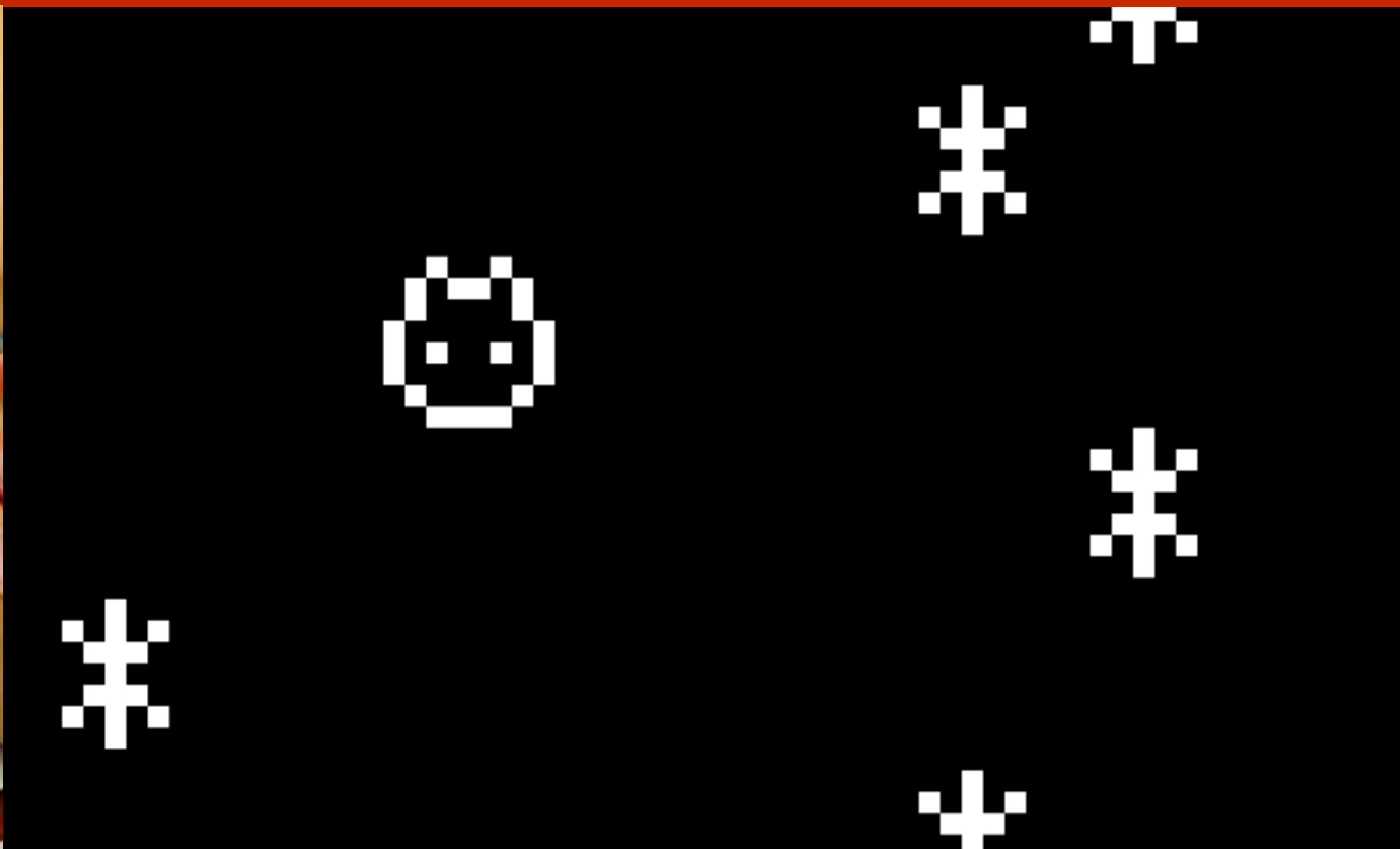


First Programming with IchigoJam

IchigoJam P



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You can use freely with the credit.

<https://ichigojam.net/>





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



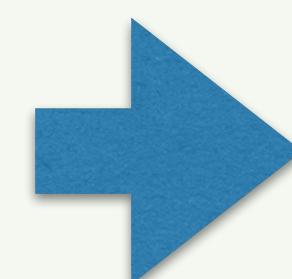
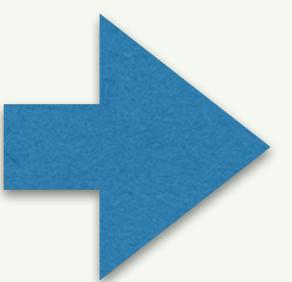
Kids Lecture
in companies on Saturday

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
computer?

Programming is
difficult!?

It's easy!

B e f r i e n d
w i t h C o m p u t e r

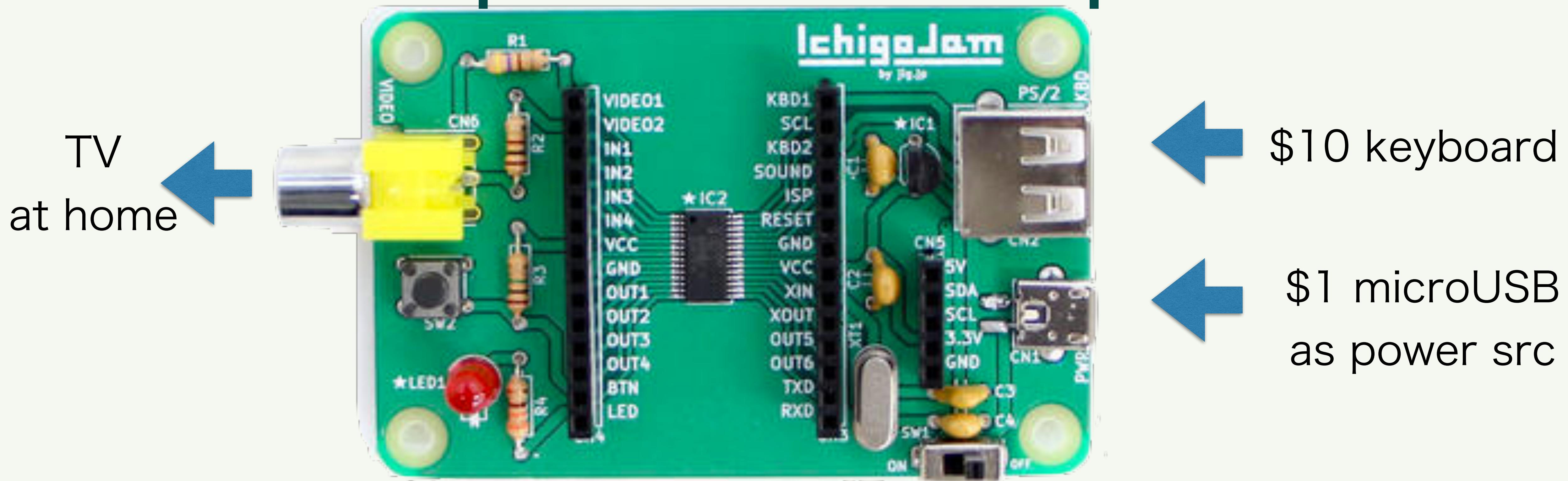


Where are
computers?



