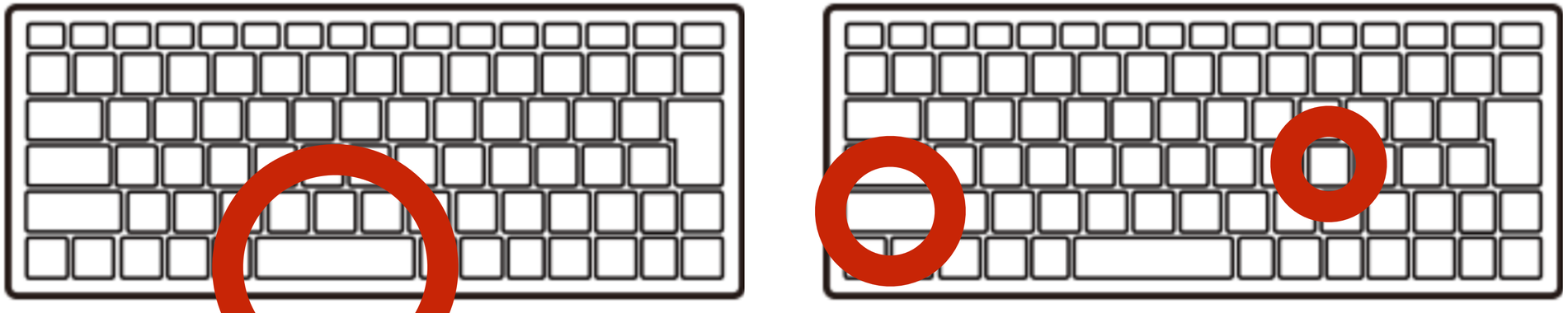
Program

```
1  LED1:WAIT10↵
2  LED0:WAIT10↵
```

Space　　Shift+;

: Colon

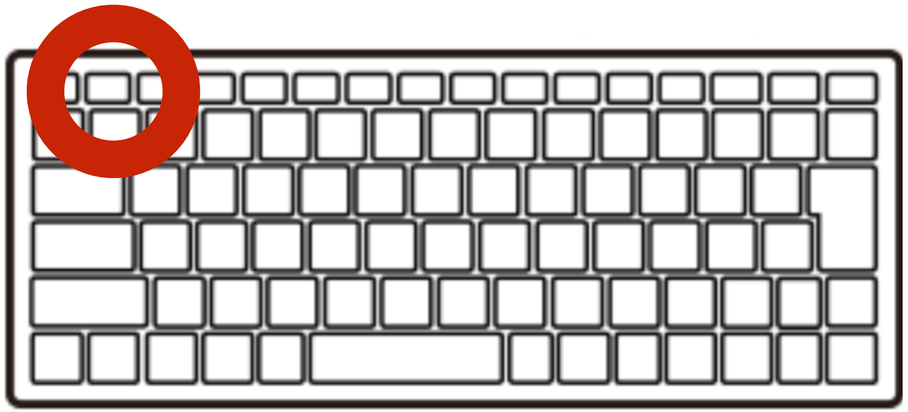
; Semicolon

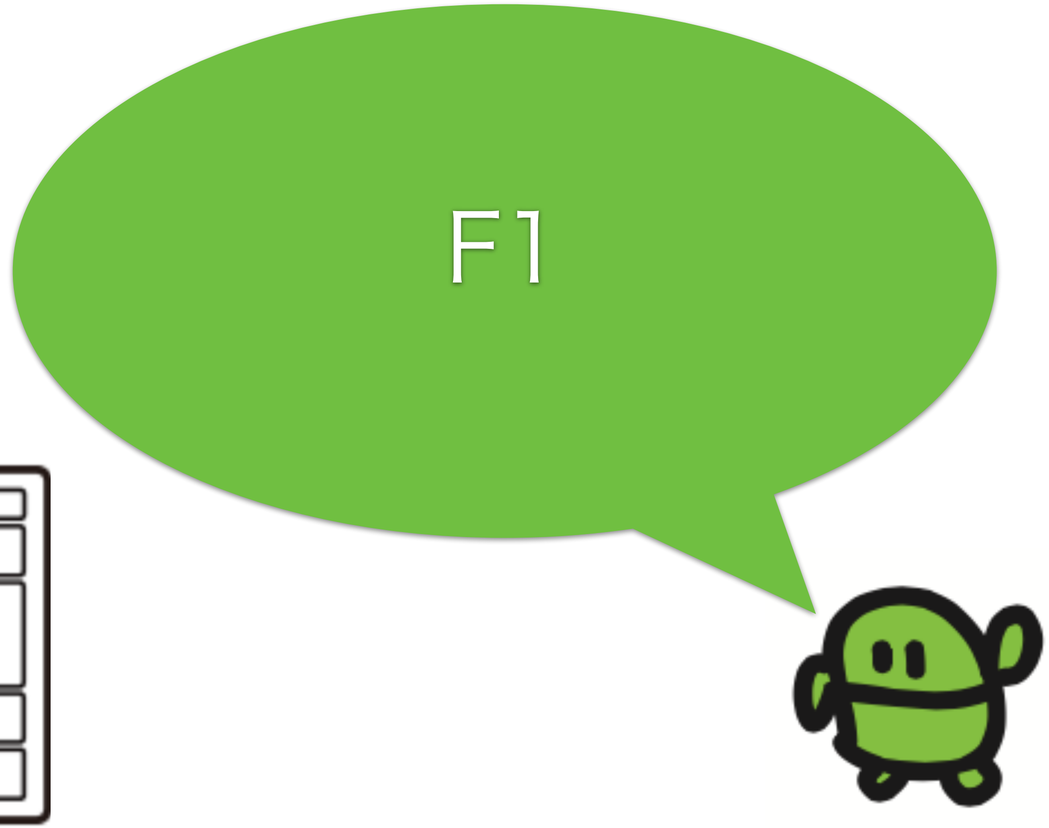


Clear Screen!

CLS ↵

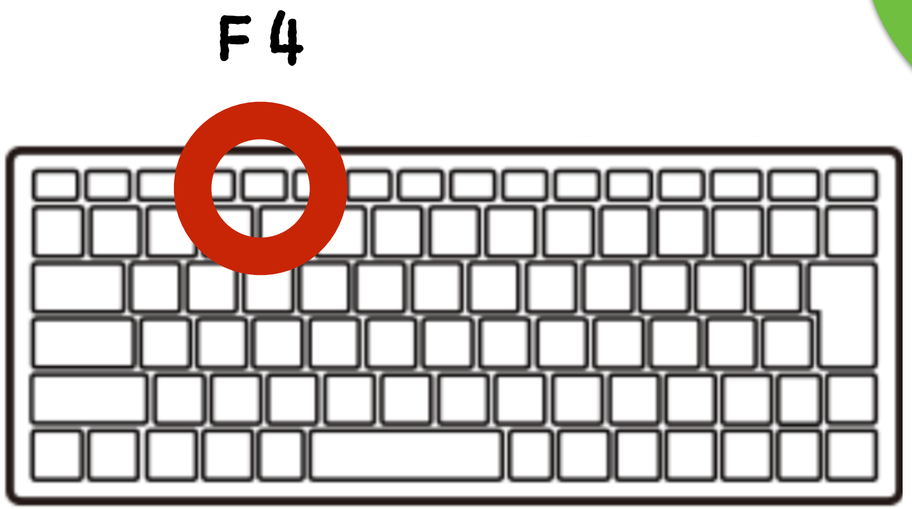
F1





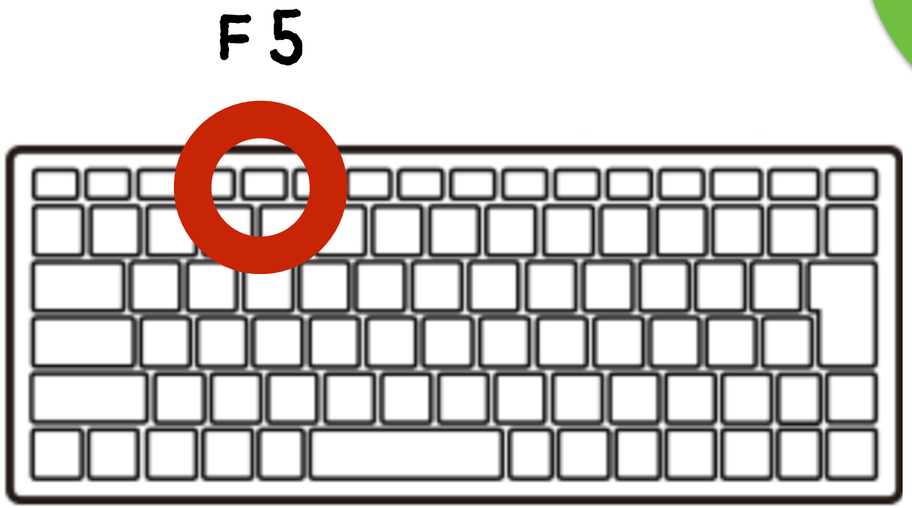
Show me the program

LIST↵



Run the program

RUN ↵

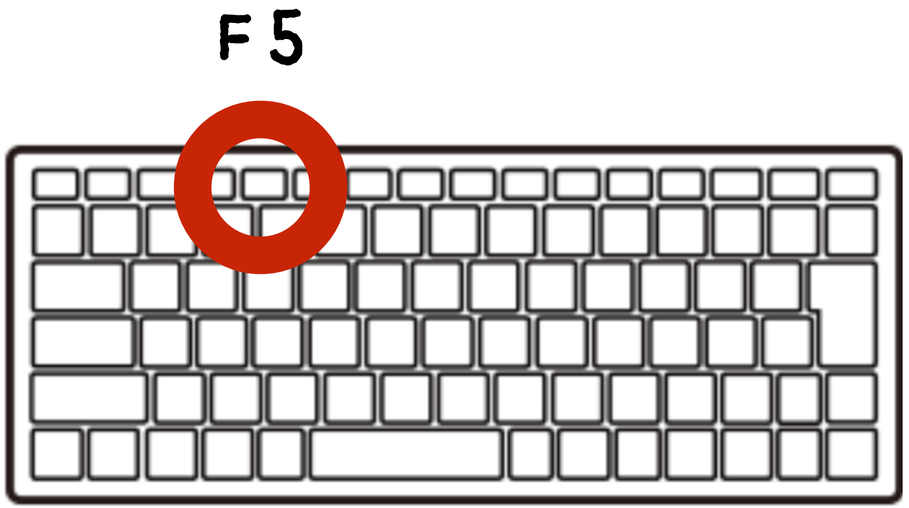


Can you do

1000 times?

To repeat

```
3 GOTO1↵
```



How many times?

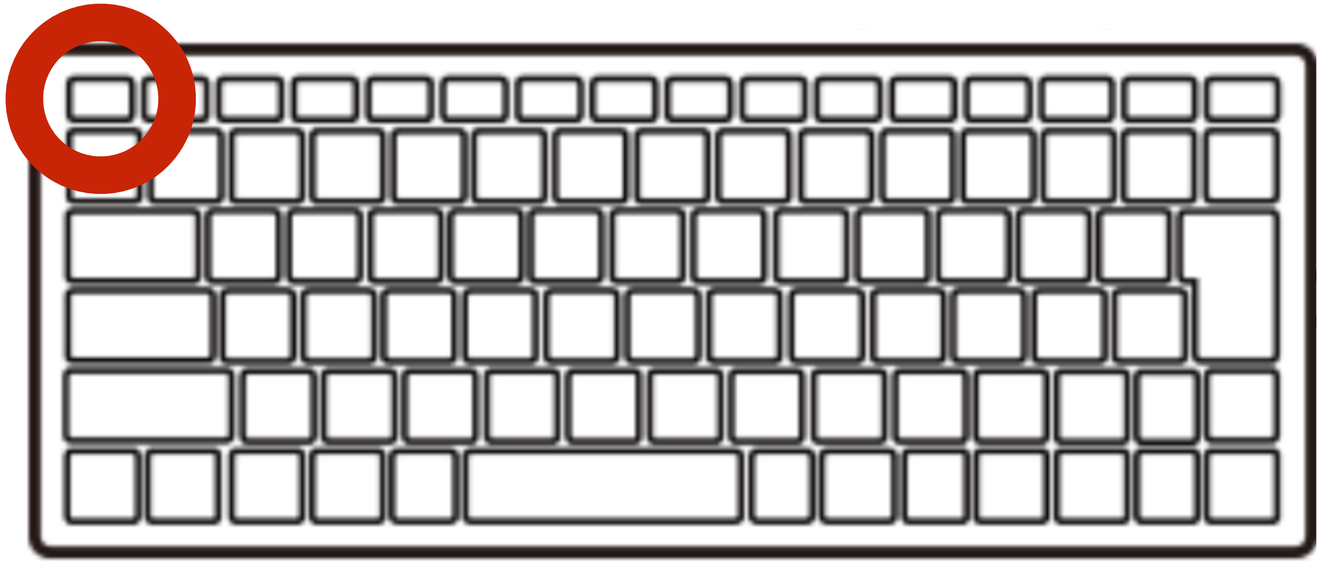
Game with LED!

If the LED will be ON,

you’re WINNER!

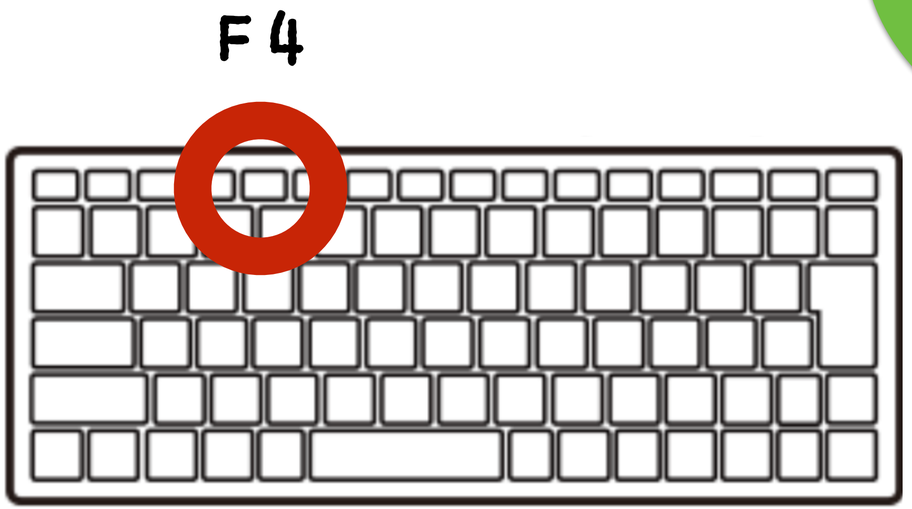
press ESC key to stop

[ESC]key



Show me LIST of program

LIST

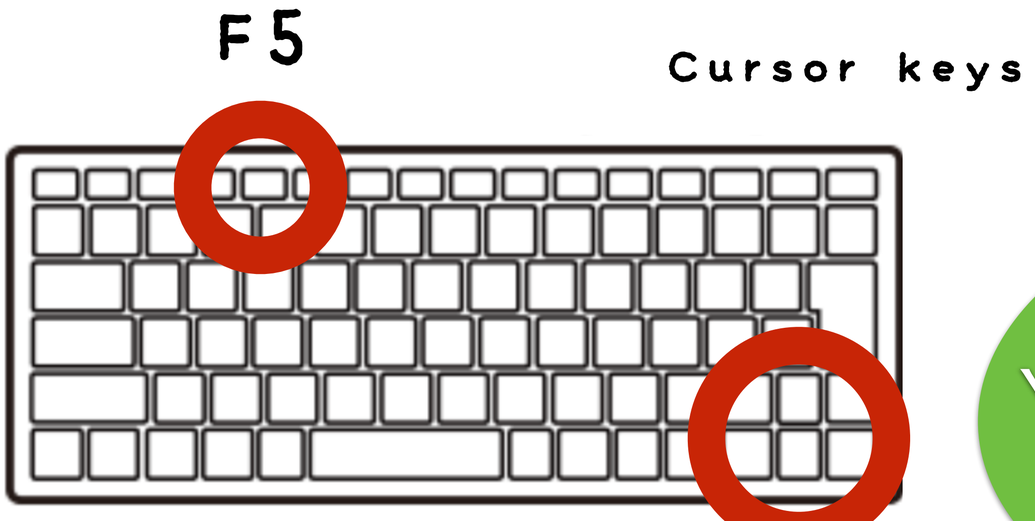


I remembered

Let's modify with cursor and backspace keys.

Press Enter key and F5 key after modifying.