IchigoJam

\$15 personal compute



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

#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



Latest Version
IchigoJam P

支援総額

1,355,000 円

支援者 募集終了日

74人 2024年7月2日
支援履歴の確認

<https://readyfor.jp/projects/I...>

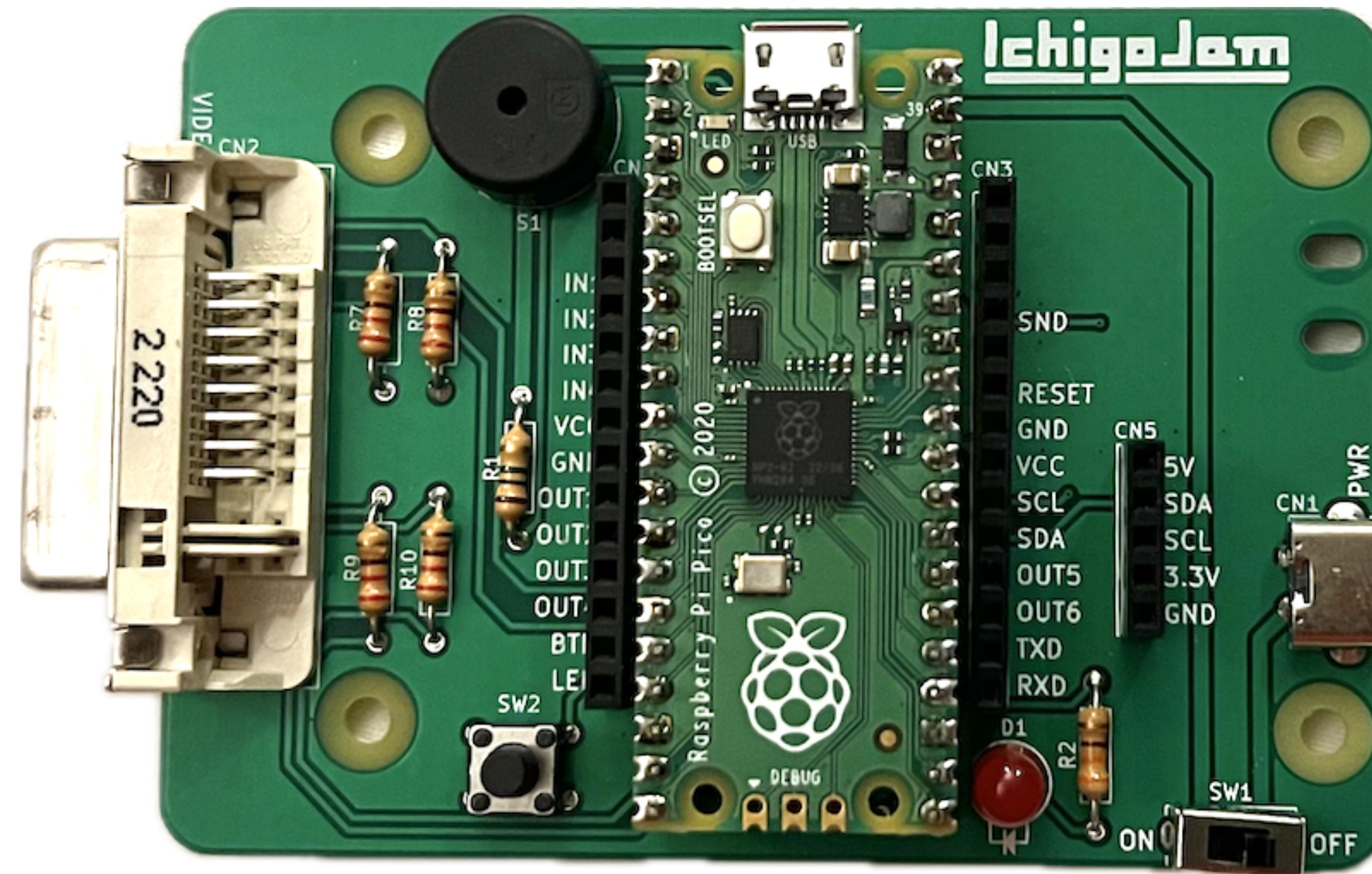
コピー

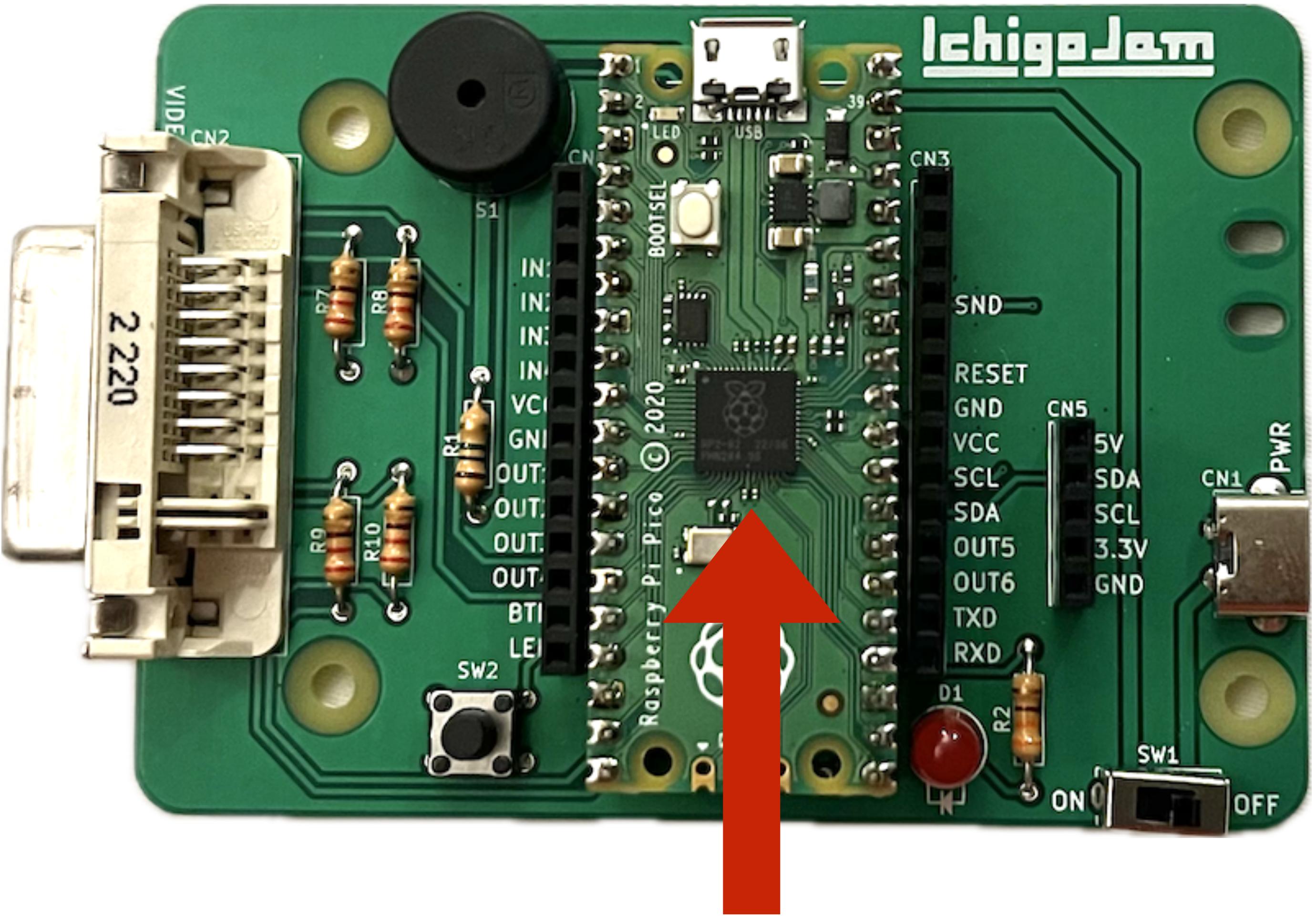


Embassy of
the United Republic of Tanzania
H.E. Mr. Ambassador Baraka Luvanda
Ambassador Extraordinary and Plenipotentiary

IchigoJam P

Featuring Raspberry Pi Pico





This is a computer!

Just \$1 !

(IchigoJam P price is \$20 ~)

Let's talk with
Computer!



Hello!



(I have no ears)

...

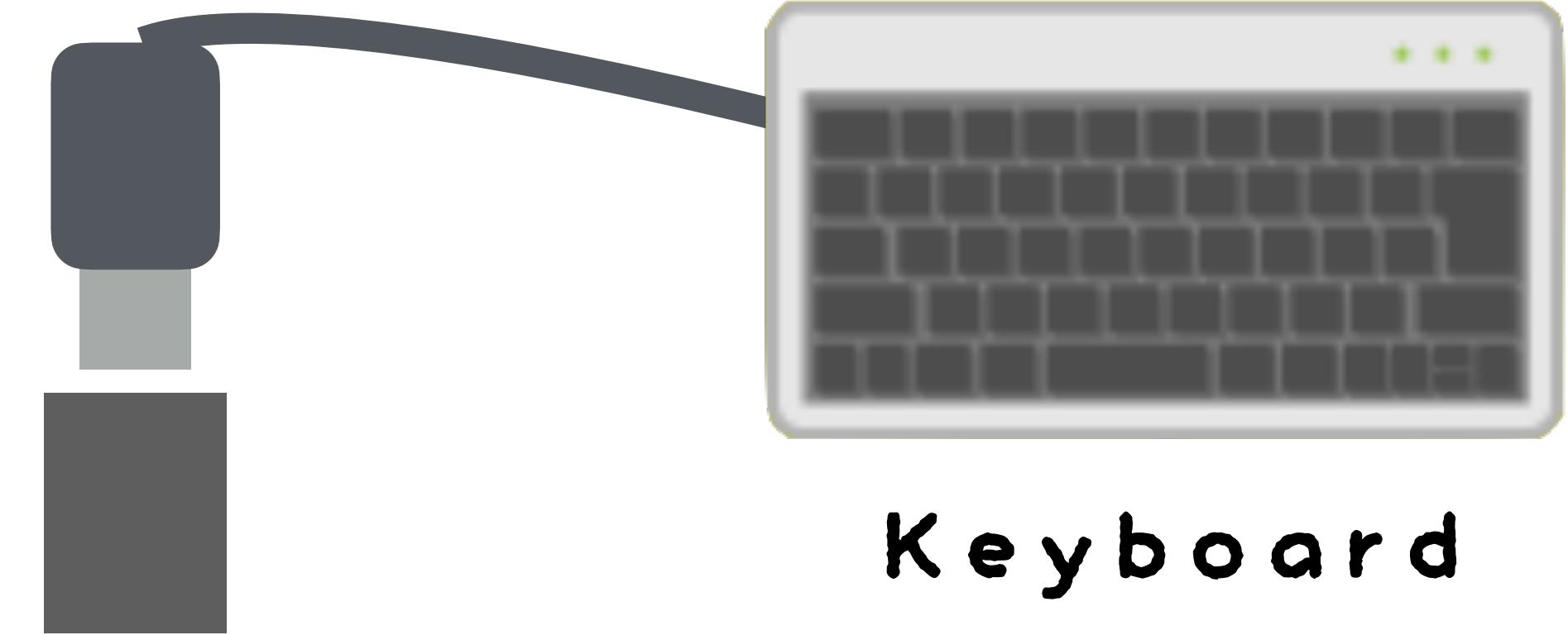
Let's Set up!



Monitor



USB OTG

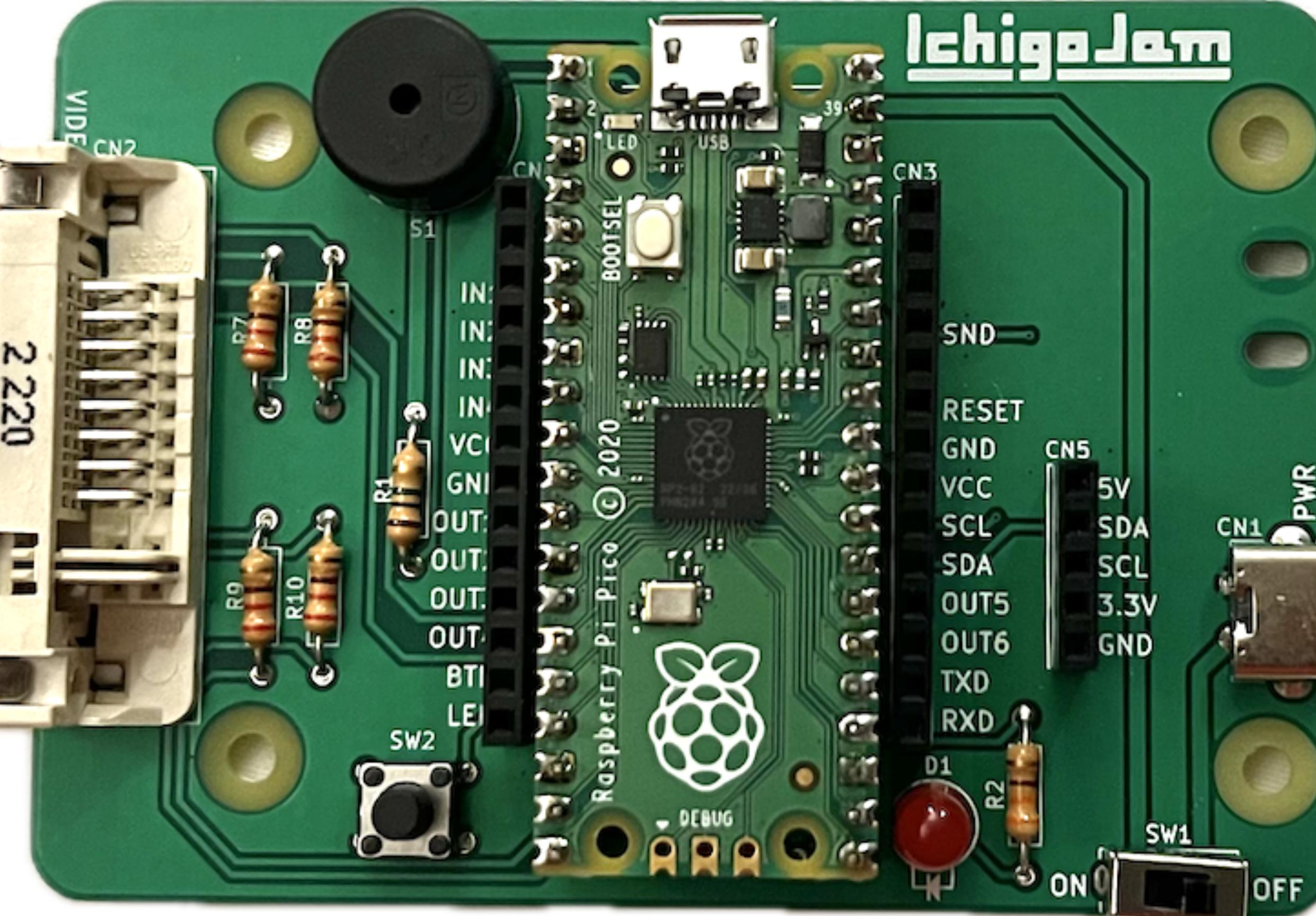


Keyboard

DVI

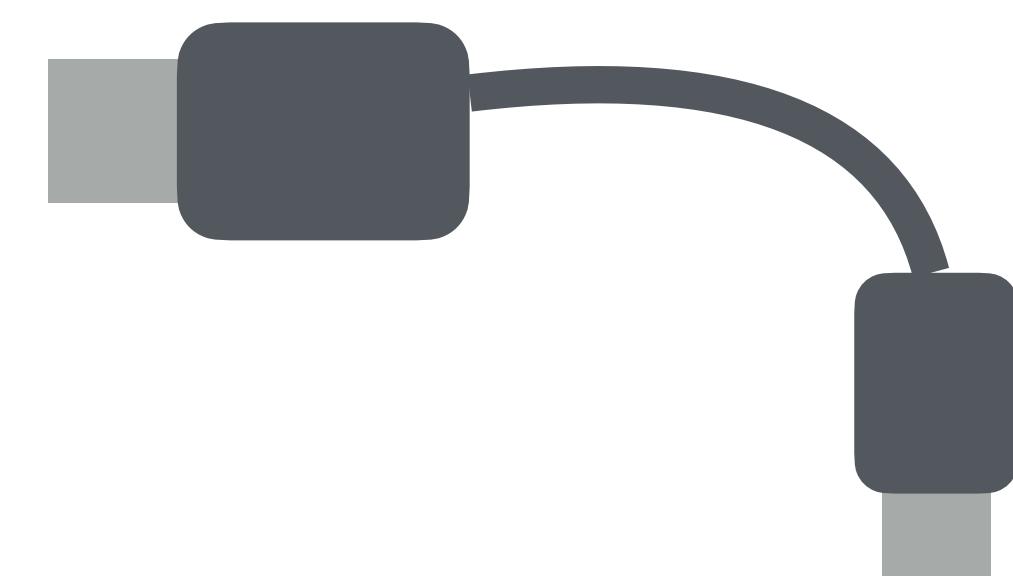


HDMI



IchigoJam P

USB - C



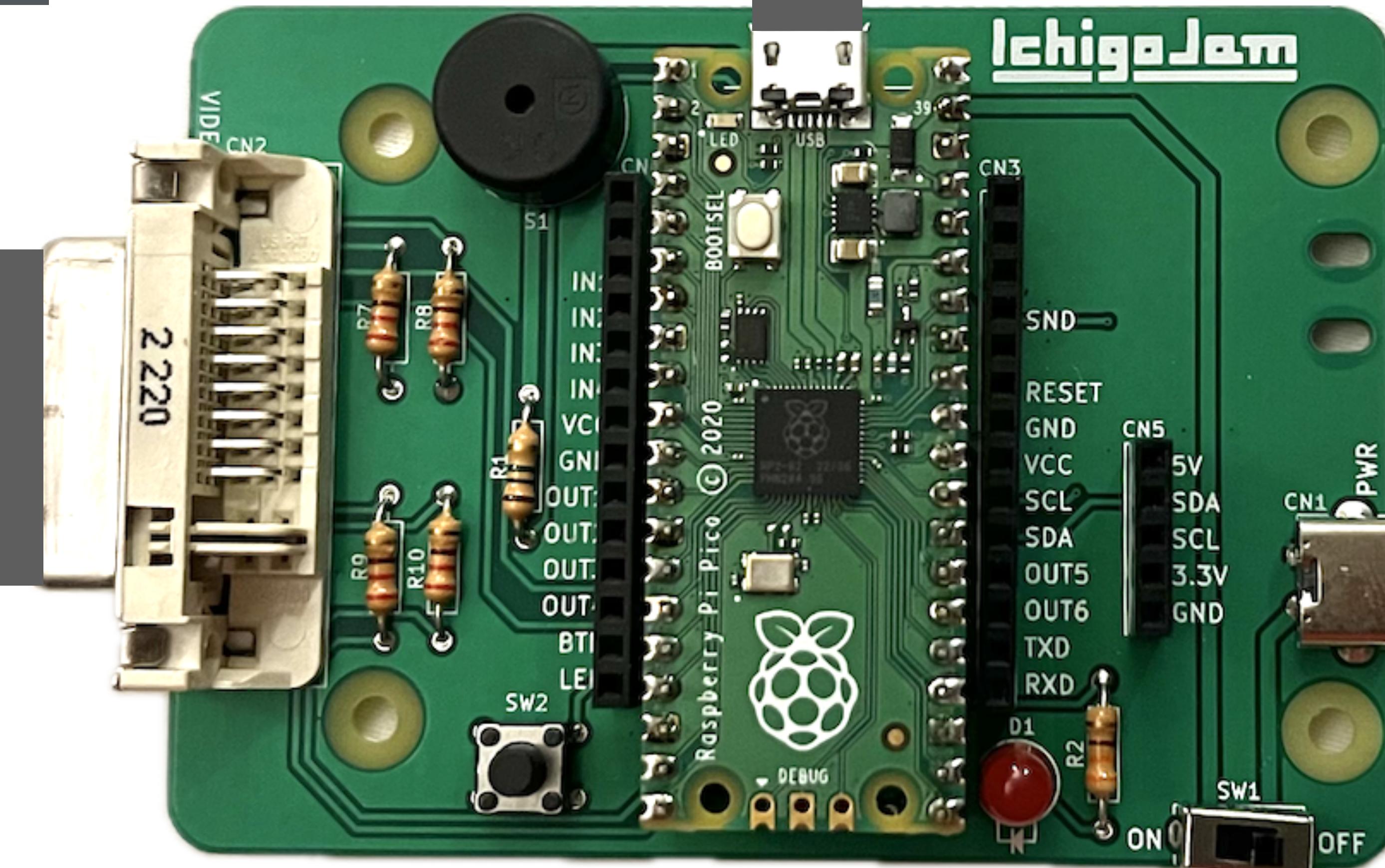
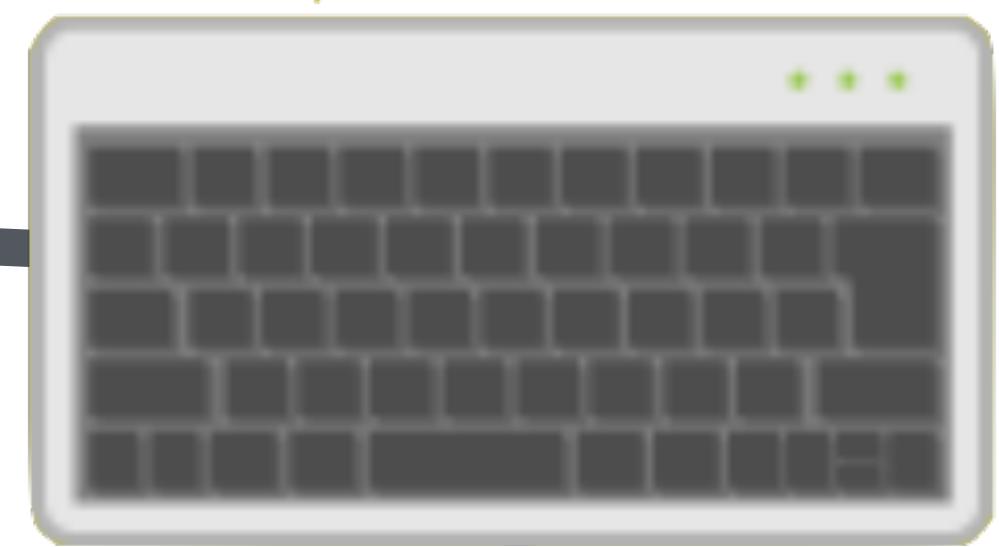
|| ||

Power Source

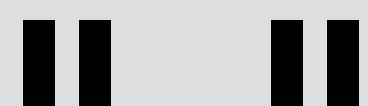
Monitor



Keyboard



ON ←



Power Source

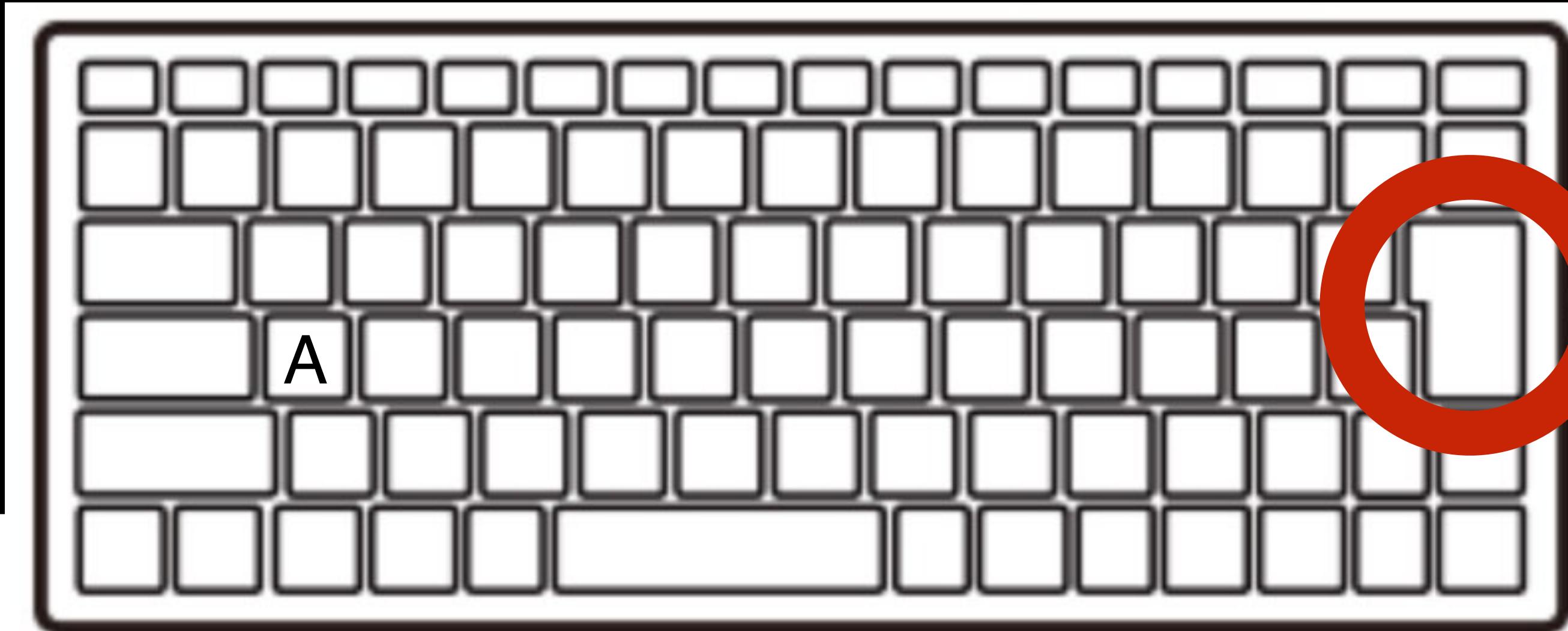
I c h i g o J a m B A S I C
OK
I

Blinking is the cursor!