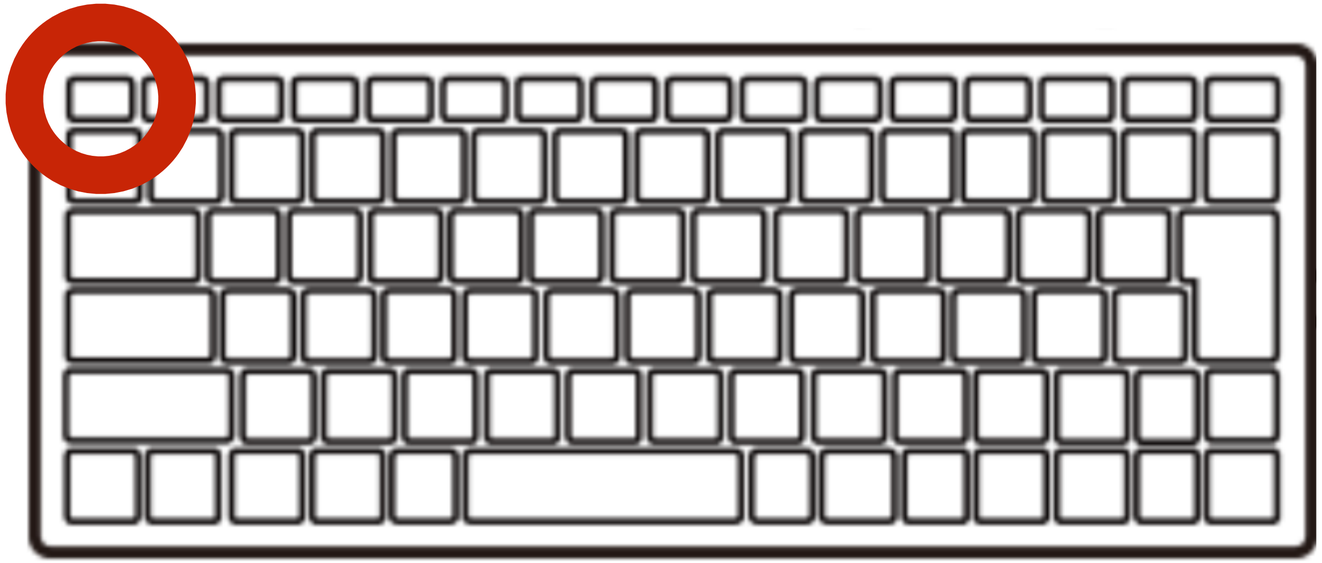
```
1 LED1:WAIT3 ↵
2 LED0:WAIT10
3 GOTO1
```



You can modify freely

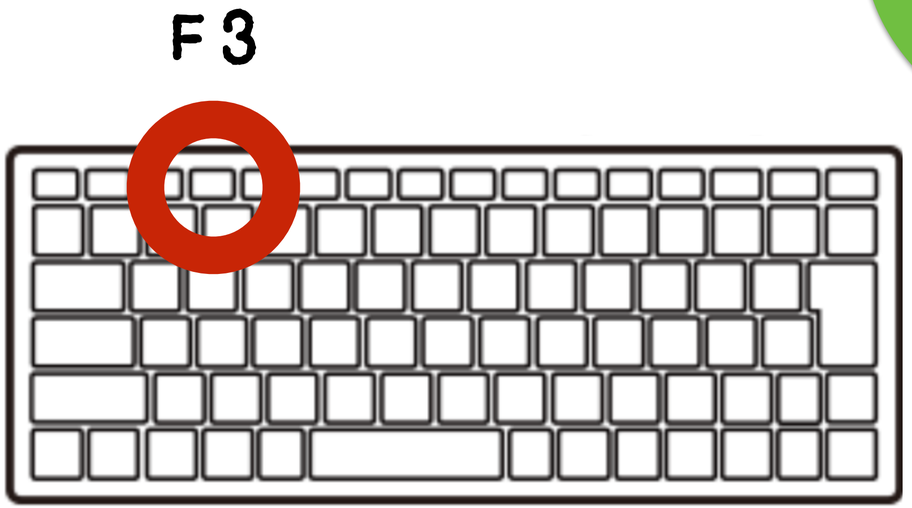
Press ESC key to stop

[ESC]key



Save the program

SAVE0↵



F3, 0, Enter

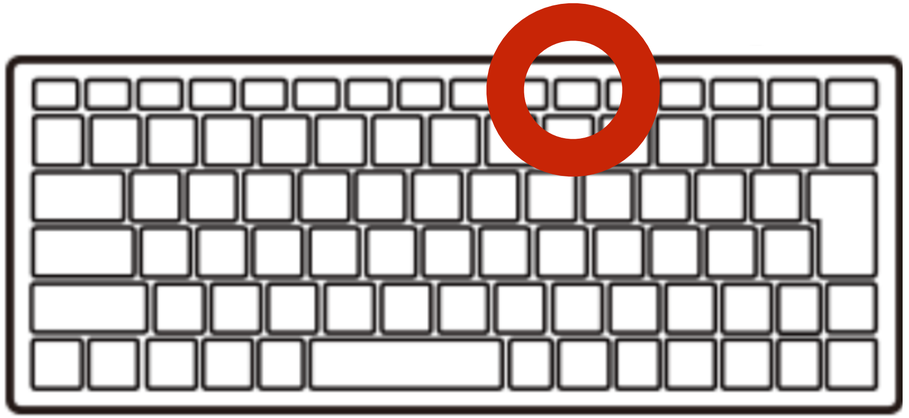
To confirm

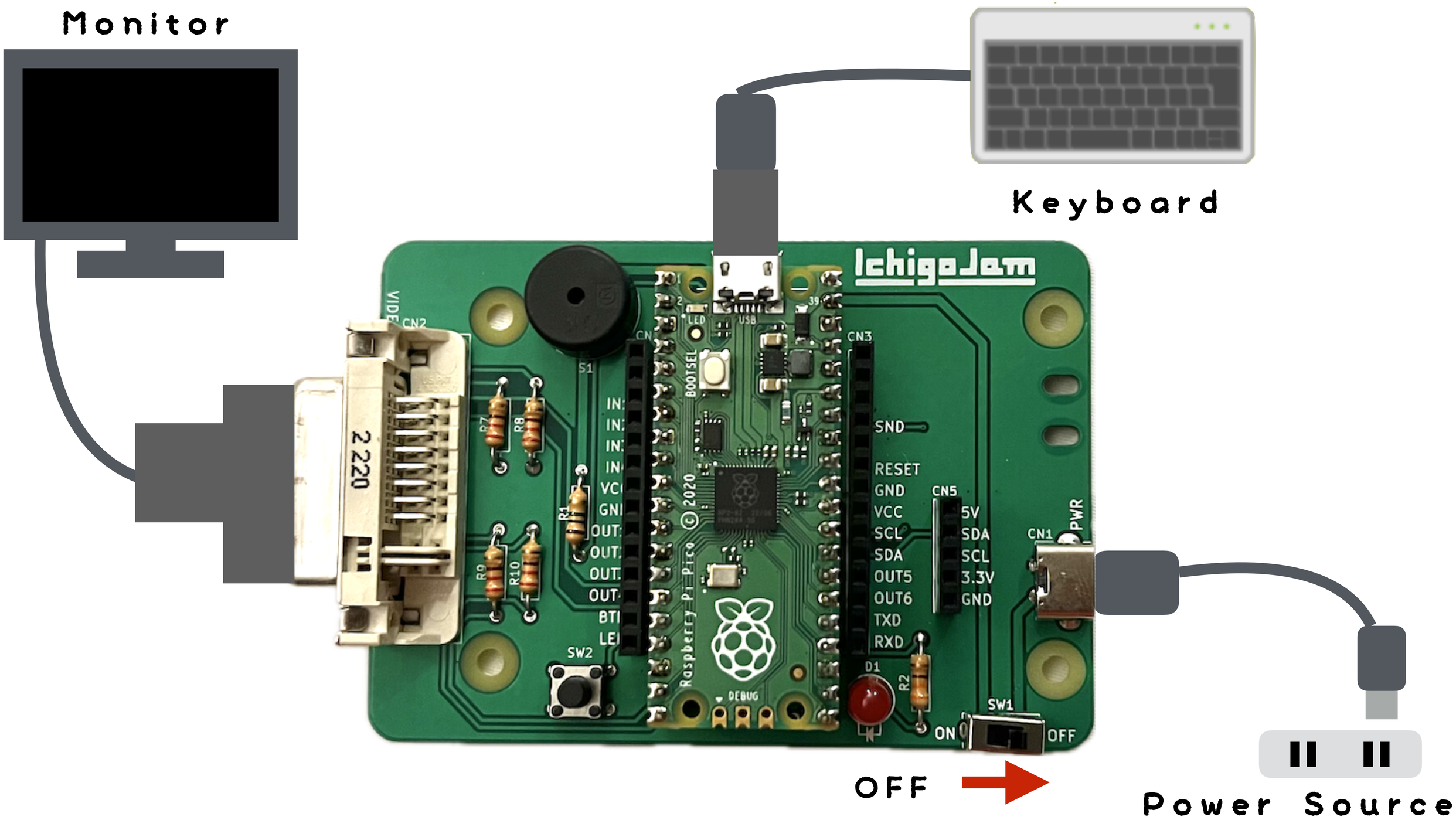
FILES4 ↵

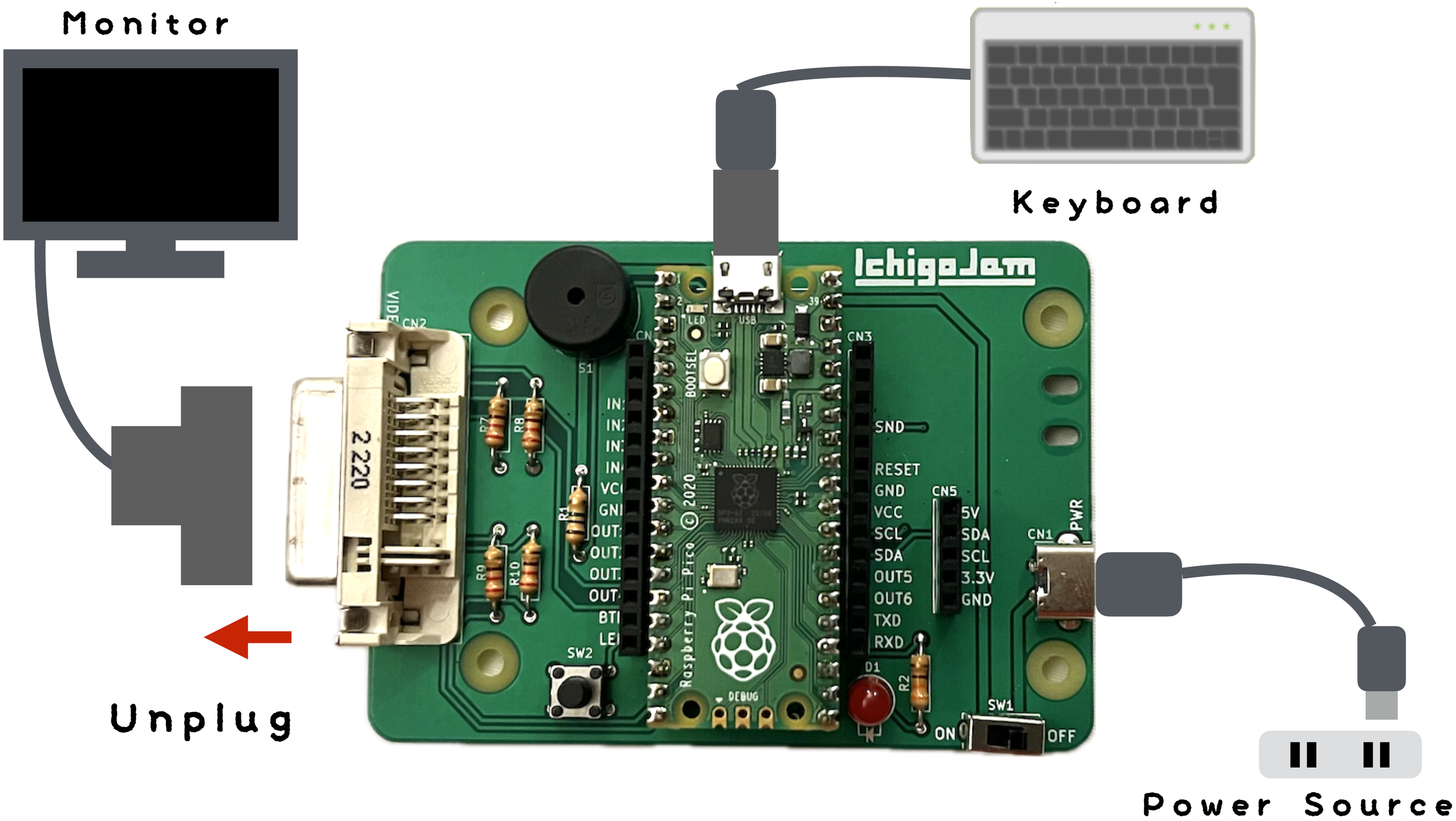
0 LED1:WAIT10

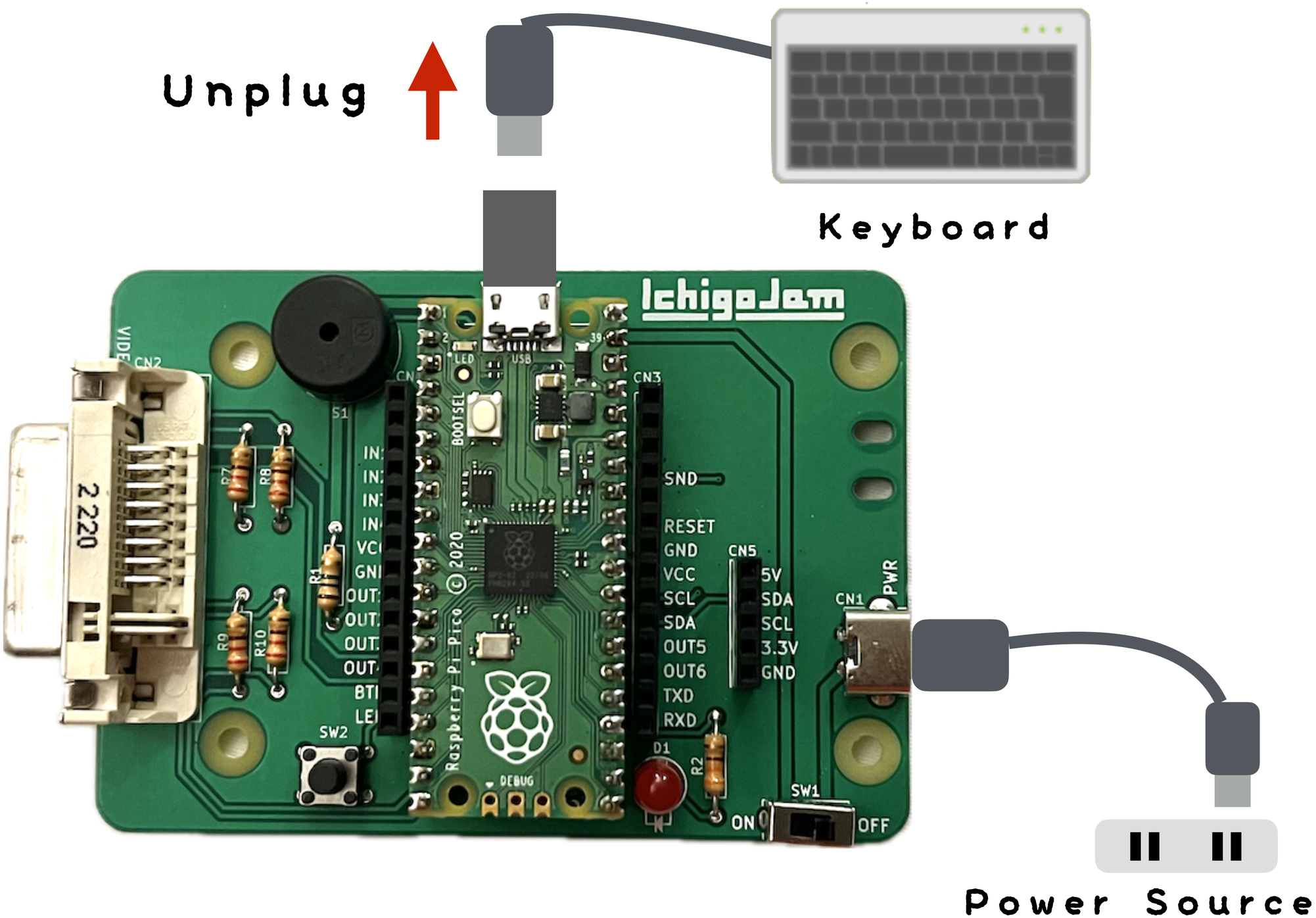
Check the file

F9




Monitor
Keyboard
IchigoJam
VIDEO
CN2
CN3
CN5
CN1
PWR
USB
LED
BOOTSEL
S1
SW2
SW1
D1
R1
R2
R7
R8
R9
R10
DEBUG
Raspberry Pi Pico © 2020
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
ON
OFF
OFF
Power Source