IchigoJam BASIC
OK
AI

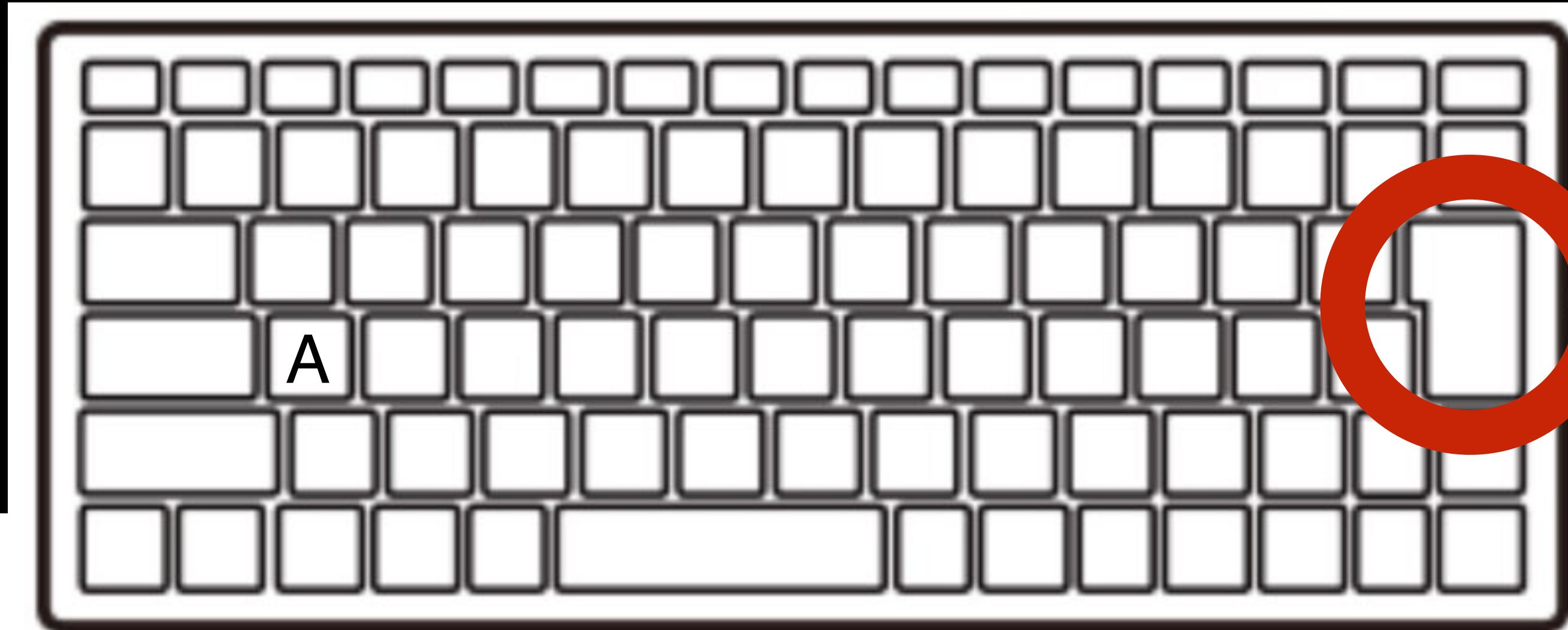
Type 'A' by your keyboard

I c h i g o J a m B A S I C
O K
A I



E n t e r k e y

IchigoJam BASIC
OK
A
Syntax error
|

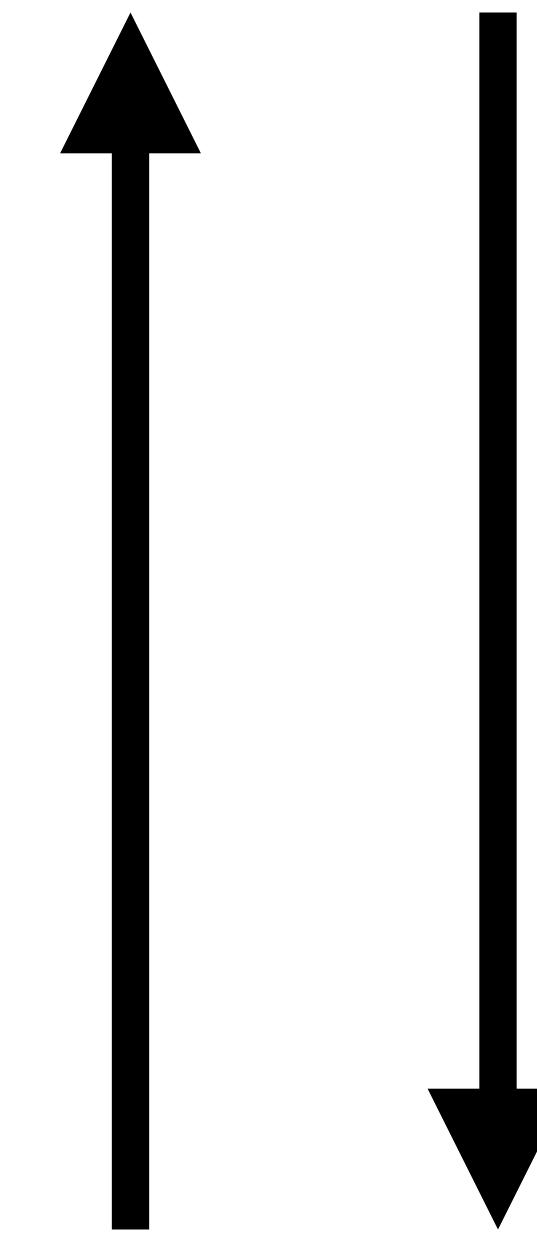
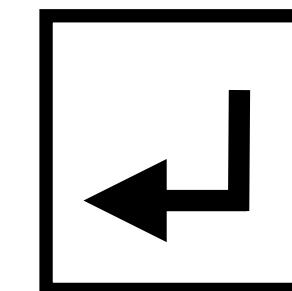


エンターキー



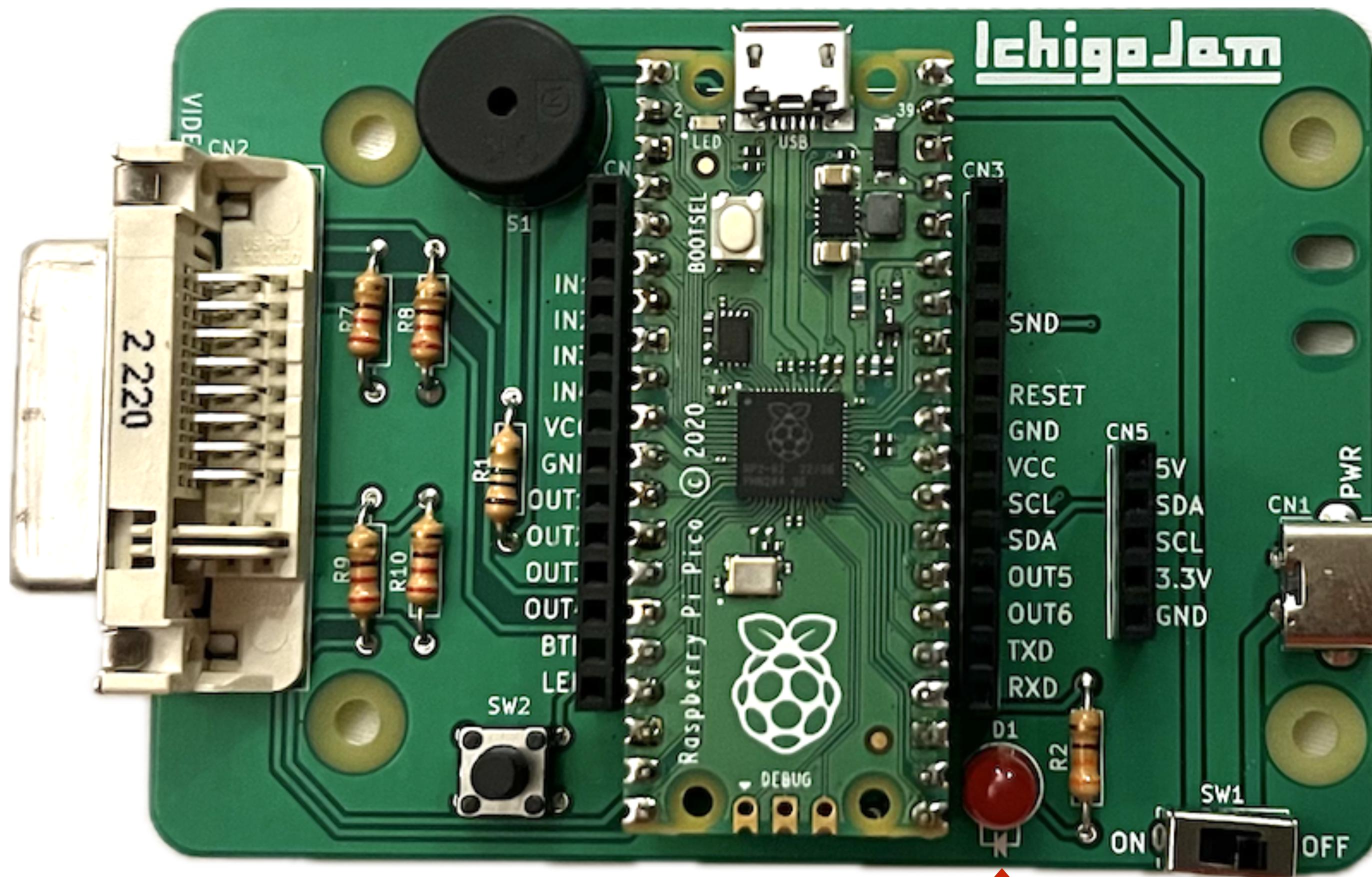
I don't
Know.

A



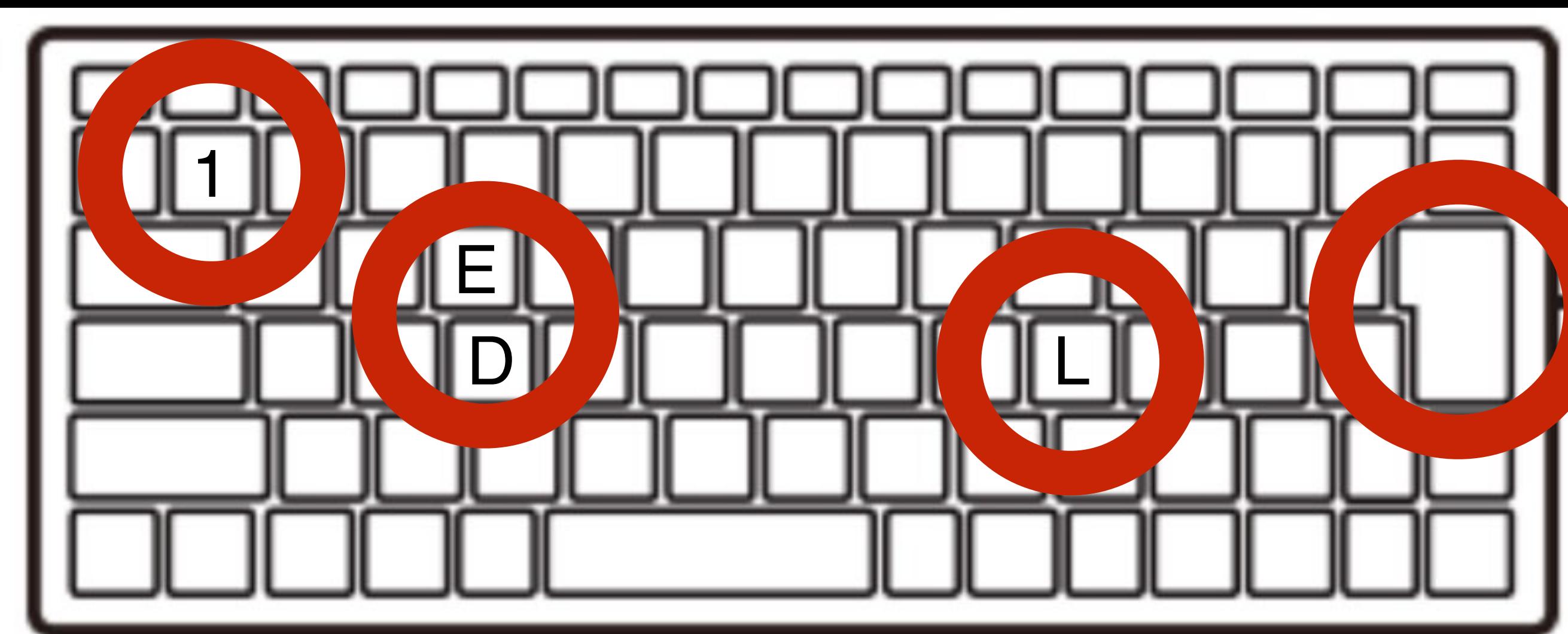
Syntax error

IchigoJam P

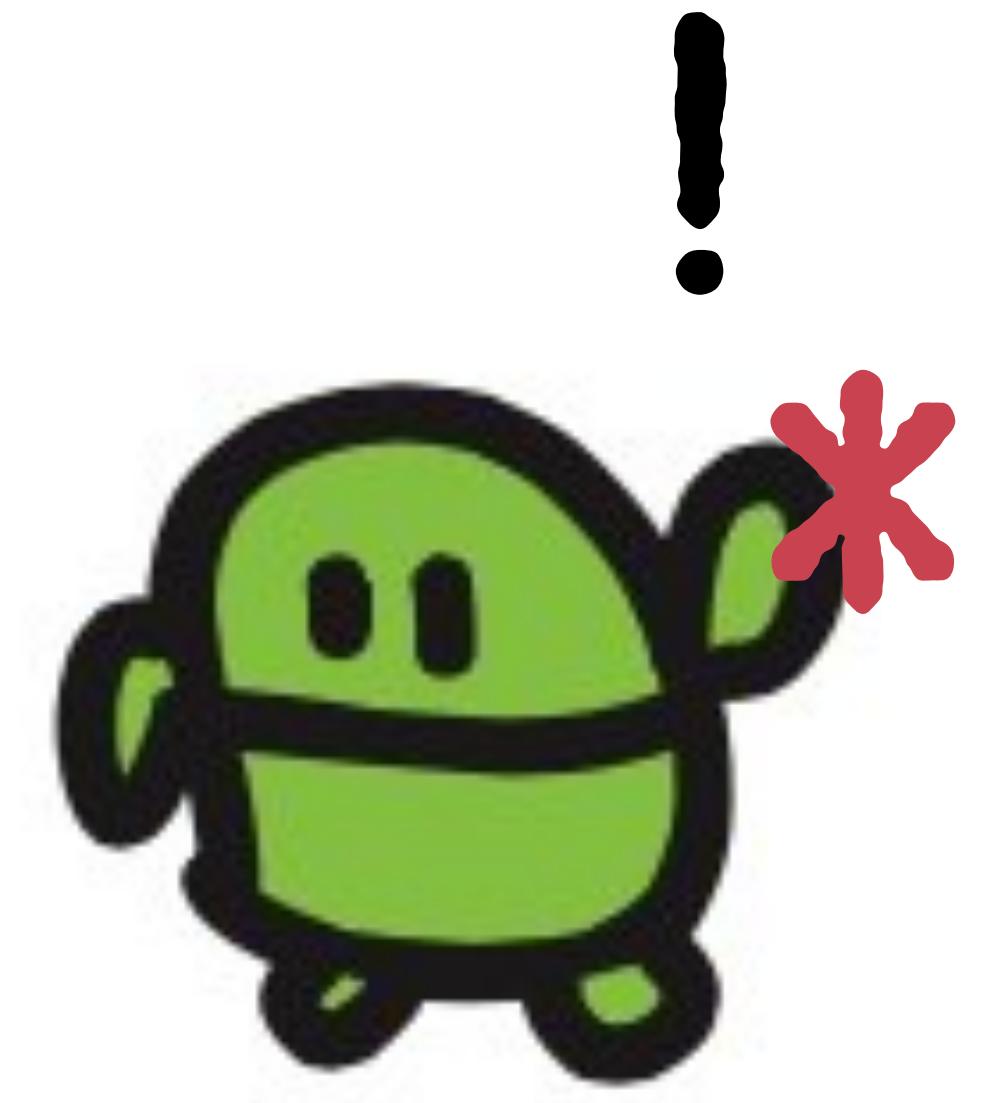


To light up this LED
by the computer

L E D 1 |

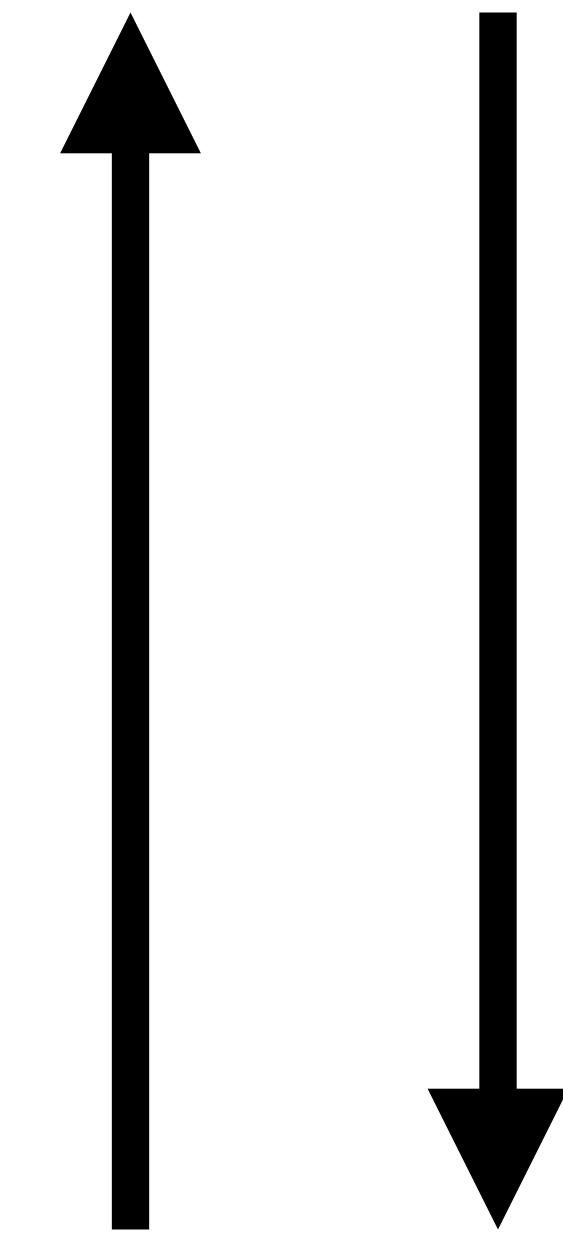
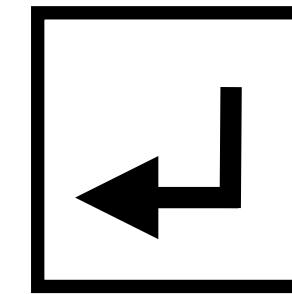


L E D 1 Enter



I know it!