Monitor
Keyboard
Unplug
Power Source
IchigoJam
CN2
CN3
CN5
CN1
PWR
LED
USB
BOOTSEL
S1
SW2
SW1
ON
OFF
D1
R1
R2
R7
R8
R9
R10
DEBUG
Raspberry Pi Pico
© 2020
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND


Unplug
Keyboard
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CN2
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SW2
SW1
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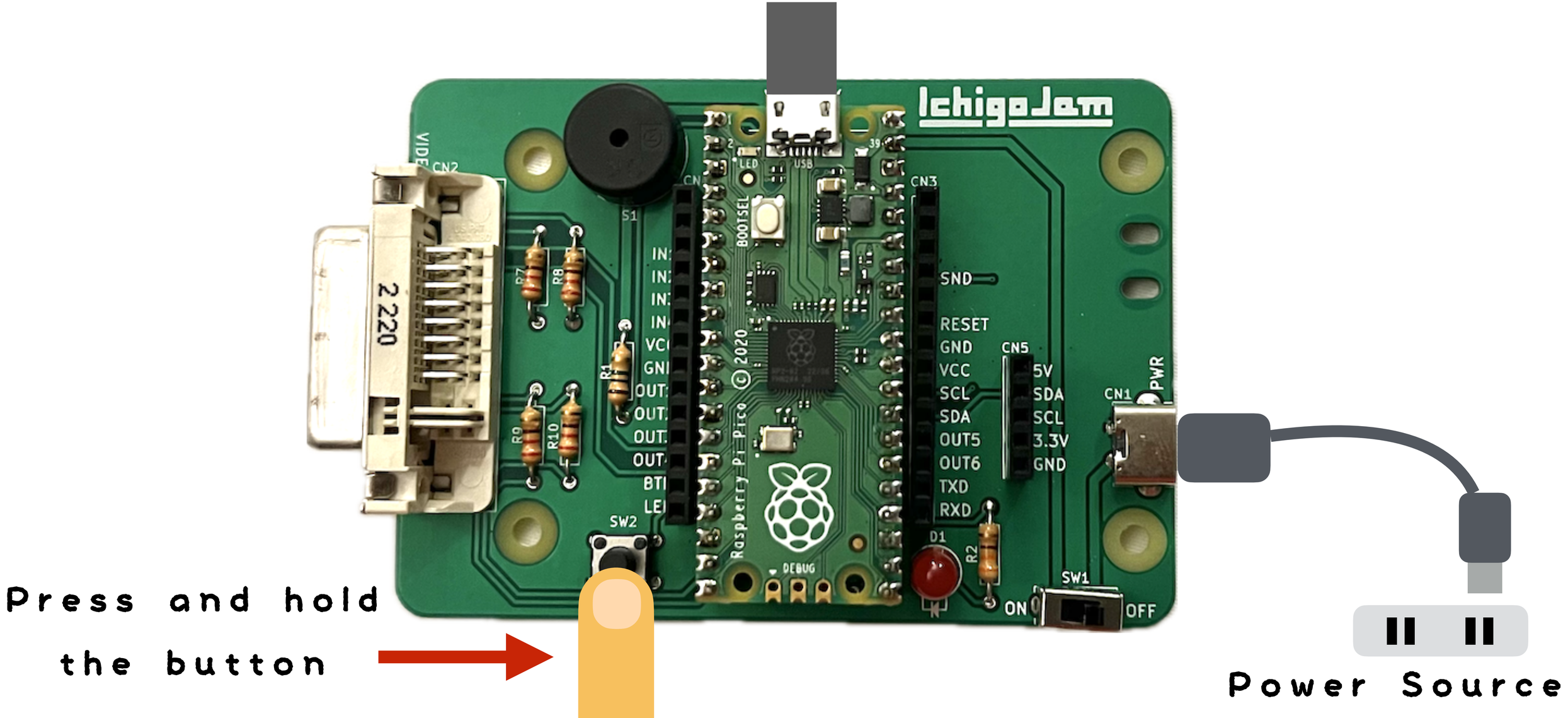
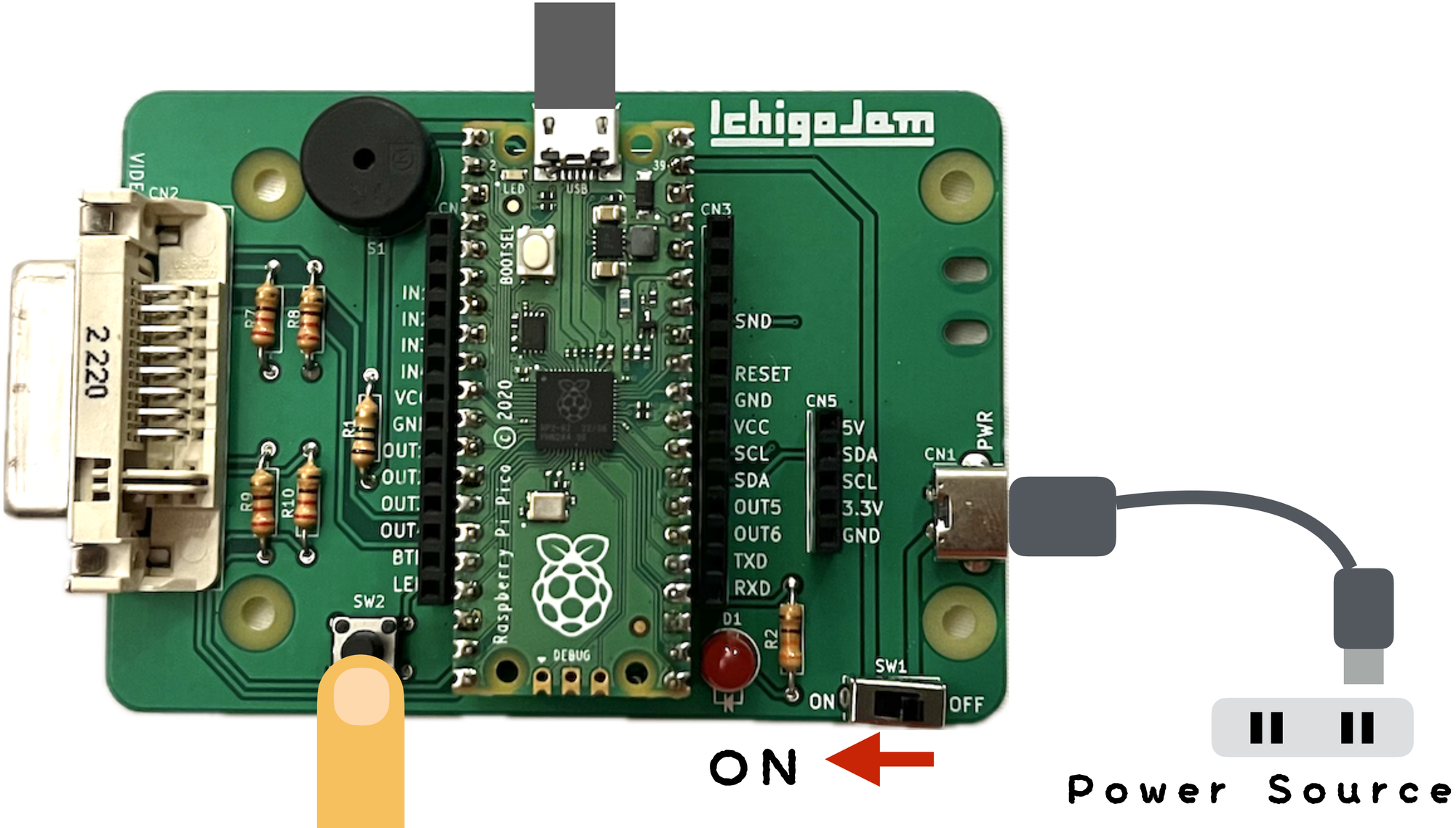
D1
R1
R2
R7
R8
R9
R10
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
DEBUG
Raspberry Pi Pico © 2020
Power Source


IchigoJam
CN2
CN3
CN5
CN1
PWR
LED
USB
BOOTSEL
S1
SW2
SW1
D1
R1
R2
R7
R8
R9
R10
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
ON
OFF
DEBUG
Raspberry Pi Pico © 2020
Press and hold
the button
Power Source


Ichigojam
CN2
CN3
CN5
CN1
PWR
LED
USB
BOOTSEL
S1
SW2
SW1
ON
OFF
D1
R1
R2
R7
R8
R9
R10
DEBUG
Raspberry Pi Pico
© 2020
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
ON
Power Source

You made a robot!

Computer + Power source = Robot Accessary Anything!

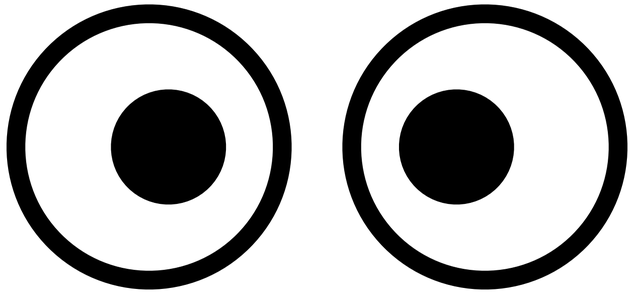
Robots around you

by Panasonic

All someone programed it!

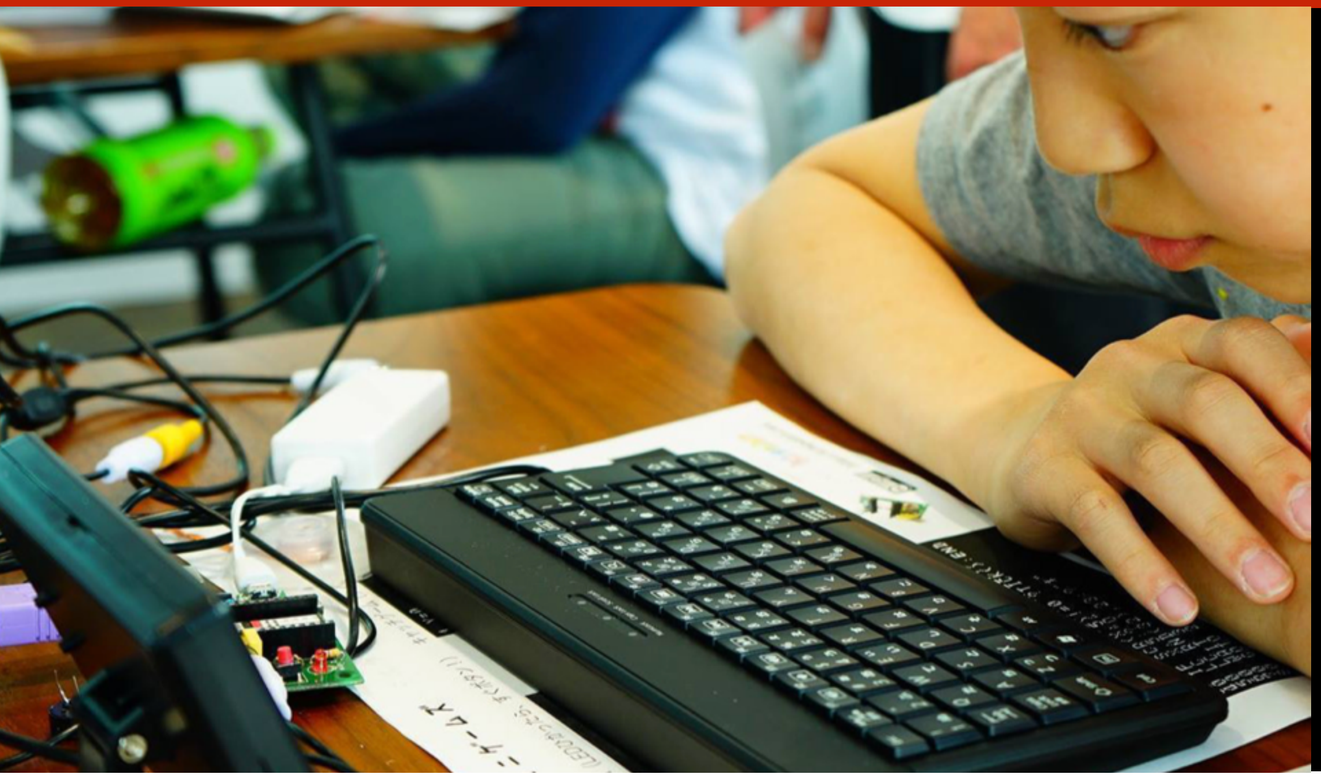
Where are computers?

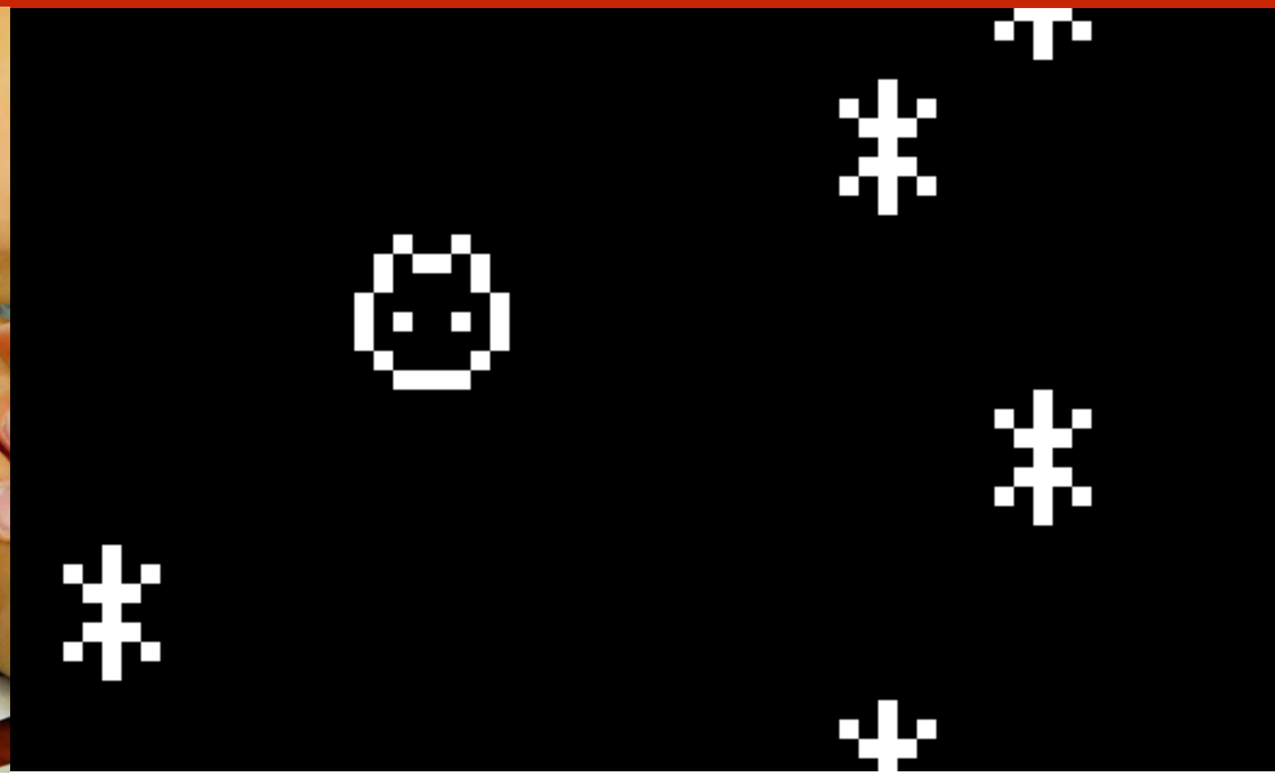
Let’s find computers around you!