LED1

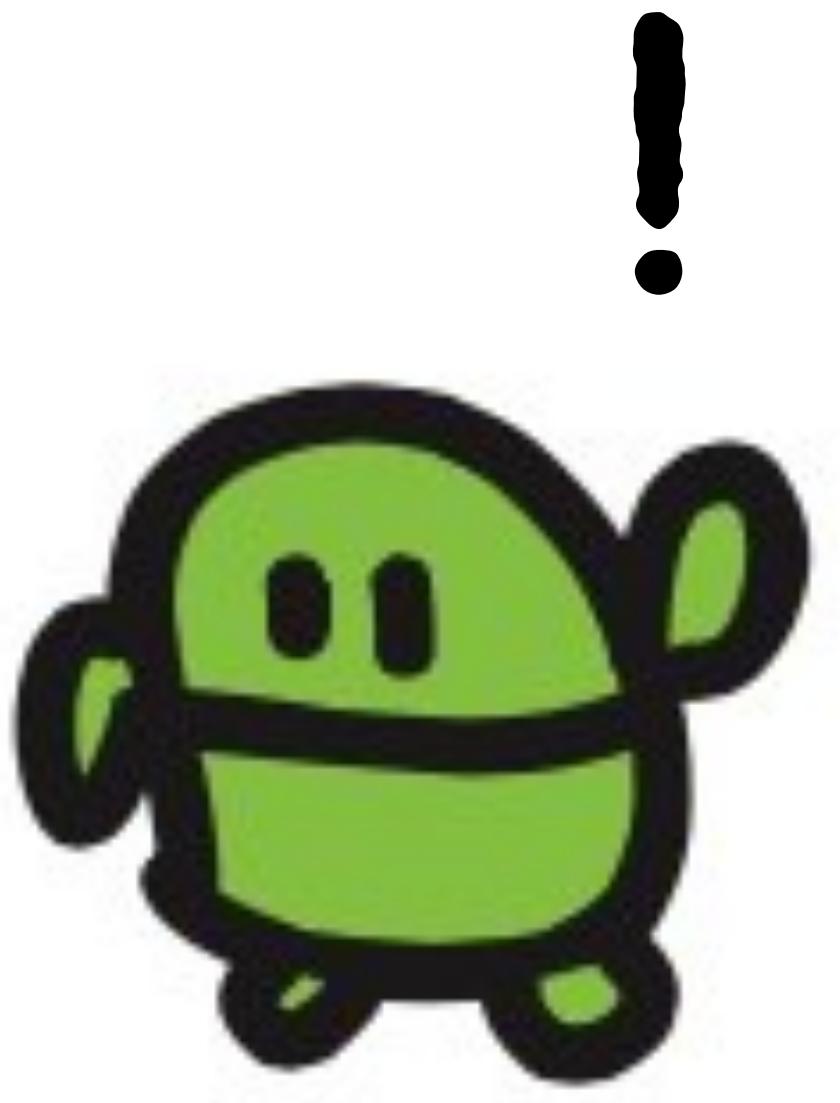


OK

L E D O I

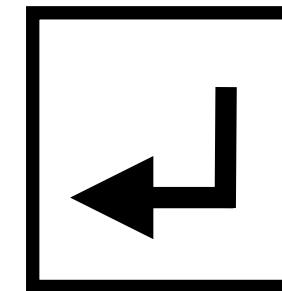


L E D O O Enter

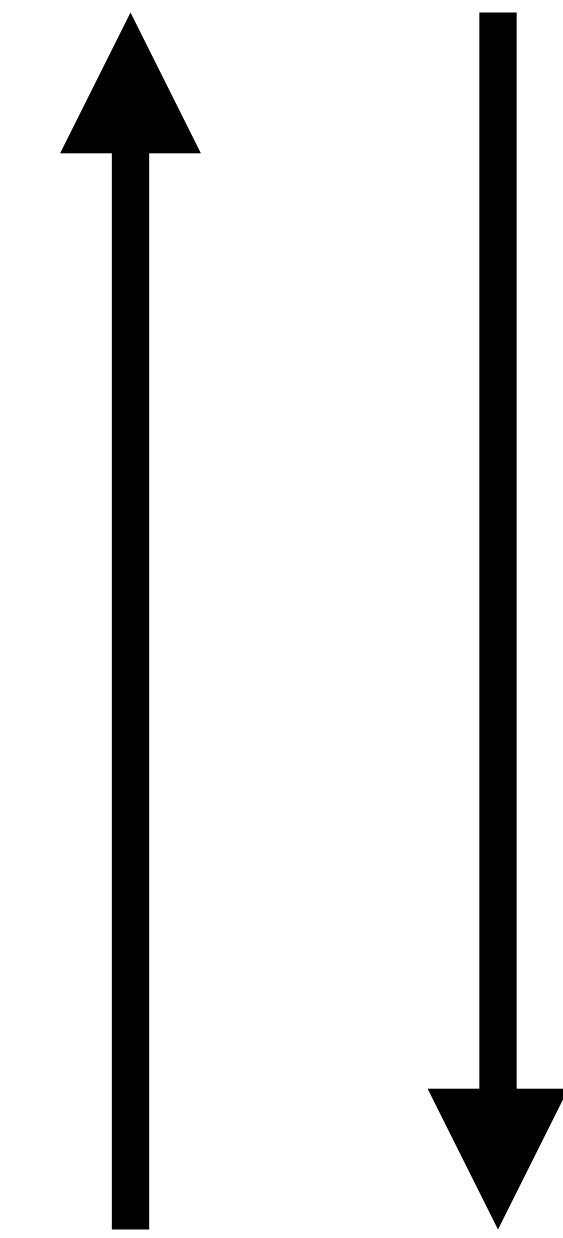


I know it!