Let’s make TV game!

with IchigoJam





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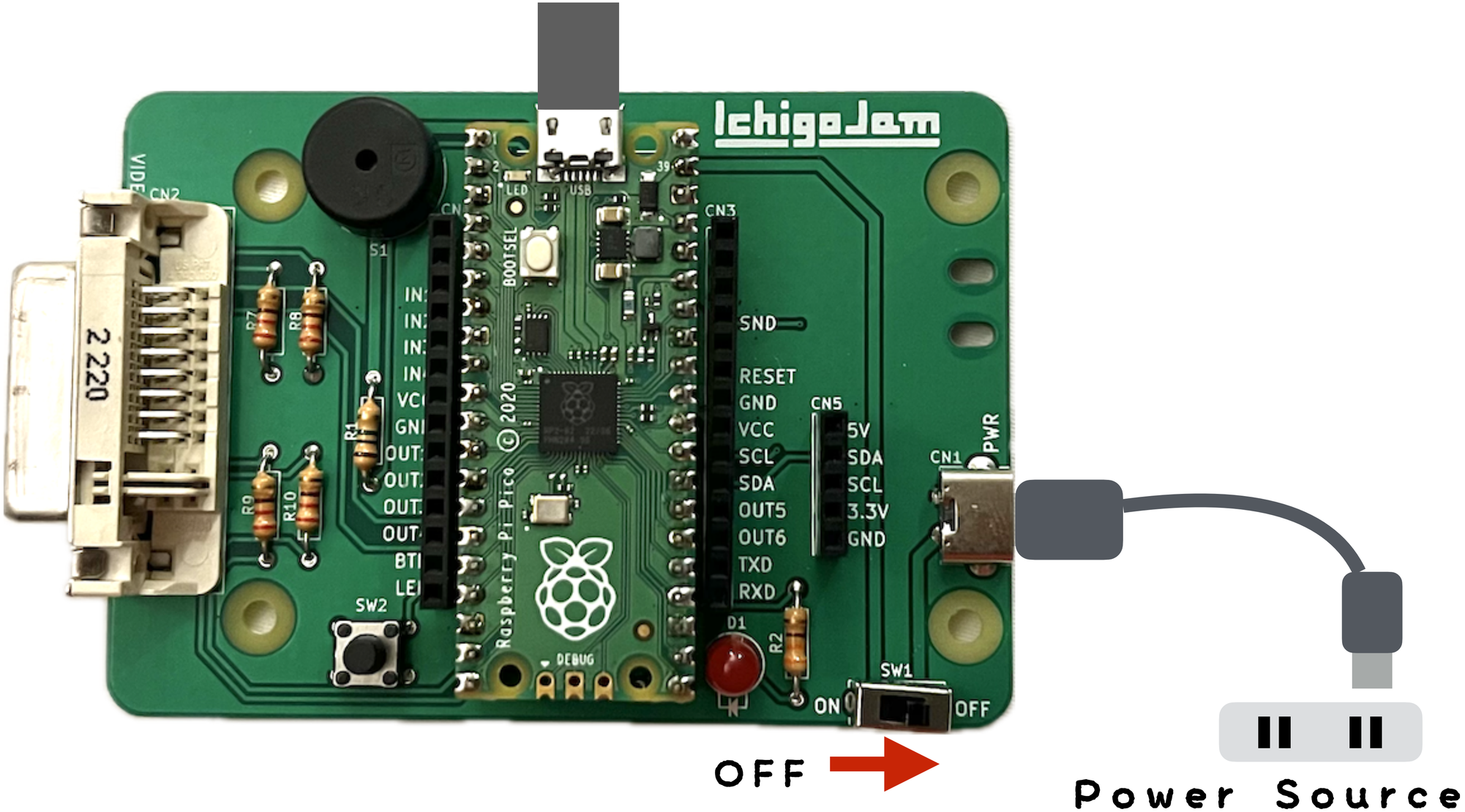
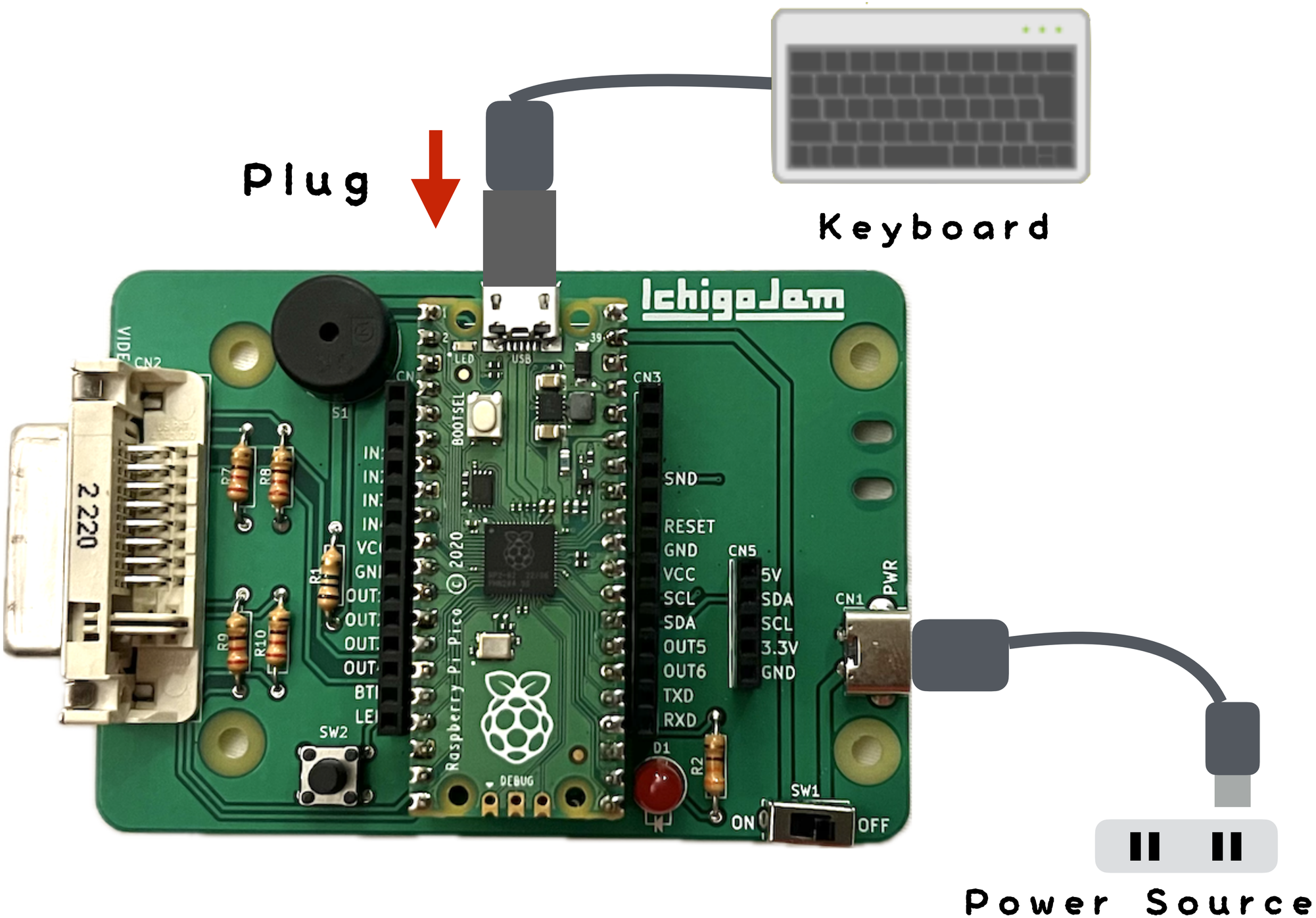
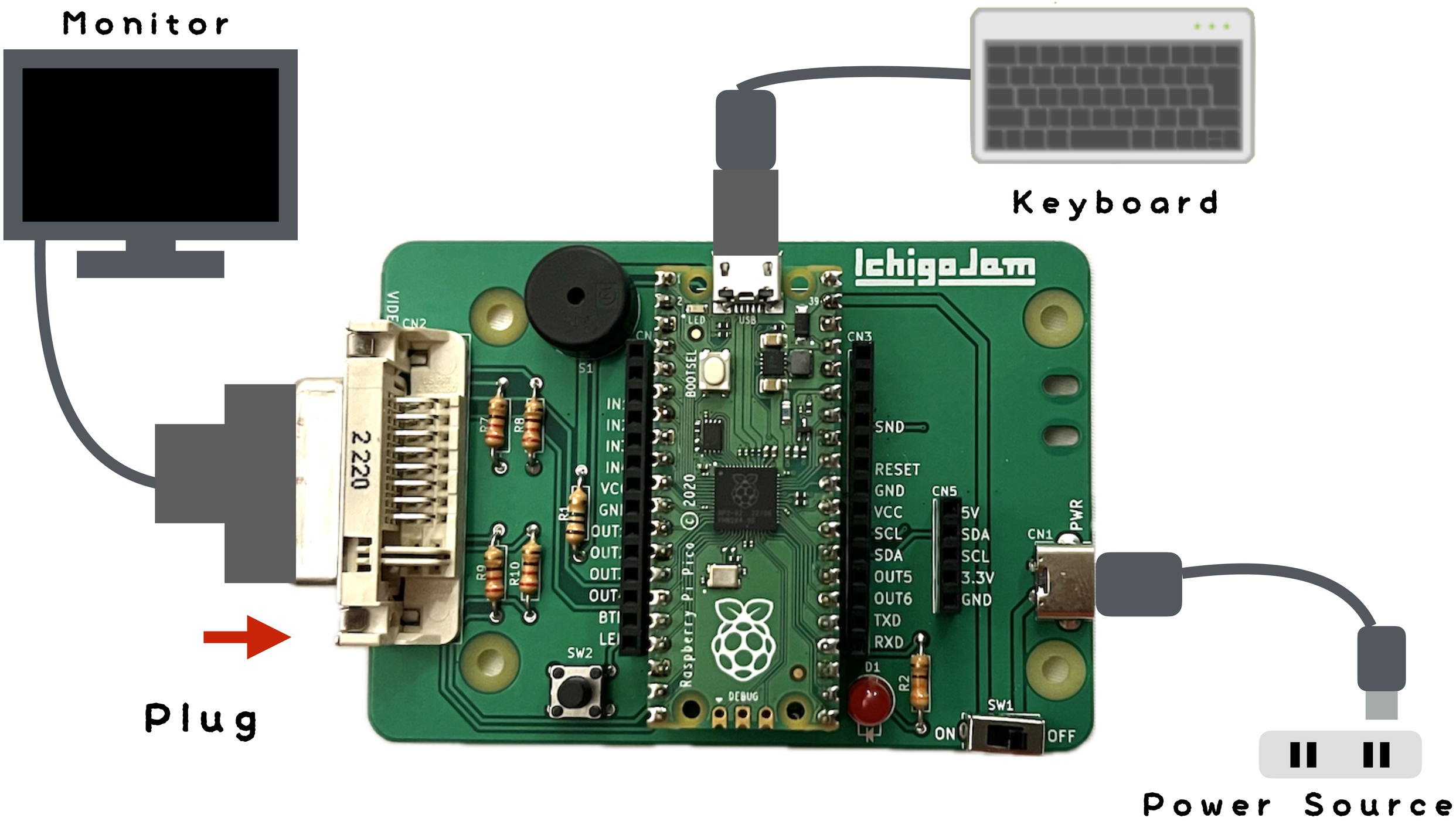
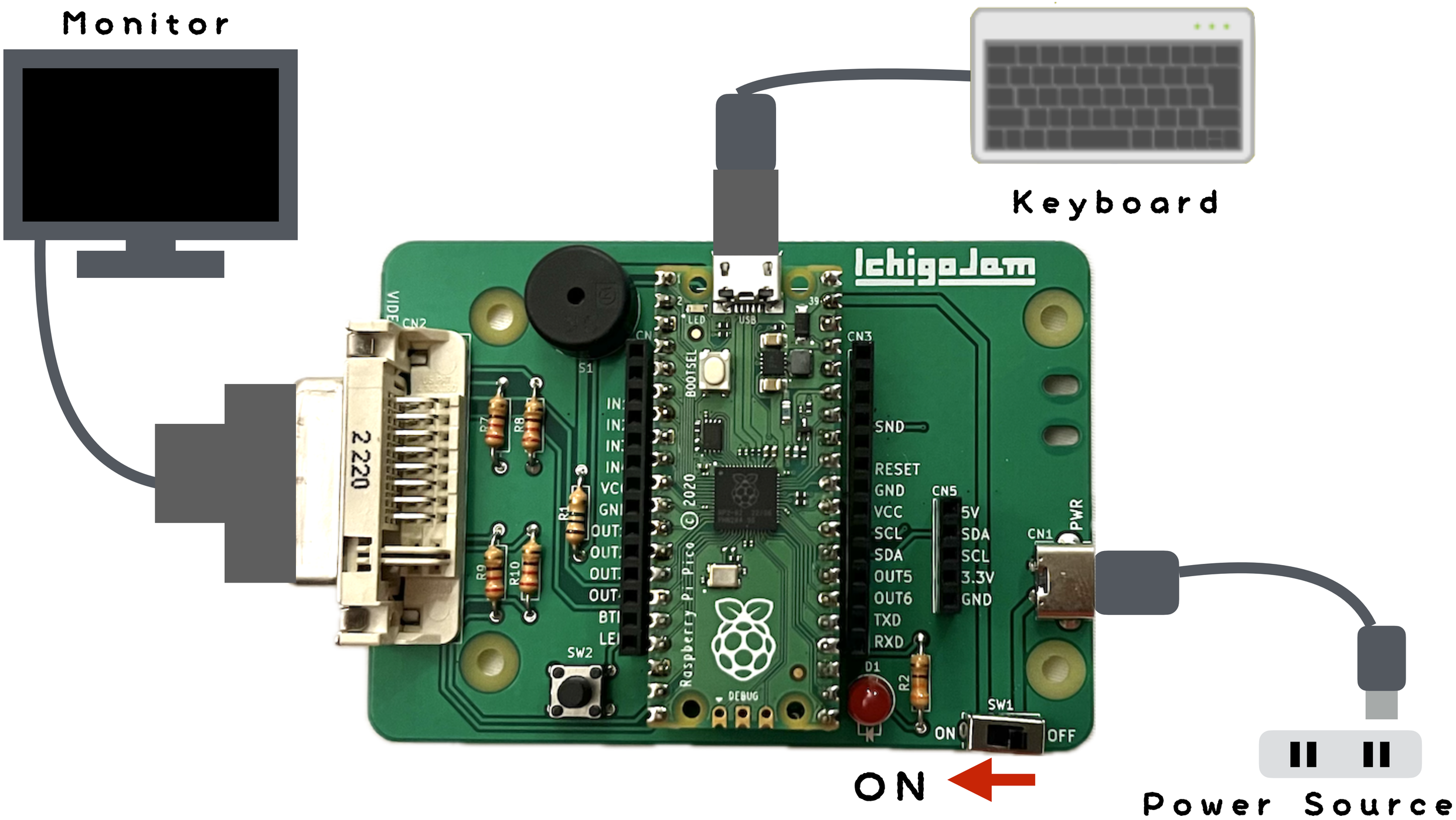
You can use freely with the credit.

https://ichigojam.net/


IchigoJam
CN2
CN3
CN5
CN1
PWR
LED
USB
BOOTSEL
S1
SW2
SW1
ON
OFF
D1
R2
R1
R7
R8
R9
R10
DEBUG
Raspberry Pi Pico
© 2020
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
OFF
Power Source


Plug
Keyboard
Ichigojam
CN2
CN3
CN5
CN1
PWR
LED
USB
BOOTSEL
S1
SW2
SW1
D1
R1
R2
R7
R8
R9
R10
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
DEBUG
ON
OFF
Raspberry Pi Pico
© 2020
Power Source

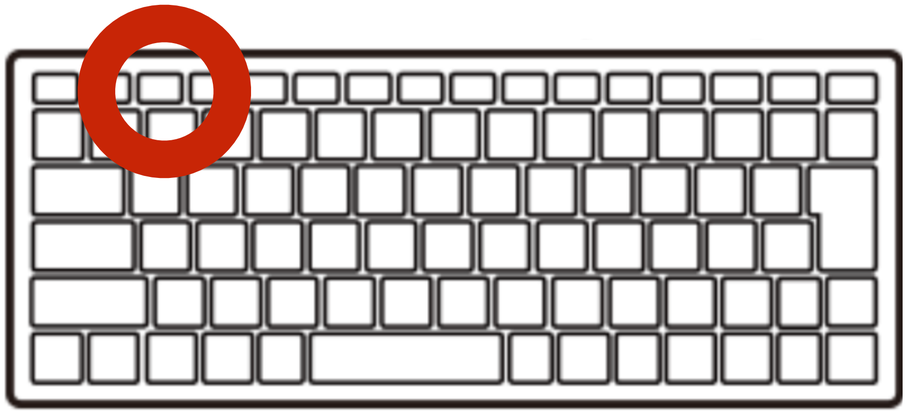

Monitor
Keyboard
Plug
Power Source
IchigoJam
CN2
CN3
CN5
CN1
PWR
USB
LED
BOOTSEL
S1
SW2
SW1
ON
OFF
D1
R2
R7
R8
R9
R10
R1
DEBUG
Raspberry Pi Pico © 2020
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND


Monitor
Keyboard
IchigoJam
VIDEO
CN2
CN3
CN5
CN1
PWR
LED
USB
BOOTSEL
S1
SW2
SW1
D1
R1
R2
R7
R8
R9
R10
DEBUG
Raspberry Pi Pico
© 2020
SND
RESET
GND
VCC
SCL
SDA
OUT5
OUT6
TXD
RXD
5V
SDA
SCL
3.3V
GND
ON
OFF
ON
Power Source

To load the program

LOAD0 ↵

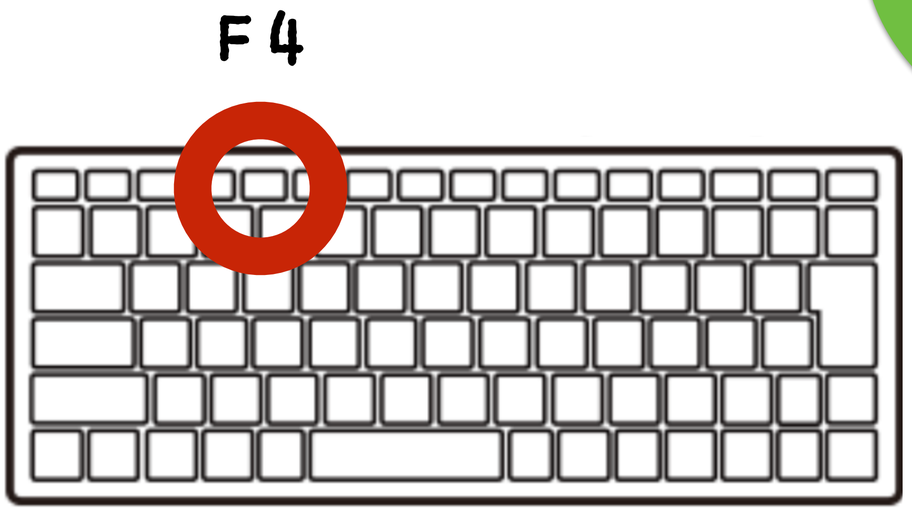
F2



F2, 0, Enter

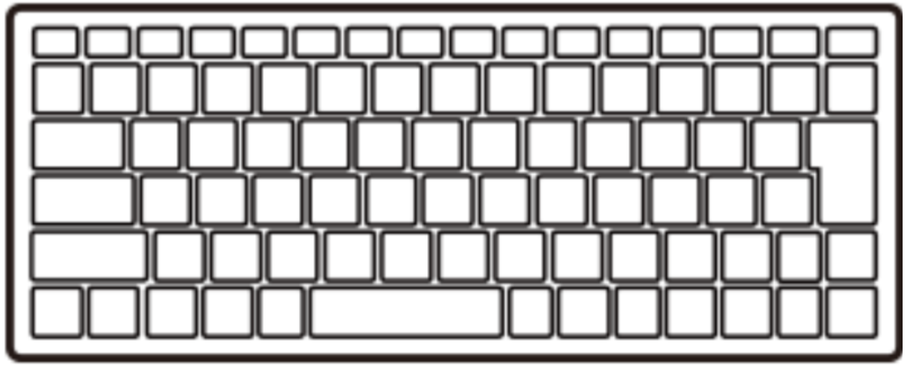
Show me List of program

LIST



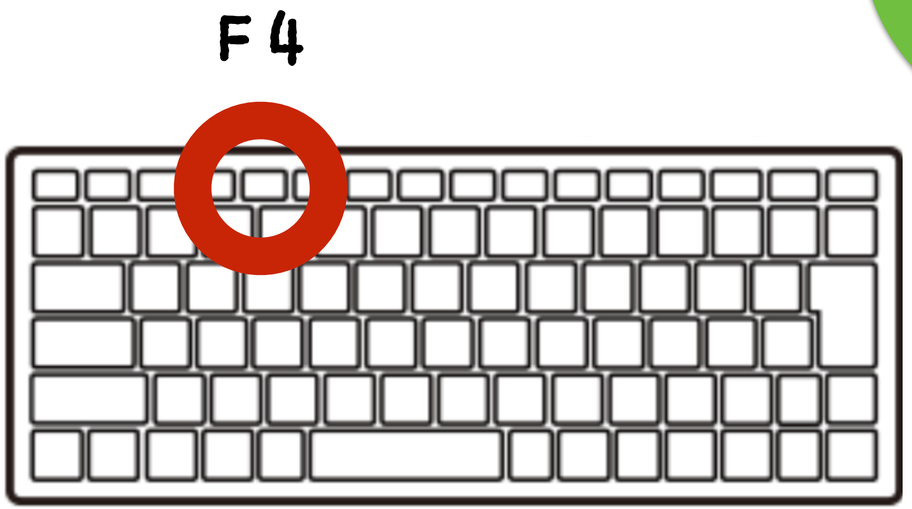
To start the new program

NEW ↵



Show me list of program

LIST

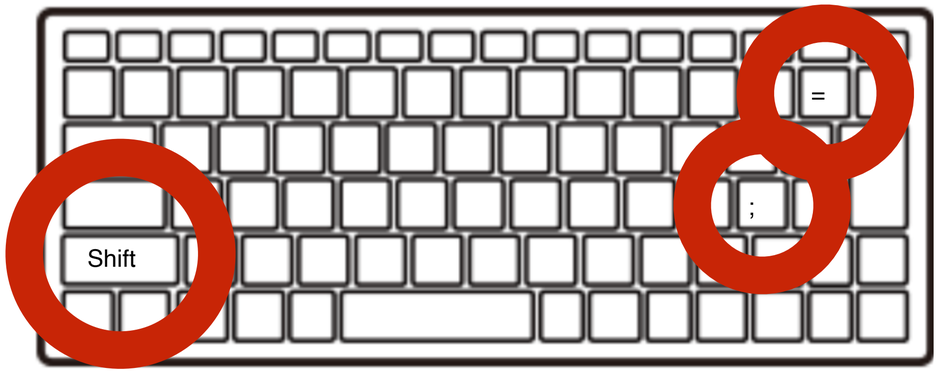


Colon

(Shift)

```
10 CLS:X=15 ↵
```

Equal

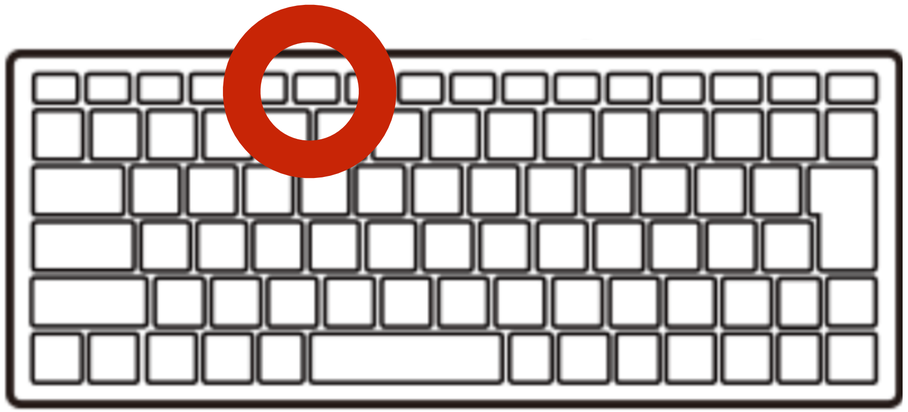


First, clear screen

Run the program

RUN

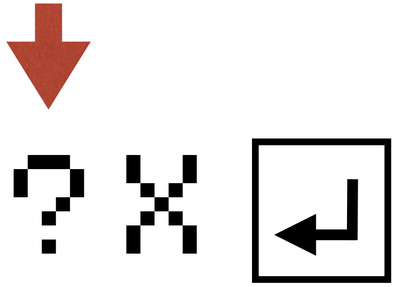
F5



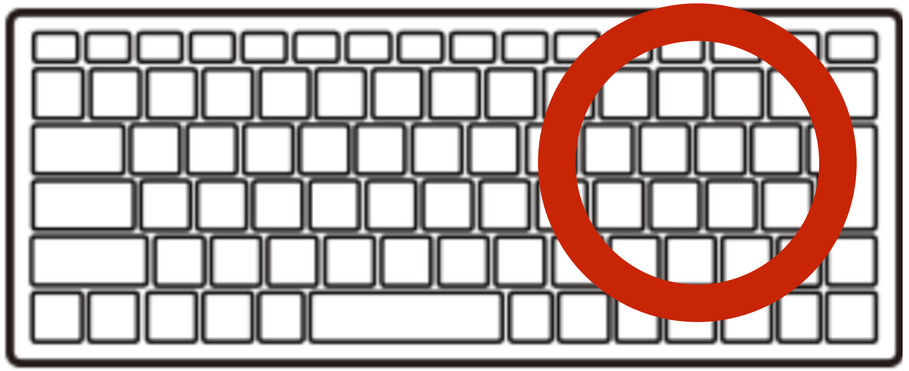
I run the program
numerical order

(Shift)

Question



Symbols

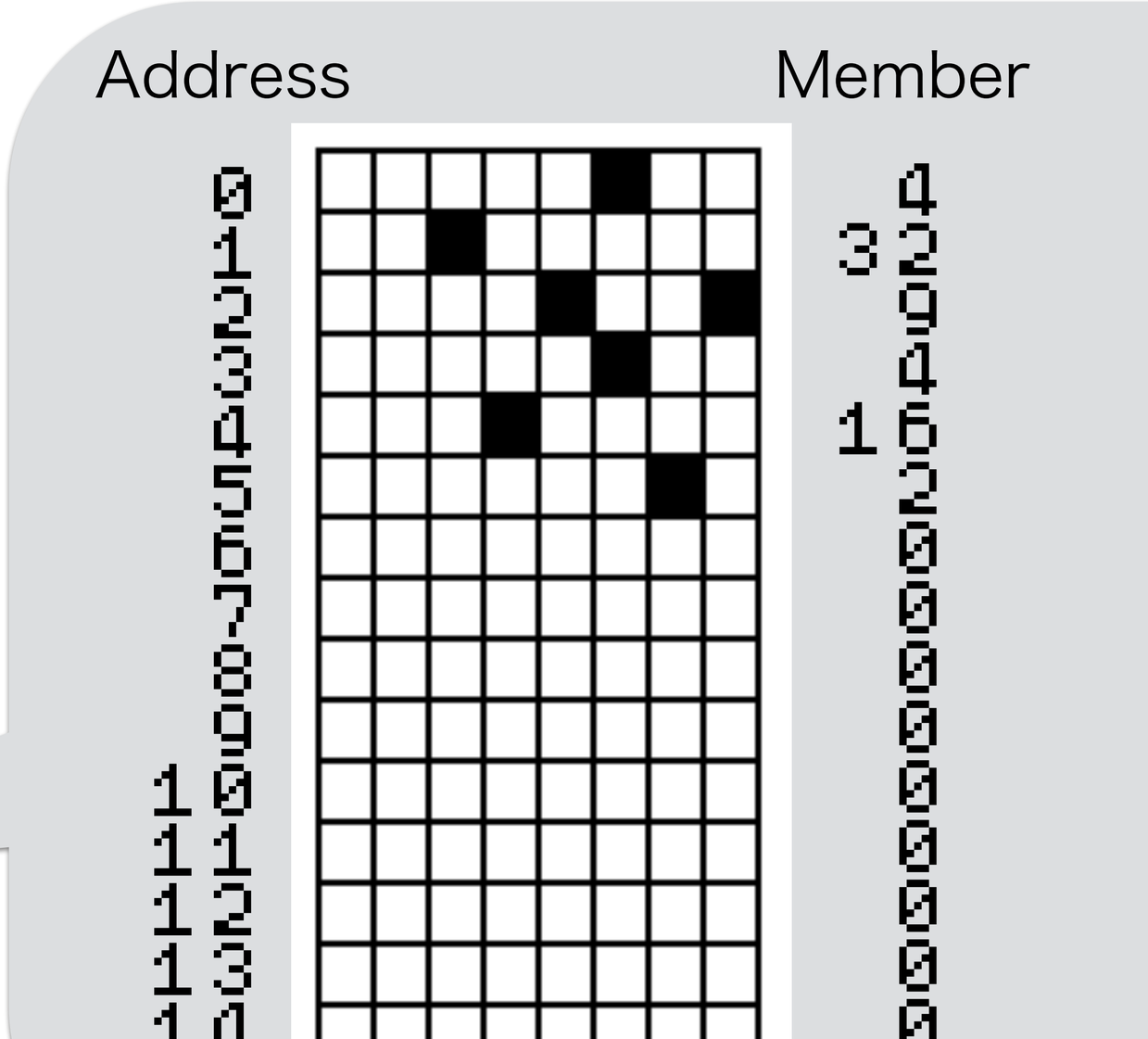


What is X?

memory by computer

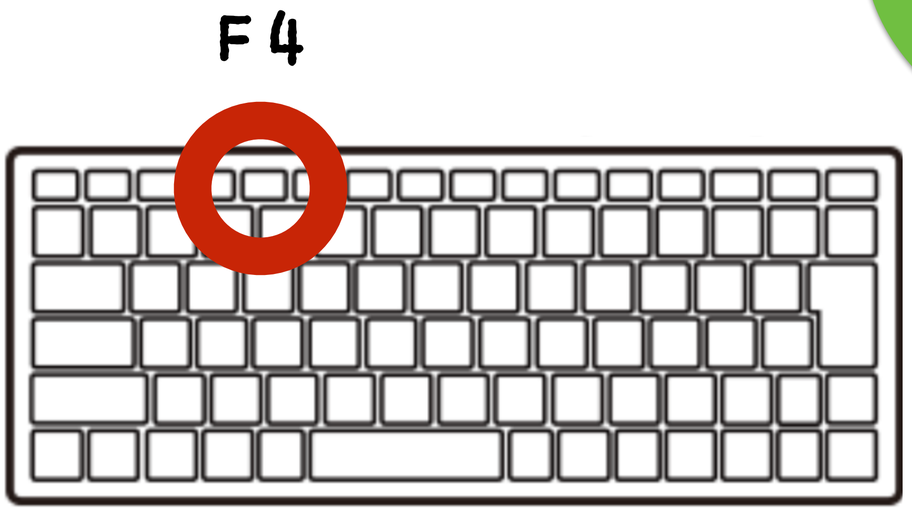
Computer memorise
by exists or not.
Each one called 1 bit.

I have
32768bit memory



Show me list of program

LIST



Conma (<)

Colon (Shift)

Double quote (Shift)

20 LC X,5:?"☺"↵

Question (Shift)

Alt+C Cat

F5

Symbols

My character

Bracket Shift+9

Bracket Shift+0

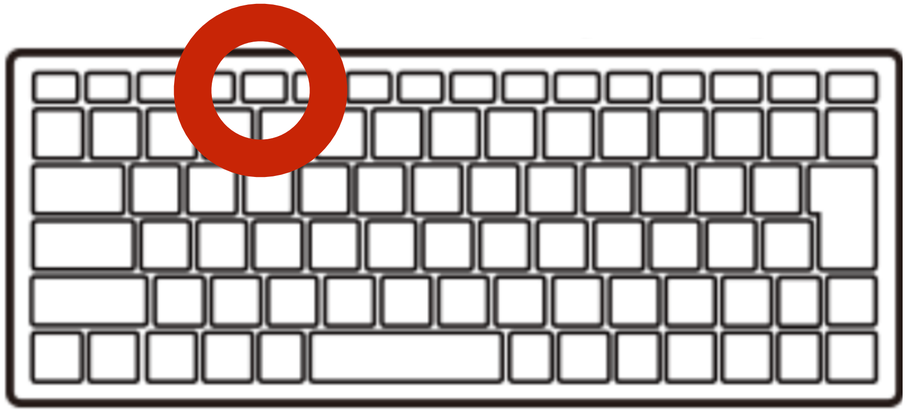
Double quote (Shift)

```
30 LC RND(32),23:?"*"↵
```