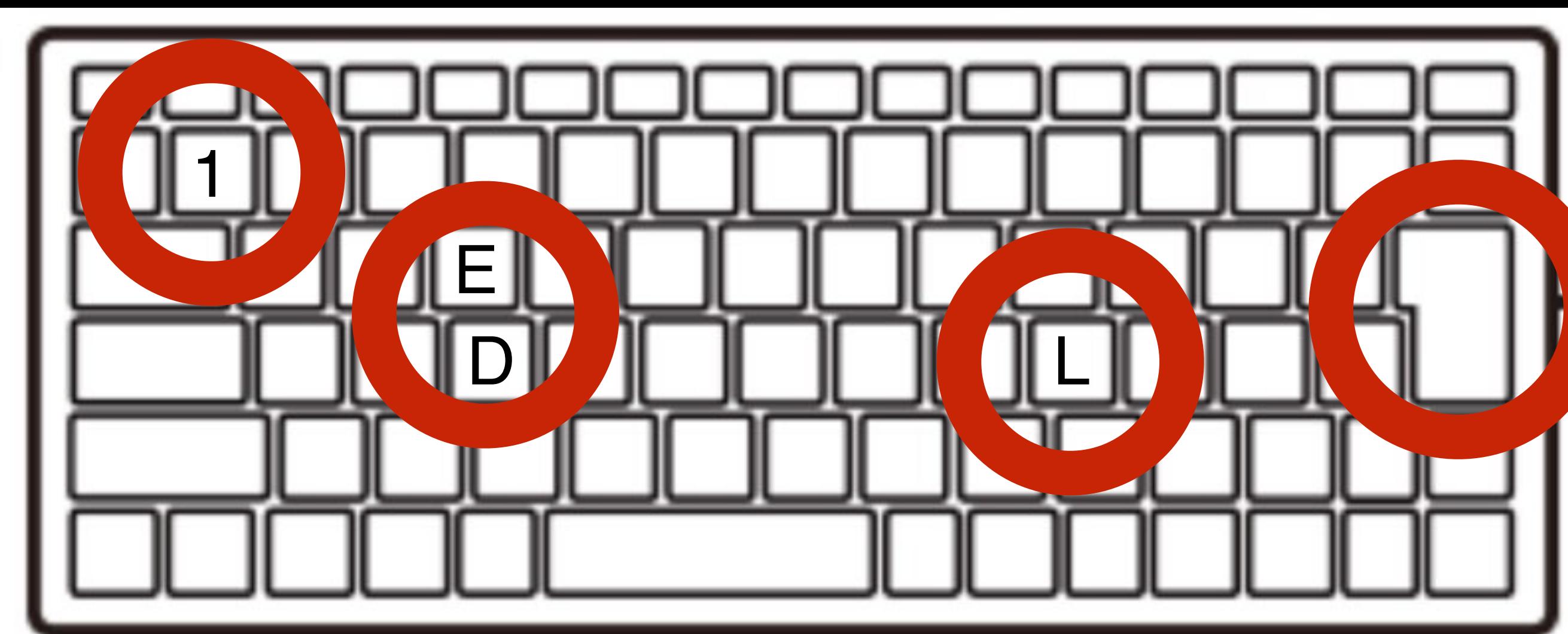
LEDO



OK

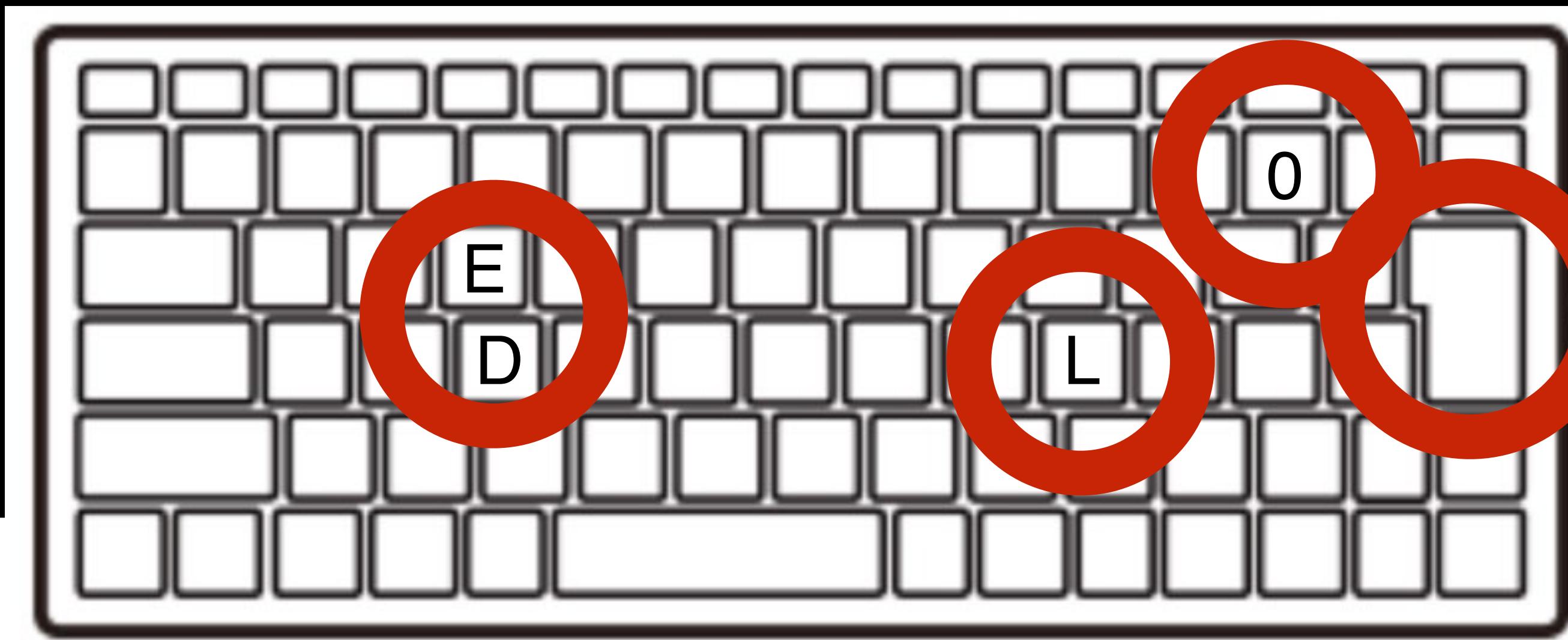


L E D 1 |



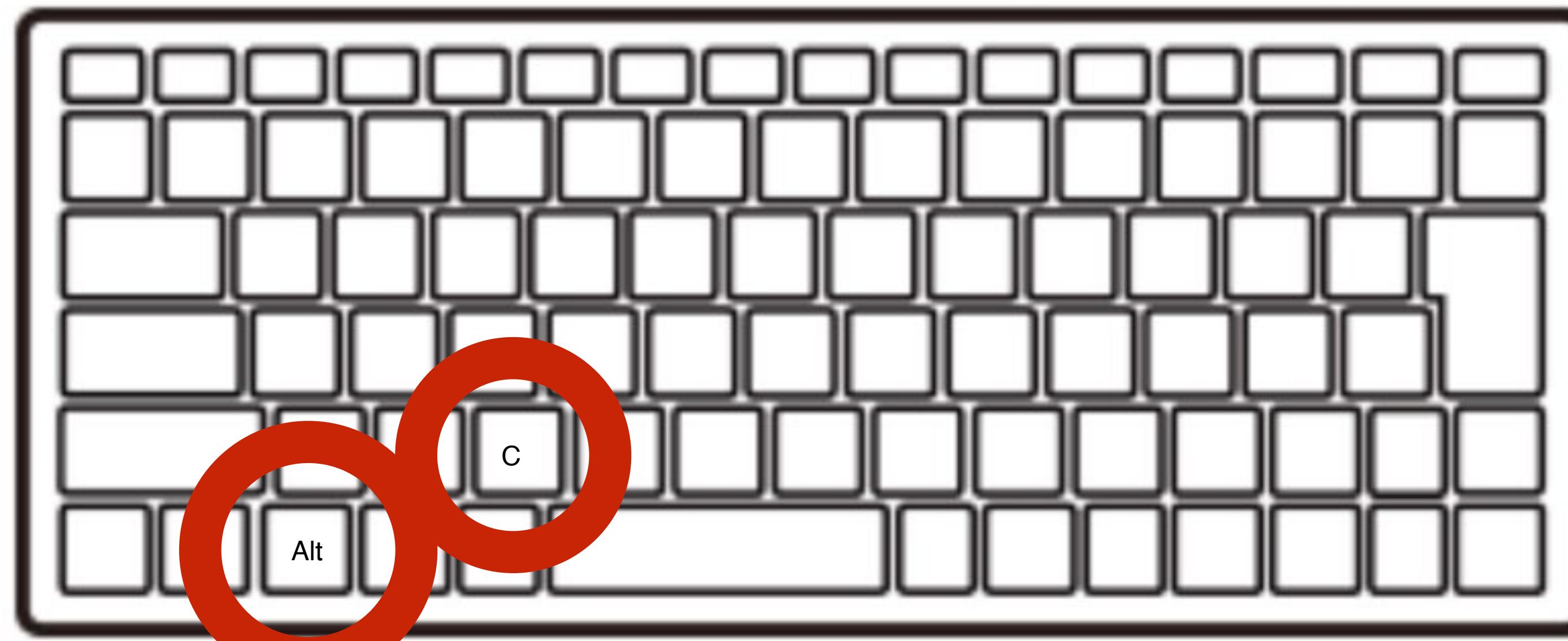
L E D 1 Enter

L E D O I

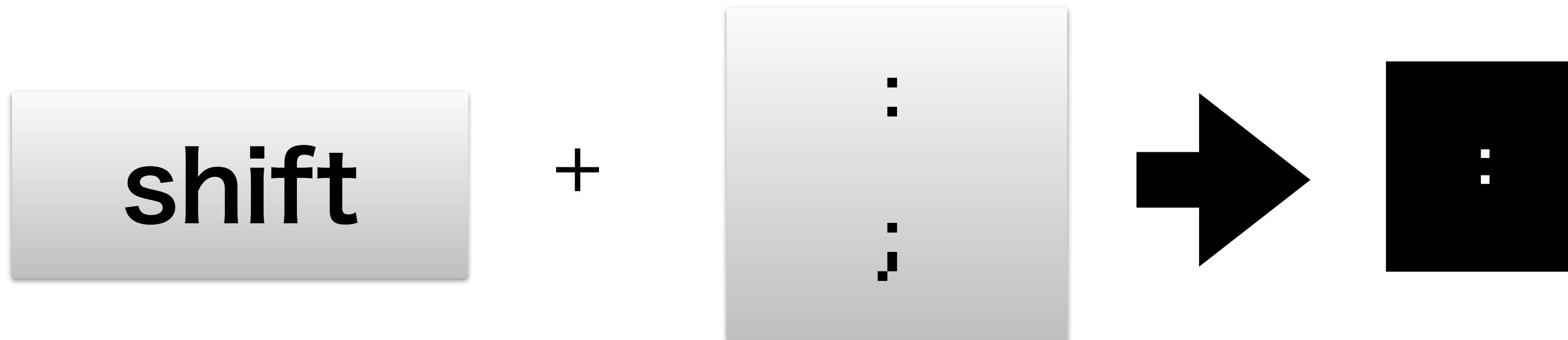


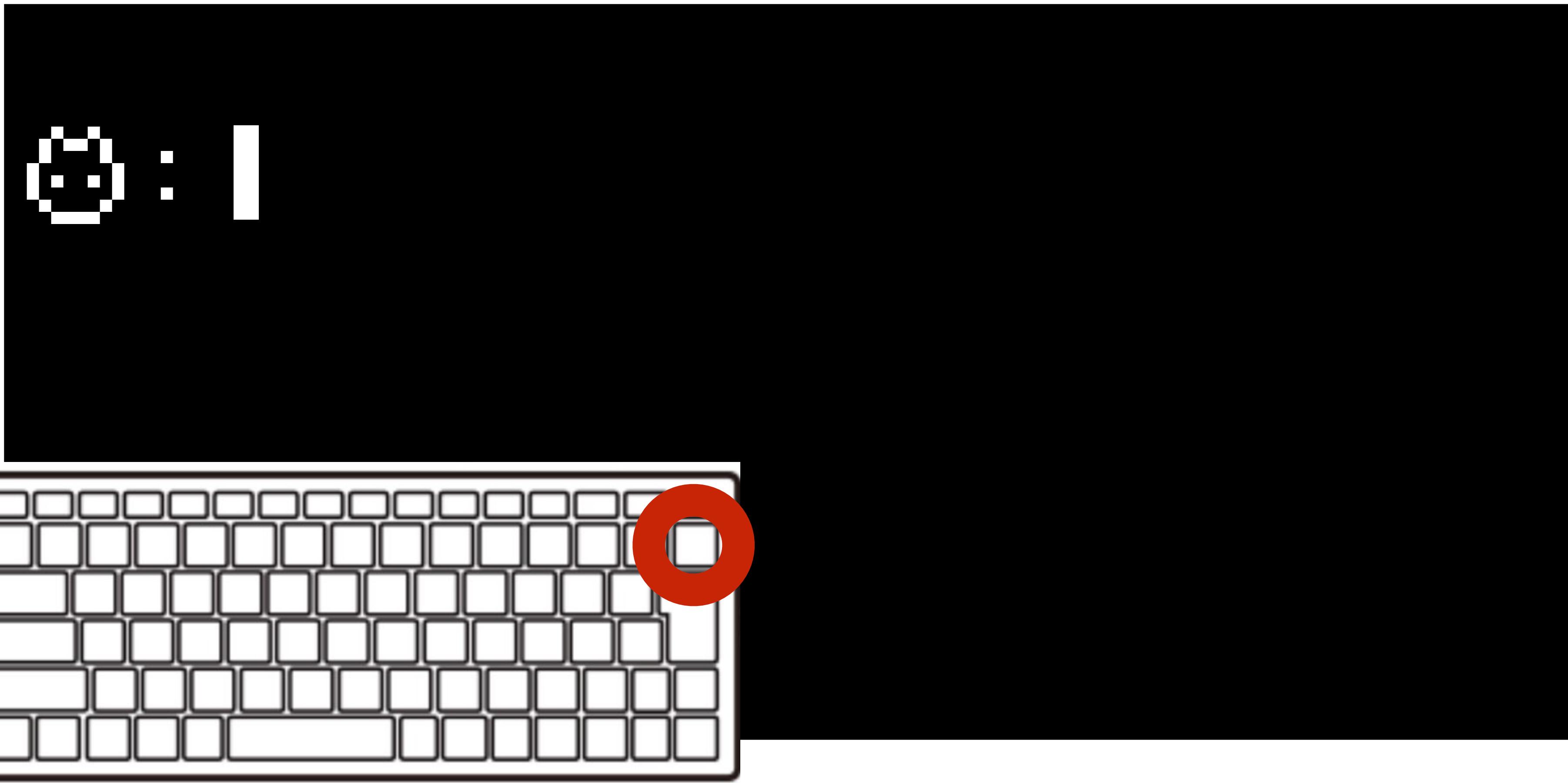
L E D O O Enter

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 + ;



:

;

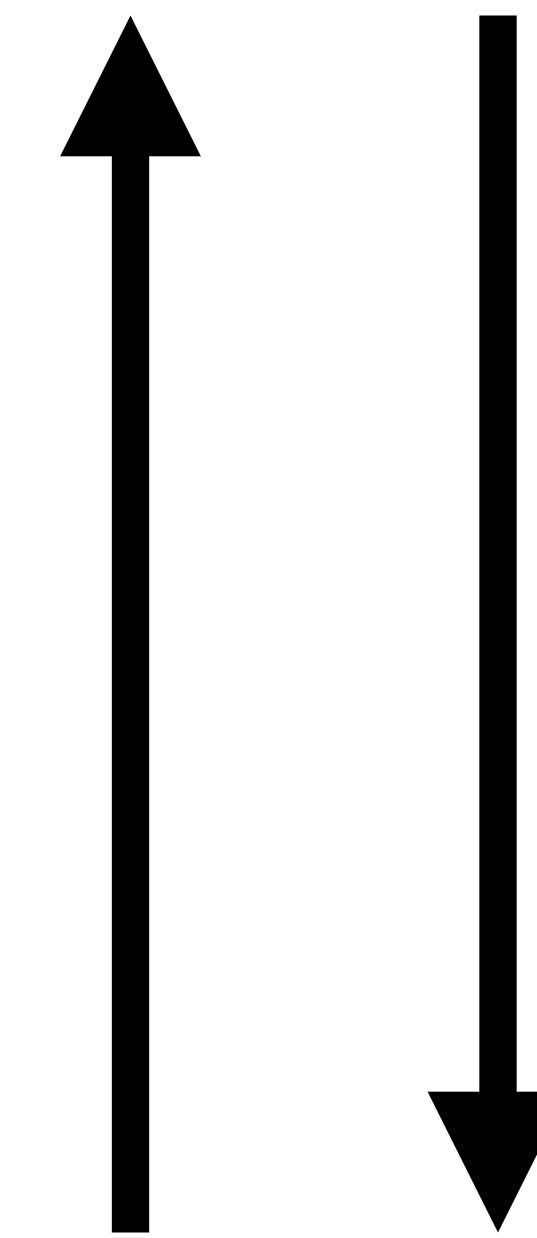
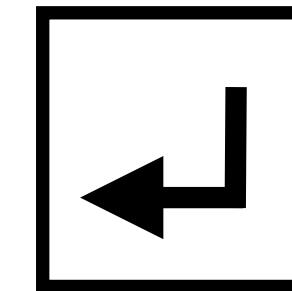
Colon

Semicolon



I know it!

LED1:LEDO

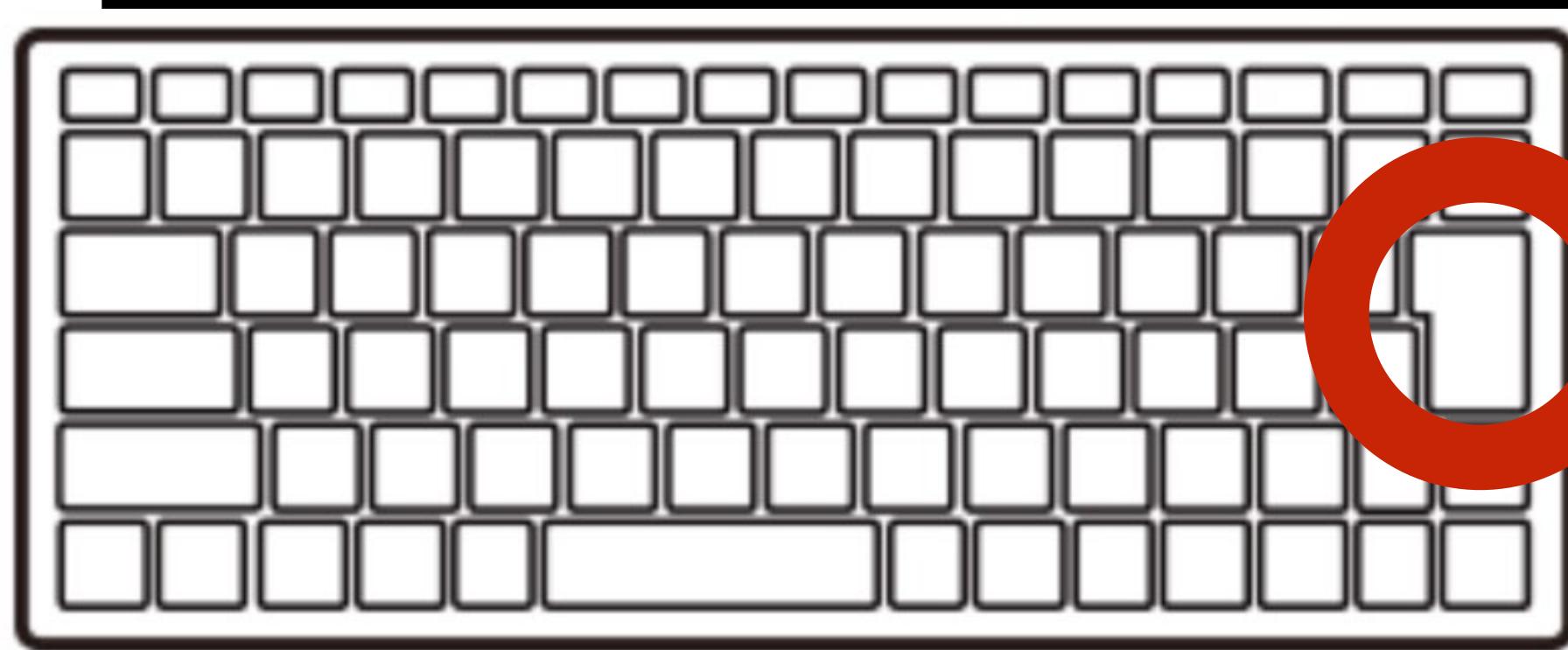


OK



Hit the UP cursor key twice

L E D 1 : L E D 9
O K



Press enter key again

Quiz time!