(<) Comma

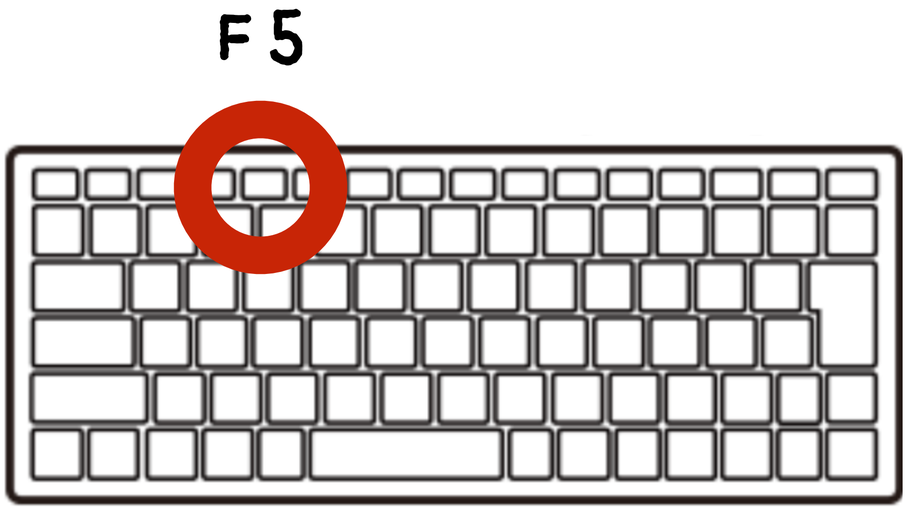
Shift+8 Asterisk

F5 Press and hold



てきキャラ

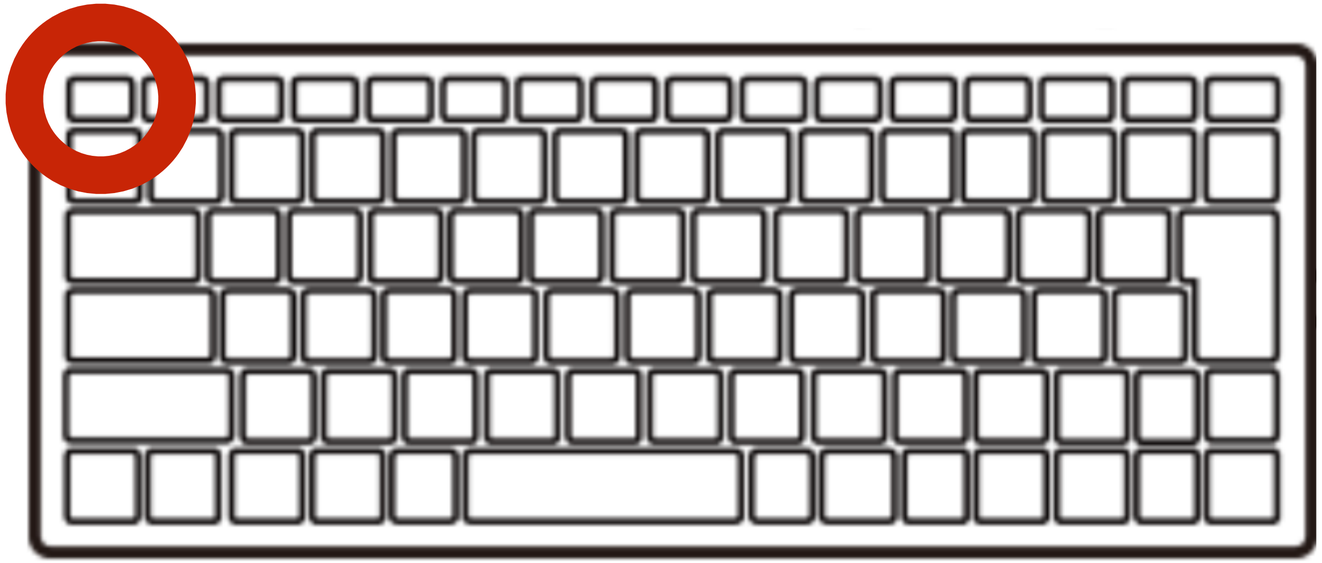
```
40 GOTO20↵
```



！？

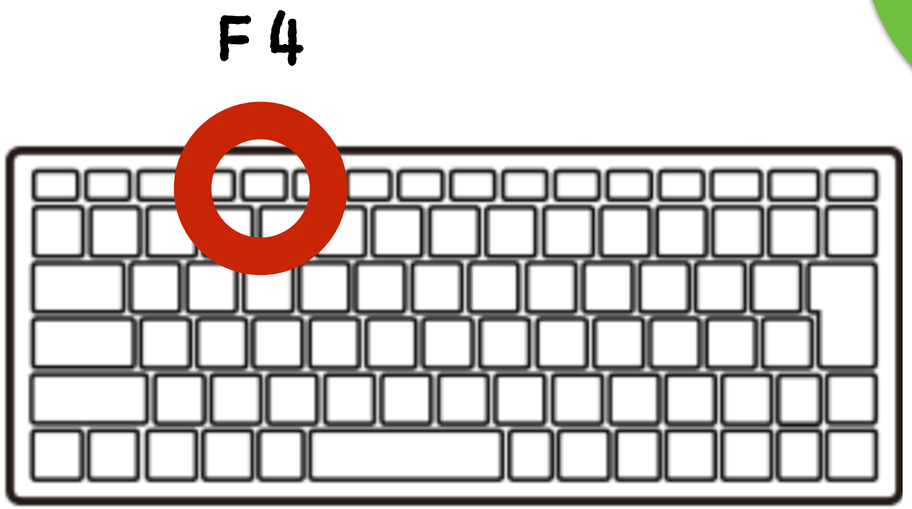
ESC key to stop

[ESC]key

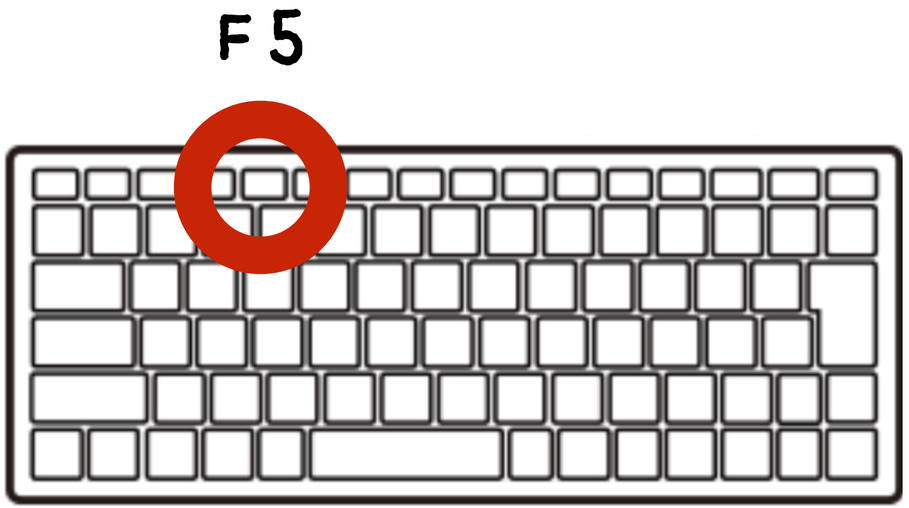


Show me list of program

LIST



35 WAIT3↵



Modifying speed

Bracket Shift+9

Bracket Shift+0

```
36 X=X-BTN(28)+BTN(29)↵
```

(Shift+=) Plus

Stop (ESC)

List (F4)

Run (F5)

Move by cursor
left: 28 right: 29

Bracket Shift+9

Bracket Shift+0

```
39 IF SCR(X,5) END↵
```

Stop (ESC)

List (F4)

Run (F5)

Hit test

I made a Game!?

There is a BUG

Equal

Shift+-

```
38  X=X&31 ↵
```

Shift+7

And

after modifying

Enter Key, F5

Let’s fix a bug!

I made a GAME!

eSports!

KAWAKUDARI Game (Downstream)

```
10  CLS:X=15
20  LC  X,5:?"@"
30  LC  RND(32),23:?"*"
35  WAIT  3
36  X=X-BTN(28)+BTN(29)
39  IF  SCR(X,5)  END
40  GOTO  20
```

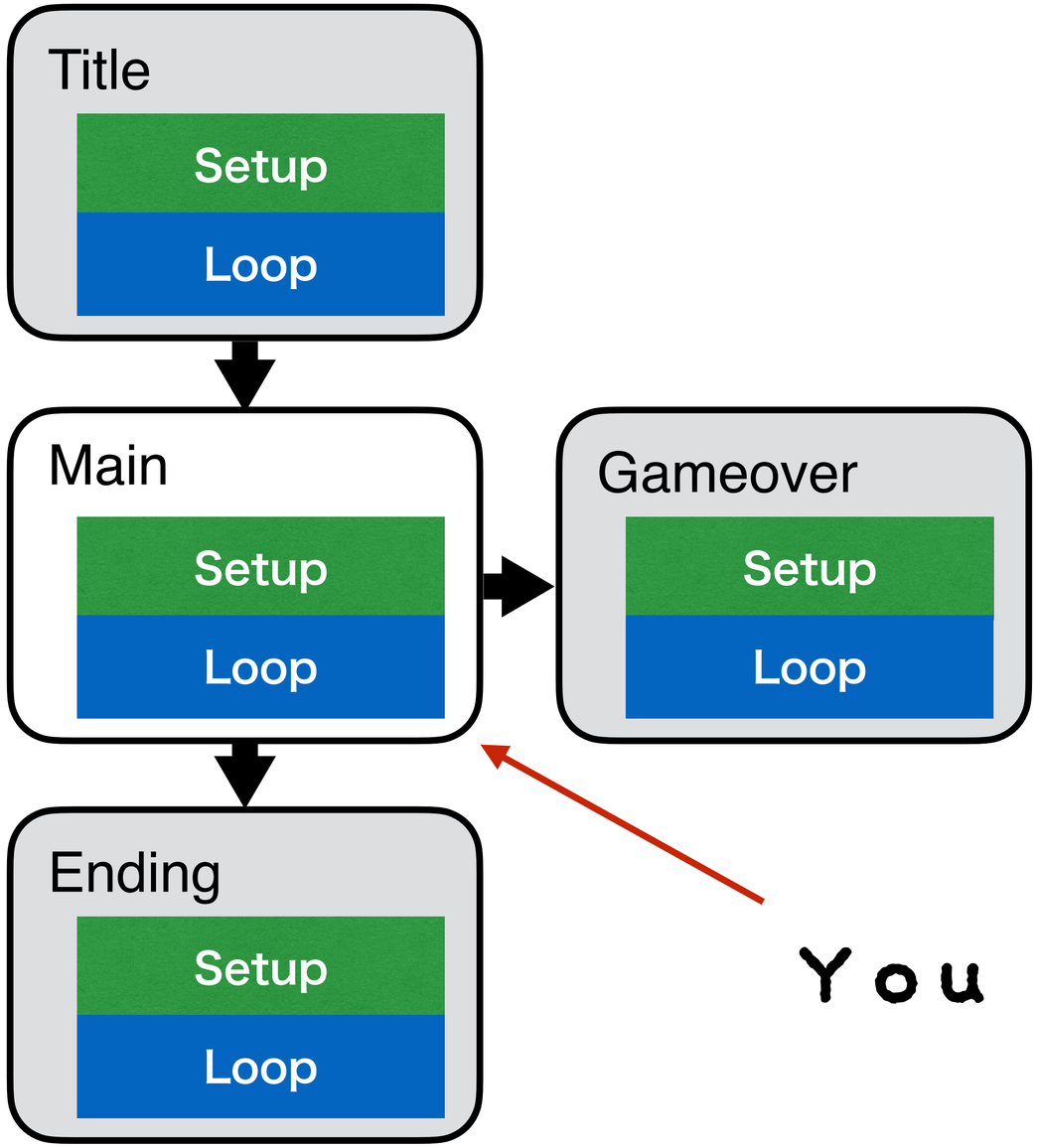
Setup (First time only)

Repeat the loop

If there are something in my position, then END

Basic of Apps

App by chains



You made here

Let’s customize!

```
10  CLS:X=15
20  LC  X,5:?"☺"
30  LC  RND(32),23:?"♪♪♪"↵
35  WAIT  3
36  X=X-BTN(28)+BTN(29)
37  X=X&31
39  IF  SCR(X,5)  END
40  GOTO  20
```

F4: List

modifying

Enter key, F5

Become harder

```
10  CLS:X=15
20  LC  X,5:?"☺"
30  LC  RND(32),23:?"♪♪♪"
35  WAIT  6↵
36  X=X-BTN(28)+BTN(29)
37  X=X&31
39  IF  SCR(X,5)  END
40  GOTO  20
```

F4: List

modifying

Enter key, F5

Become easier

```
10  CLS:X=15:CLT
20  LC  X,5:?"☺"
30  LC  RND(32),23:?"♪♪♪"
35  WAIT  6
36  X=X-BTN(28)+BTN(29)
37  X=X&31
39  IF  SCR(X,5)  ?TICK():END
40  GOTO  20
```

F4: List

modifying

Enter key, F5

Add a score

```
10  CLT:CLS:X=15
20  LC  X,5:?"☺"
30  LC  RND(32),23:?"♪♪♪"
35  WAIT  10-TICK()/120↵
36  X=X-BTN(28)+BTN(29)
37  X=X&31
39  IF  SCR(X,5)  ?TICK():END
40  GOTO  20
```

F4: List

modifying

Enter key, F5

Slow to Fast

```
10  CLT:CLS:X=15:PLAY"$CDE2"↵
20  LC  X,5:?"@"
30  LC  RND(32),23:?"♪♪♪"
35  WAIT  10-TICK()/120
36  X=X-BTN(28)+BTN(29)
37  X=X&31
39  IF  SCR(X,5)  ?TICK():END
40  GOTO  20
```

F4: List

modifying

Enter key, F5

Add a sound

```
10  CLS:X=15
20  LC  X,5:?"☺"
30  LC  RND(32),23:?"♪♪♪"
35  WAIT  6
36  X=X-BTN(28)+BTN(29)
37  X=X&31
39  IF  SCR(X,5)  END
40  GOTO  20
33  BEEP  RND(15)↵
```

F4: List

modifying

Enter key, F5

BGM

```
5 CLS:LC 10,10:?"DOWNSTREAM"
6 LC 7,14:?"PRESS KEY TO START"
7 IF INKEY()=0 GOTO7
```

Title

```
34 IF TICK()>999 ?"CLEAR!":END
```

Ending

```
31 IF BTN(32) CLS
```

SPACE key
as the bomb

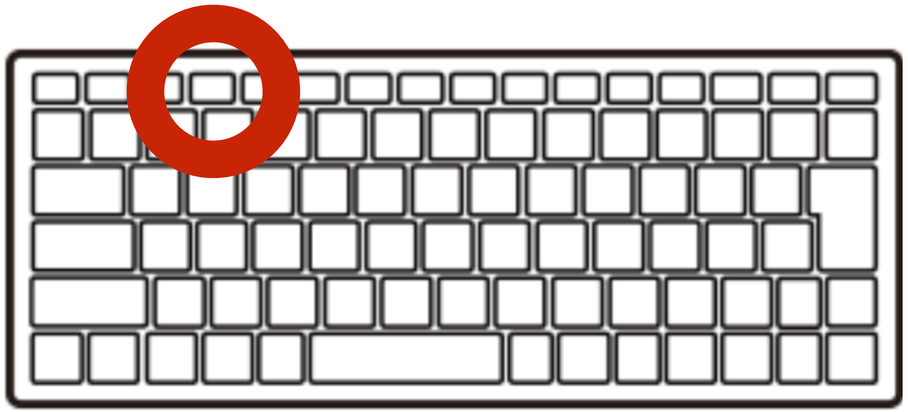
```
15 L=1
25 LC RND(32),23:?"%";
39 N=SCR(X,5):IF N IF N=36
L=L+1 ELSE L=L-1:IF L=0 END
```

Life up item

To save (0 ~99, 100 files)

SAVE1 ↵

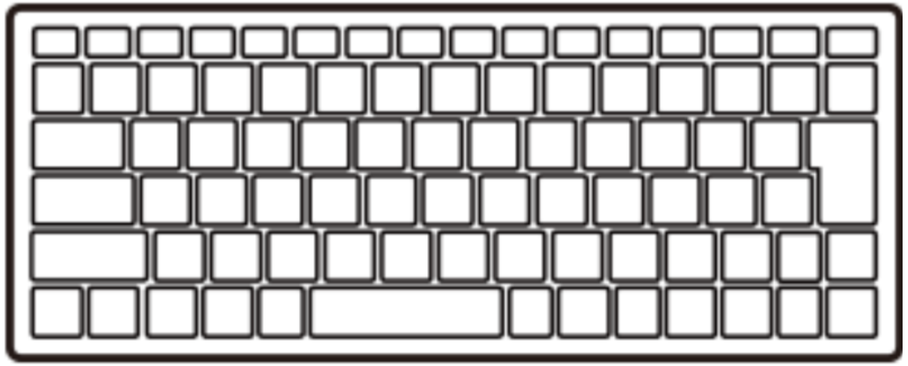
F3



F3, 1, Enter key

To check your storage

FILES4 ↵



on your PC / smartphone

IchigoJam web

https://fukuno.jig.jp/app/IchigoJam/

DEMO

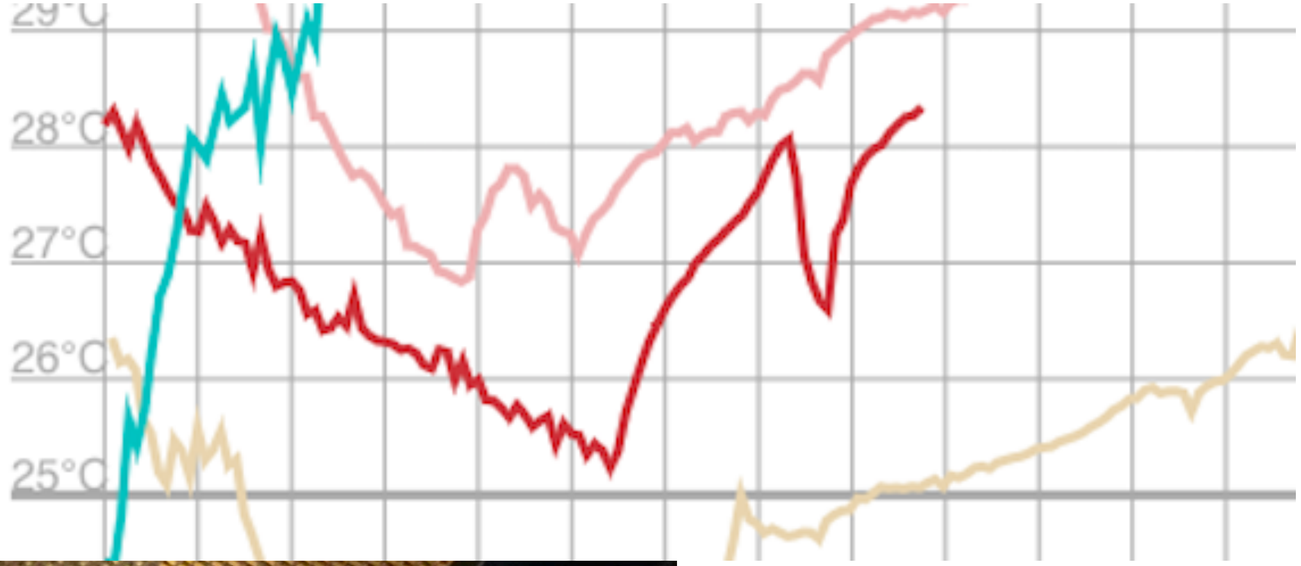
NHK
Ohayo Nippon
(Tokai Hokuriku)
2015.12.7

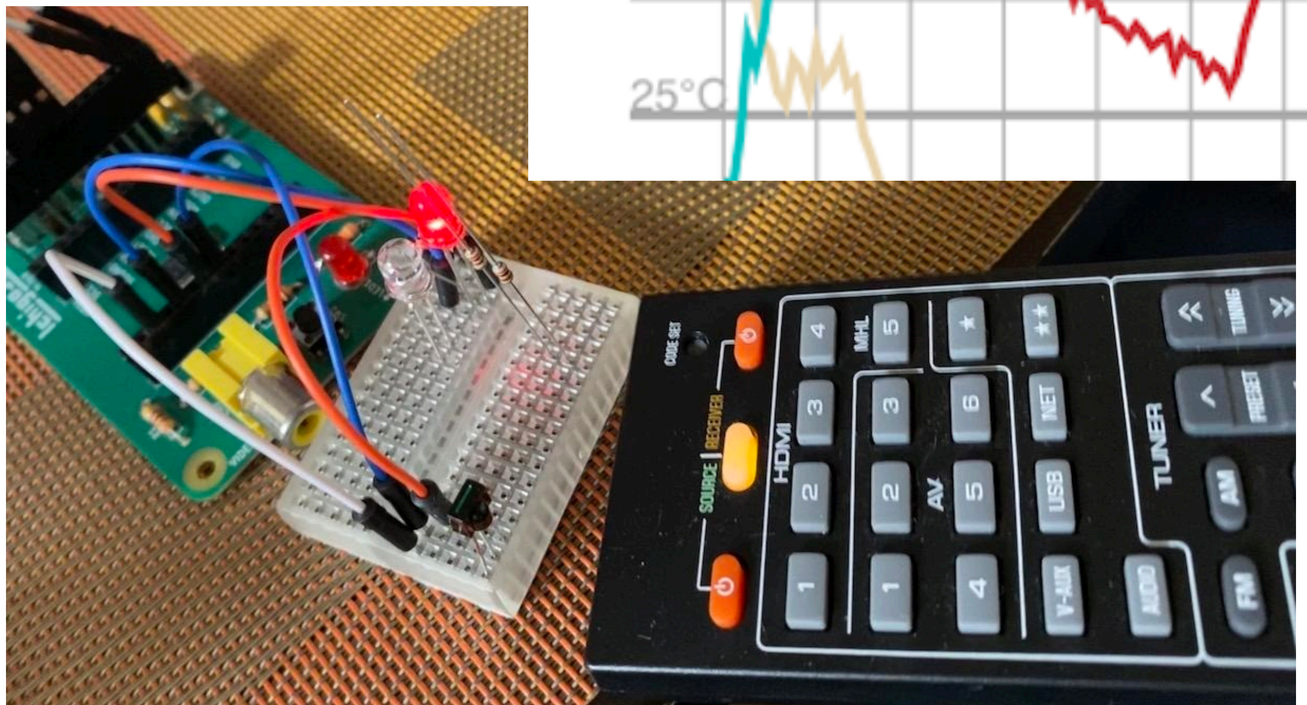
Mail notification if catch
Boars IoT
by Mr. Tanikawa
65 years old man
with IchigoJam

IoT x Fire Alarm by SO-DEN

IchigoJam programmed by
Mr. Tone, a president of SO-DE

AC auto control by temperature





Hearstroke measures

https://fukuno.jig.jp/2952

You can make

Robots and Apps!

IchigoJam BASIC リファレンス

https://ichigojam.net/IchigoJam.html

キーボード操作

操作	解説
キー	文字を入力する
Shift / シフト	キーと共に押し記号や小文字などを入力する
カタカナ	アルファベットとカタカナ（ローマ字入力）を切り替える（右ALT、CTRL+SHIFT / コントロール+シフトでも可）
Enter / エンター	コマンドを実行する（プログラム変更時もその行でEnterキー）
Shift+Enter / シフト＋エンター	行を分割する
ESC / エスケープ	プログラムの実行、リスト表示、ファイル一覧表示を止める
カーソルキー	カーソルキーを移動する
Backspace / バックスペース	カーソルの前の文字を消す
Delete / デリート	カーソルにある文字を消す
左ALT / オルト	0-9/A-Kと合わせて押すことで拡張文字入力（SHIFT押しながらで切り替え）、'['と合わせて押して'_'、']'と合わせて押して'\'や'¥'の入力
Home End / ホーム エンド	カーソルを行頭へ移動、カーソルを行末へ移動
Page Up Page Down / ページアップ ページダウン	カーソルを画面上へ移動、カーソルを画面下へ移動
Caps / キャップス	大文字と小文字を切り替える
Insert / インサート	キーボードの上書きモード/挿入モードを切り替える（CTRL+ALTでも可能）
ファンクションキー	F1:画面クリア、F2:LOAD、F3:SAVE、F4:LIST、F5:RUN、F6:?FREE()、F7:OUT0、F8:VIDEO1、F9:FILES
ボタン	押しながら起動でFILE0を自動実行する

初級コマンド

コマンド	解説	例
LED 数 / エルイーディー	数が1なら光り、0なら消える	LED 1
WAIT 数1{,数2} / ウェイト	数1の数値フレーム分待つ 60で約１秒、省略可の数2指定で低電力化、数1のマイナス指定で走査線分で待つ(-261でWAIT1と同等)	WAIT 60
: / コロン	コマンドを連結する	WAIT 60:LED 1
行番号 コマンド	プログラムとしてコマンドを記録する	10 LED1
行番号	指定した行番号のプログラムを消す	10
RUN / ラン	プログラムを実行する [F5]	RUN
LIST {行番号1{,行番号2}} / リスト	プログラムを表示する [F4] （行番号1で1行表示、行番号1がマイナスでその行まで表示、行番号2指定でその行まで表示、行番号2が0の時終わりまで表示、ESCで途中停止）	LIST 10,300
GOTO 行番号 / ゴートゥー	指定した行番号へ飛ぶ（式も指定可能）	GOTO 10
END / エンド	プログラムを終了する	END
IF 数 {THEN} 次1 {ELSE 次2} / イフ・ゼン・エルス	数が0でなければ次1を実行し、0であれば次2を実行する （THEN,ELSE以降は省略可）	IF BTN() END
BTN({数}) / ボタン	ボタンが押されていれば1、そうで無いとき0を返す（数：0(付属ボタン)/UP/DOWN/RIGHT/LEFT/SPACE、省略で0）	LED BTN()
NEW / ニュー	プログラムを全部消す	NEW
PRINT {数や文字列} / プリント	文字を表示する （文字列は"で囲む、";" で連結できる） 省略形：?	PRINT "HI!"
LOCATE 数,数 / ロケート	次に文字を書く位置を横、縦の順に指定する（縦=-1で無表示） 省略形：LC	LOCATE 3,3
CLS / クリア スクリーン	画面を全部消す	CLS
RND(数) / ランダム	0から数未満の正数をランダムに返す	PRINT RND(6)
SAVE {数} / セーブ	プログラムを保存する（0〜3の4つ、100-227 外付けEEPROM、省略で前回使用した数）ボタンを押した状態で起動すると0番を読み込み自動実行	SAVE 1
LOAD {数} / ロード	プログラムを読み出す（0〜3の4つ、100-227 外付けEEPROM、省略で前回使用した数）	LOAD
FILES {数1{,数2}} / ファイルズ	数1(省略可)〜数2のプログラム一覧を表示する（EEPROM内ファイル表示に対応、0指定ですべて表示、ESCで途中停止）	FILES
BEEP {数1{,数2}} / ビープ	BEEPを鳴らす 周期(1-255)と長さ(1/60秒単位)は省略可 ※SOUND(EX2)-GNDに圧電サウンダーなどの接続必要	BEEP
PLAY {MML} / プレイ	MMLで記述した音楽を再生する MML省略で停止 ※SOUND(EX2)-GNDに圧電サウンダーなどの接続必要（次項のMML参照）	PLAY "$CDE2CDE2"
TEMPO 数 / テンポ	再生中の音楽のテンポを変更する	TEMPO 1200
数 + 数	足し算する	PRINT 1+1
数 - 数	引き算する	PRINT 2-1
数 * 数	掛け算する	PRINT 7*8
数 / 数	割り算する（小数点以下は切り捨て）	PRINT 9/3
数 % 数	割り算した余りを返す	PRINT 10%3
(数)	カッコ内は優先して計算する	PRINT 1+(1*2)
LET 変数,数 / レット	アルファベット１文字を変数として数の値を入れる（配列に連続代入可能） 省略形：変数=	LET A,1
ASC(文字) / アスキー	文字に対する文字コードを返す	PRINT ASC(A)
SCROLL 数 / スクロール	指定した方向に1キャラクター分スクロールする（0/UP:上、1/RIGHT:右、2/DOWN:下、3/LEFT:左）	SCROLL 2
SCR({数,数}) / スクリーン	画面上の指定した位置に書かれた文字コードを返す（指定なしで現在位置） 別名：VPEEK	PRINT SCR(0,0)
数 = 数	比較して等しい時に1、それ以外で0を返す (==でも可)	IF A=B LED 1
数 <> 数	比較して等しくない時に1、それ以外で0を返す (!=でも可)	IF A<>B LED 1
数 <= 数	比較して以下の時に1、それ以外で0を返す	IF A<=B LED 1
数 < 数	比較して未満の時に1、それ以外で0を返す	IF A<B LED 1
数 >= 数	比較して以上の時に1、それ以外で0を返す	IF A>=B LED 1
数 > 数	比較してより大きい時に1、それ以外で0を返す	IF A>B LED 1
式 AND 式 / アンド	どちらの式も1の時に1、それ以外で0を返す (&&でも可)	IF A=1 AND B=1 LED 1
式 OR 式 / オア	どちらかの式が1の時に1、それ以外で0を返す (||でも可)	IF A=1 OR B=1 LED 1
NOT 式 / ノット	式が0の時に1、それ以外で0を返す (!でも可)	IF NOT A=1 LED 1
REM / リマーク	これ以降の命令を実行しない（コメント機能） 省略形：'	REM START
FOR 変数=数1 TO 数2 {STEP 数3} NEXT / フォー・トゥー・ステップ・ネクスト	変数に数1をいれ、数2になるまで数3ずつ増やしながらNEXTまでをくりかえす （STEPは省略可、6段まで）	FOR I=0 TO 10:?I:NEXT
IN({数}) / イン	IN1-9から入力する（0または1） 数を省略してまとめて入力できる （IN1,4はプルアップ、IN5-8は切り替え時）	LET A,IN(1)
ANA({数}) / アナログ	外部入力の電圧(0V-3.3V)を0-1023の数値で返す(2:IN2、5-8:IN5-8(OUT1-4)、0,9:BTN、省略で0)	?ANA()
OUT 数1{,数2} / アウト	外部出力OUT1-7に0または1を出力する 数2を省略でまとめて出力できる（OUT1-4、数2に-1指定でIN5-8へ切り替え）	OUT 1,1
PWM 数1,数2{,数3} / ピーダブリューエム	外部出力OUT2-5に数2で0.01msec単位で指定するパルスを出力する（0-2000、周期20msec）、数3で周期を指定（省略時2000=20msec、マイナス値指定で周期1/480）	PWM 2,100

MML（PLAYコマンド内）

コマンド	解説	例
音	音(C D E F G A B／ドレミファソラシ)を鳴らす （Rは休符、スペースはスキップされる）	CDER FG
音n	長さを指定して音を鳴らす（.を付けると半分の長さ分伸びる）	C4 E2. D1 F32
音+	半音上げる	C+ D+
音-	半音下げる	D- E-
Tn	テンポ (TEMPO命令で後から変更可能） 初期値:120	T96CDE
Ln	長さ指定しないときの長さ(1,2,3,4,8,16,32) 初期値:4	CL8DC
On	オクターブ指定 O1C(低音)からO5B(高音)まで 初期値:3	O3CO2C
<	オクターブ上げる（ver1.1と逆なので注意）	C<C<C
>	オクターブ下げる（ver1.1と逆なので注意）	C>C>C
$	これ以降のMMLを繰り返す（BGMに便利）	C$DE
Nn	1-255 音の高さ指定してLで指定した長さで鳴らす (BEEP命令と同じ)	N10N5
'	以降のMMLを鳴らさない	C'DE

上級コマンド

コマンド	解説	例
CLV / クリア バリアブル	変数、配列を全部0にする 別名：CLEAR	CLV
CLK / クリア キー	キーバッファとキーの状態をクリアする	CLK
CLO / クリア アウトプット	入出力ピンを初期状態に戻す	CLO
ABS(数) / アブソリュート	絶対値を返す（マイナスはプラスになる）	?ABS(-2)
[数]	配列（[0]から	[3]=1
GOSUB 行番号 RETU ゴーサブ・リタ		
DEC$(数		
#16		

Just

100 commands

Used commands today

LED : WAIT LIST RUN
GOTO SAVE FILES LOAD
NEW CLS LC RND BTN
IF SCR END = + - & /
CLT TICK BEEP PLAY

26 / 100

IchigoJam first step

Light up the LED

```
LED1
```

Type in “LED1” and push Enter key

Light off the LED

```
LED0
```

Don’t forget Enter key

Order your computer to wait for a while

```
WAIT120
```

“WAIT120” means “wait 2sec” Q:”WAIT60” means?

```
WAIT60
```

Light up the LED 1sec (`:` to join commands)

```
LED1:WAIT60:LED0
```

Push UP key twice.
Push RIGHT key 12 times.
Push Backspace key to delete “6”.
Type “12”. Push Enter key to modify your order.

```
LED1:WAIT120:LED0
```

Blink the LED
(Push Space key to input space)

```
10 LED1:WAIT60
20 LED0:WAIT60
30 GOTO10
```

Type in “RUN”+Enter to start your program

```
RUN
```

F5 key works the same way

ESC key stops the program

“LIST”+Enter displays your program list

```
LIST
```

F4 key works the same way

Can you blink the LED more fast?
Enter key to tell computer your modification

You can save up to four programs (0 to 3)

```
SAVE0
```

F3 key types in “SAVE”

After reboot your computer,
you can reload that program.

```
LOAD0
```

F2 key types in “LOAD”

Type in “NEW” to erase your program.

```
NEW
```

PUBLIC DOMAIN

IchigoJam mini games

How fast? (Push the IchigoJam button after LED)

```
10 LED 0
20 WAIT RND(180)+60
30 LED 1:CLT
40 IF BTN()=0 GOTO 40
50 ?TICK()
```

Typing! (Type in A to Z)

```
10 LET N,65:CLT
20 ?CHR$(N);
30 IF INKEY()<>N GOTO 30
40 LET N,N+1:IF N<>91 GOTO 20
50 ?:?TICK()/60
```

Calc! (Calculate the sum fast)

```
10 LET N,0:CLT
20 LET A,RND(10)
30 LET B,RND(10)
40 ?A;"+";B;"=";:INPUT C
50 IF C!=A+B ?"NG!":END
60 LET N,N+1:IF N<10 GOTO 20
70 ?TICK()/60
```

Downstream (RIGHT and LEFT key to avoid)

```
10 LET X,16:CLS:CLT
20 LET K,INKEY()
30 IF K=RIGHT LET X,X+1
40 IF K=LEFT LET X,X-1
50 IF SCR(X,5) ?TICK()/60:END
60 LC X,5:?"O"
70 LC RND(32),23:?"*"
80 WAIT 3
90 GOTO 20
```

Baseball! (Push the IchigoJam button to hit)

```
10 LET Y,0
20 CLS
30 LC 4,15:?"%"
40 LC 5,Y:?"O"
50 IF BTN() GOTO 90
60 LET Y,Y+1
70 WAIT 6
80 GOTO 20
90 IF Y=15 ?"HIT!"
```

Screen jack! (Type in any key)

```
10 LET C,1:CLS
20 LC RND(32),RND(22)
30 ?CHR$(C)
40 LET K,INKEY():IF K C=K
50 GOTO 20
```

Push Shift key to type in '(', ')' or '"'

Programming in BASIC!

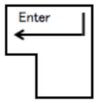
Kid's PC IchigoJam

CC BY

http://ichigojam.net/

Light up! / LED - IchigoJam

Turn on the switch of your IchigoJam. Type "LED1" from your keyboard. And press ENTER key. (ENTER key is located on the right side and big key)



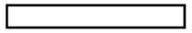

```
LED1↵
```

It is a success if your LED of IchigoJam lighted up and you got "OK" message.

Type "LED0" to light off.

```
LED0↵
```

SPACE key is big and located center and bottom of the keyboard.



Type "LED 1" and the press ENTER key.

```
LED 1↵
```

It is OK either way, whether the space is there or not.

Let's type "RED0" and press ENTER key.

```
RED0↵
```

The LED will not light off. You will get a message "Syntax error".
Don't worry about making mistakes repeatedly! The computer never gets angry.

Let's type "ABD" without pressing ENTER key.

```
ABD
```

Once press the Backspace key.
The Backspace key located at right and upper side.

```
AB
```

You can delete the character! Therefore don't worry about miss typing.

Try it!

1. Type "ABCDEFG"
2. Try to light off the LED
3. Try to light up and light off rapidly
4. Type "BEEP" and press ENTER key
5. Type "CLS" and press ENTER key

CC BY IchigoJam print https://ichigojam.github.io/print/en/ IchigoJam®jig.jp

IchigoJam print

Edu materials for A5 papers

https://ichigojam.net/print/

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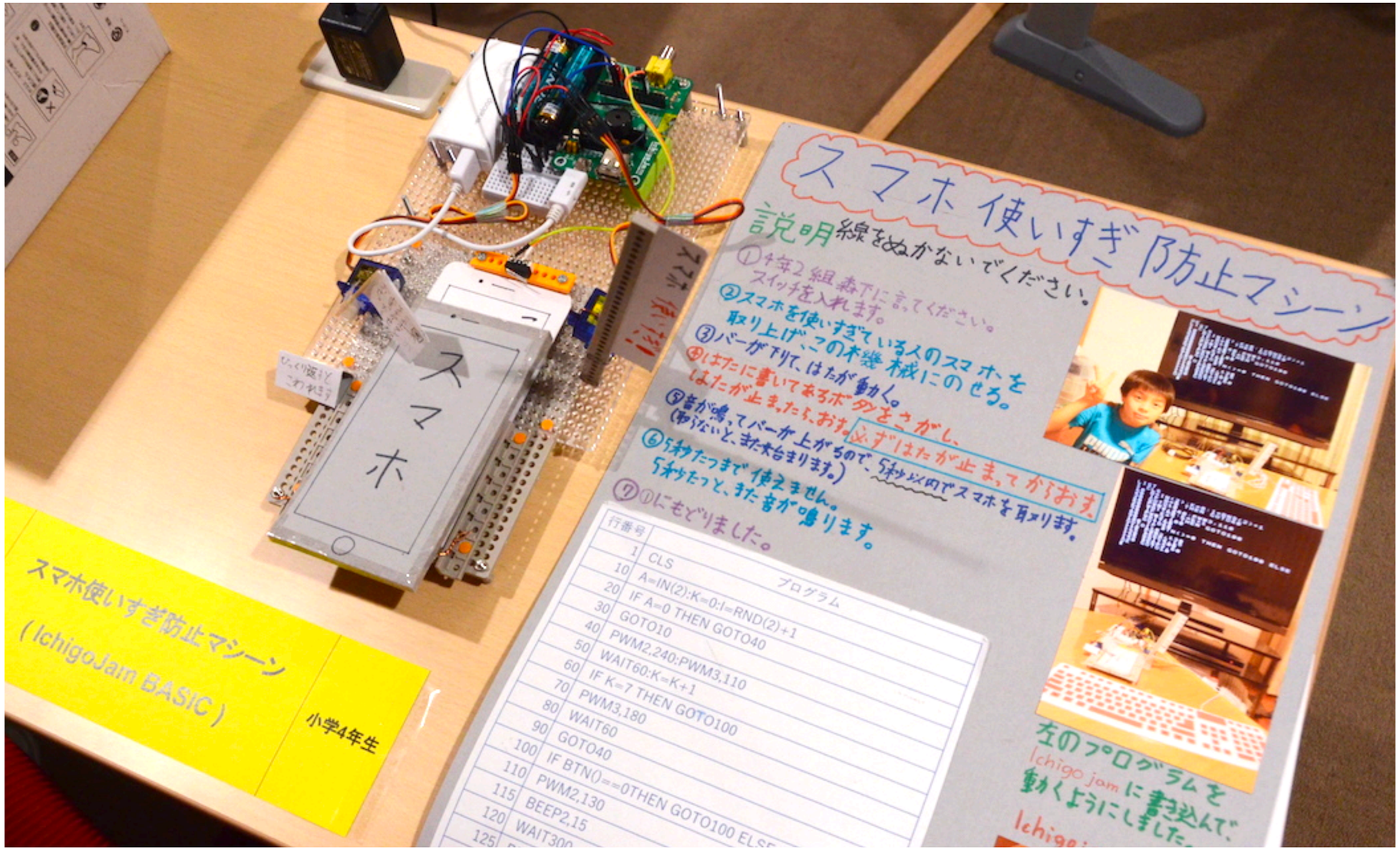
A machine to stop Smartphone overuse by mother



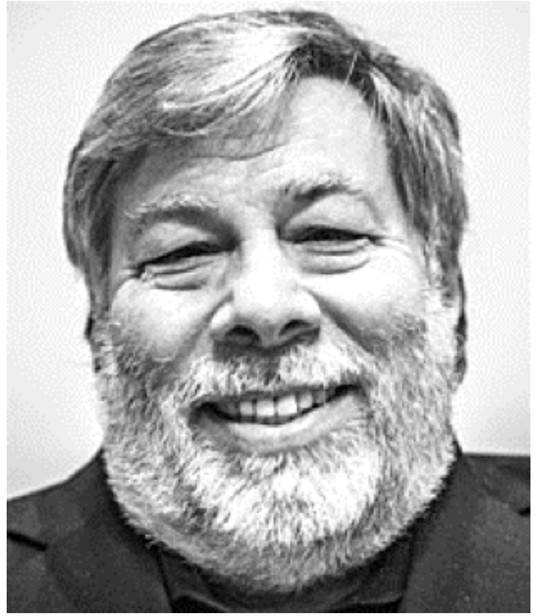
A awarded staff by 9 years old kidPCN

from Wikipedia

Apple I (1976)

iPhone company
Apple's first product

Spec of IchigoJam is almost same as Apple I (price is 1/200)



Apple I developper - Steve Wozniak

IchigoJam

Make themselves PC

IchigoJam $15 ~

Ichi Go

means 1 5 and

The strawberry in JP

Let’s solder it!

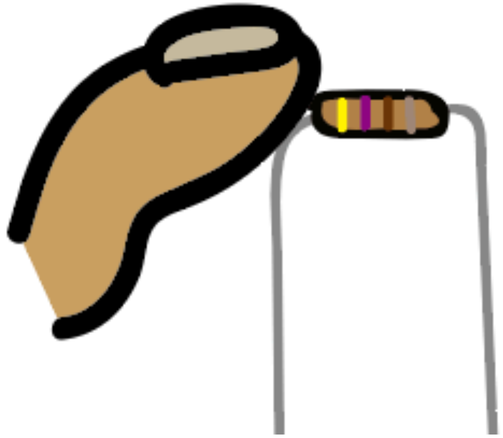
Solder (0.8mm)

Soldering Iron

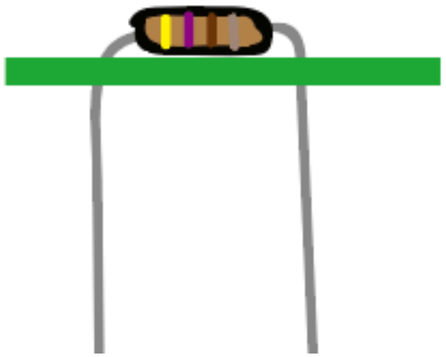
300degree(C)
As hot as
BBQ griddle

Let’s built it!

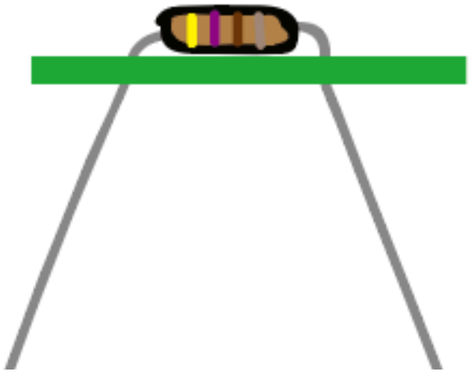
1. Pick a part
R1 is resister



2. Bend like
a U shape

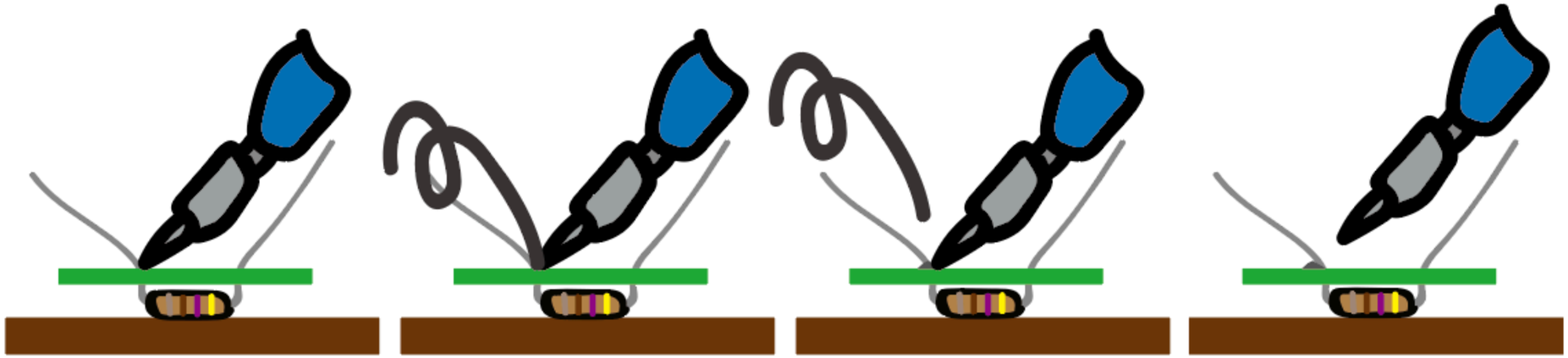


3. Insert
into board



4. Bend a
little and flip

Soldering 4 steps



1. Warm

2. Melt

3. Apart the solder

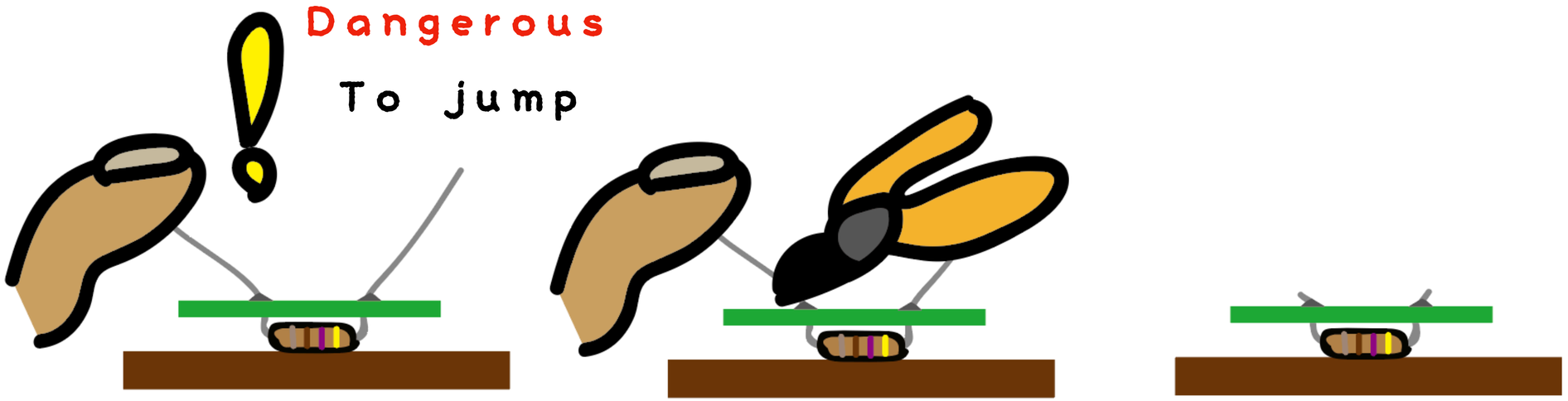
4. Apart the iron

Too few

OK

Too much

Nippers are more DANGEROUS than a soldering iron



1. Put your finger on it.

RISK: Eye damage

2. Cut with the nipper

3. One part is ready!

YouTube JP

ichigojam

ホーム

ショート

登録チャン...

マイページ

プログラミング教材「IchigoJam（イチゴジャム）」の使い方とデモンストレーション

1.1万 回視聴・4 年前

Taisuke Fukuno

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https://fukuno.jig.jp/app/IchigoJam/ 出演：福野泰介、徳田 ...

【夏休み特別企画】第1回 LEDのプログラミング　夏休みの自由研究ロボット・プログラミング 20選～子...

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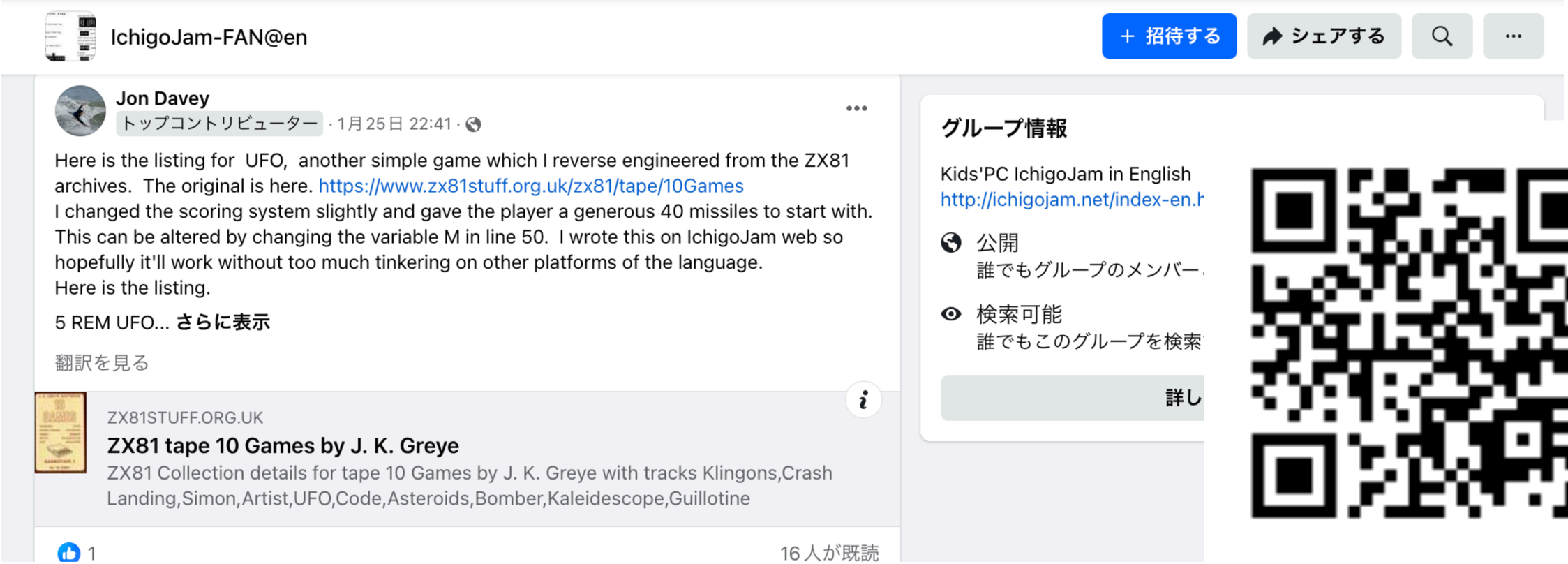

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