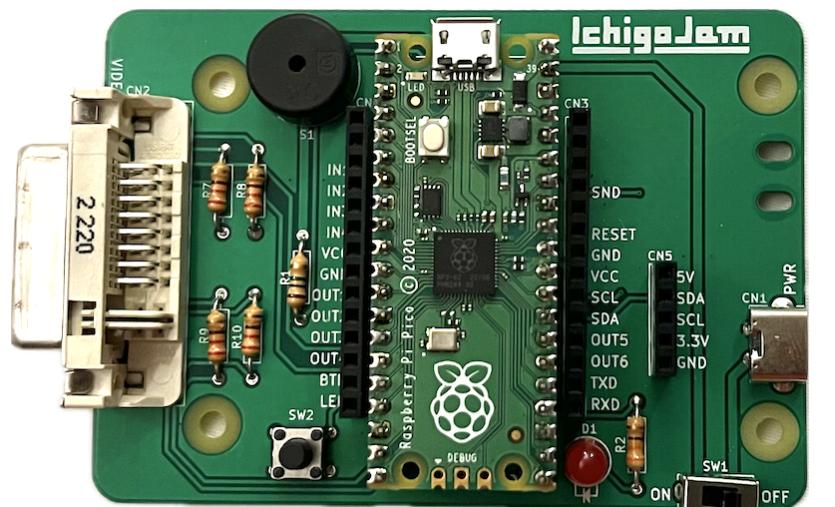
How many calculations
per second can a
\$1 computer do?

IchigoJam

CPU



**250 million times
per second**



CC BY IchigoJam



(C)Apple



(C)NVIDIA



(C)NVIDIA

IchigoJam P

250M

IchigoJam
x n?

\$15

iPhone 16 Pro

36T

144k

\$1500

NVIDIA 4090

1300T

5M

\$3000

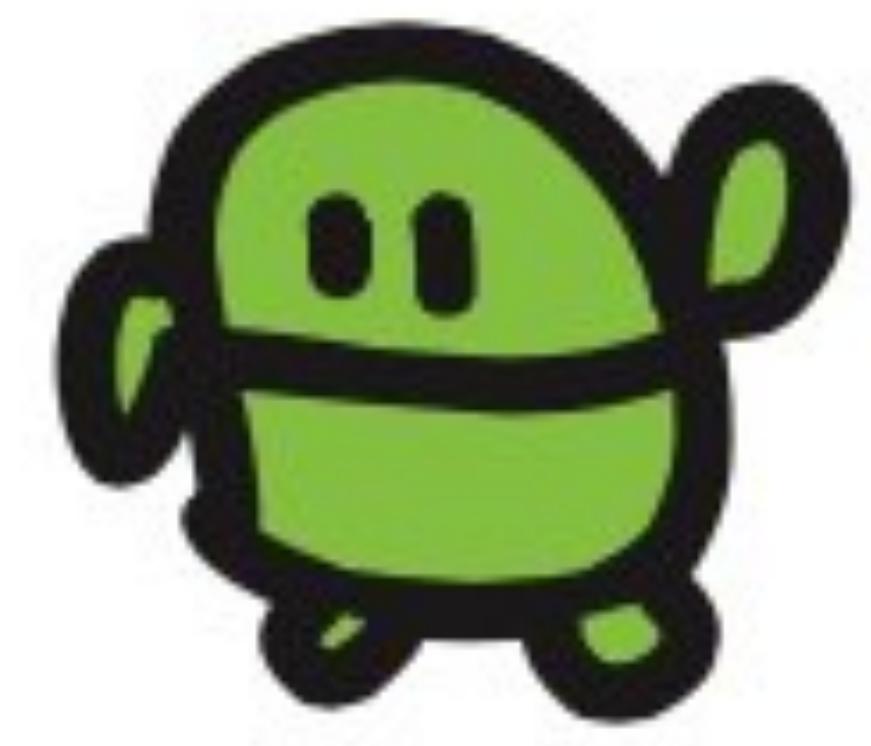
NVIDIA
DGX GH200

1E

4G

\$?M

W A I T



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.

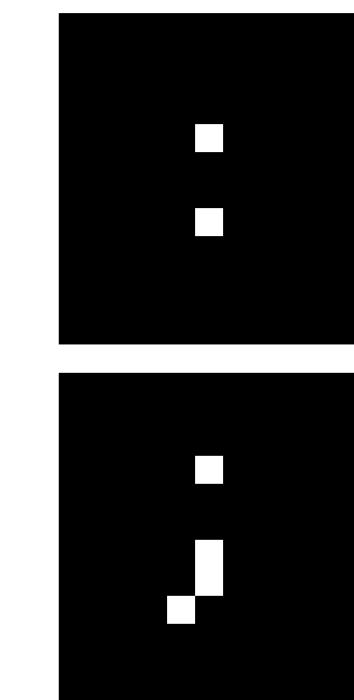
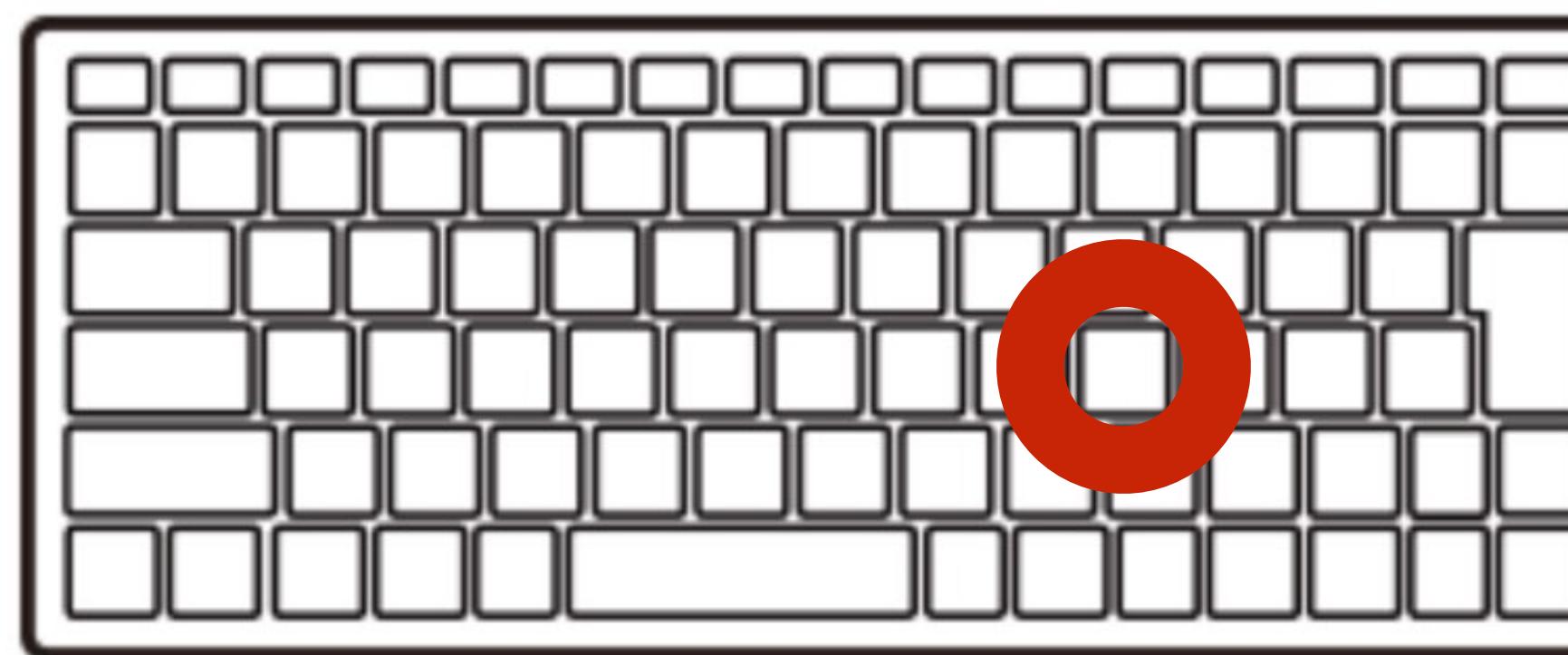
LED1:WAIT180:LED0 ↵



Shift + ;



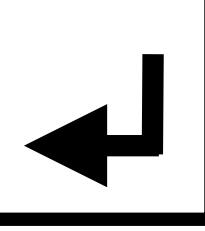
Shift + ;



Colon

Semicolon

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?



L E D 1 : W A I T 1 0 : L E D 0 : W A I T 1 0 :
L E E D 1 : W A I T 1 0 : L E E D 0 : W A I T 1 0 :
L E E E D 1 : W A I T 1 0 : L E E E D 0 : W A I T 1 0 :
L E E E E D 1 : W A I T 1 0 : L E E E E D 0 : W A I T 1 0 :
L E E E E E D 1 : W A I T 1 0 : L E E E E E D 0 : W A I T 1 0 :
L E E E E E E D 1 : W A I T 1 0 : L E E E E E E D 0 : W A I T 1 0 :
L E E E E E E E D 1 : W A I T 1 0 : L E E E E E E E D 0 : W A I T 1 0 :
L E E E E E E E E D 1 : W A I T 1 0 : L E E E E E E E E D 0 : W A I T 1 0 :
L E E E E E E E E E D 1 : W A I T 1 0 : L E E E E E E E E E D 0 : W A I T 1 0 :
L E E E E E E E E E E D 1 : W A I T 1 0 : L E E E E E E E E E E D 0 : W A I T 1 0 :



Light up 10 times

Program



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

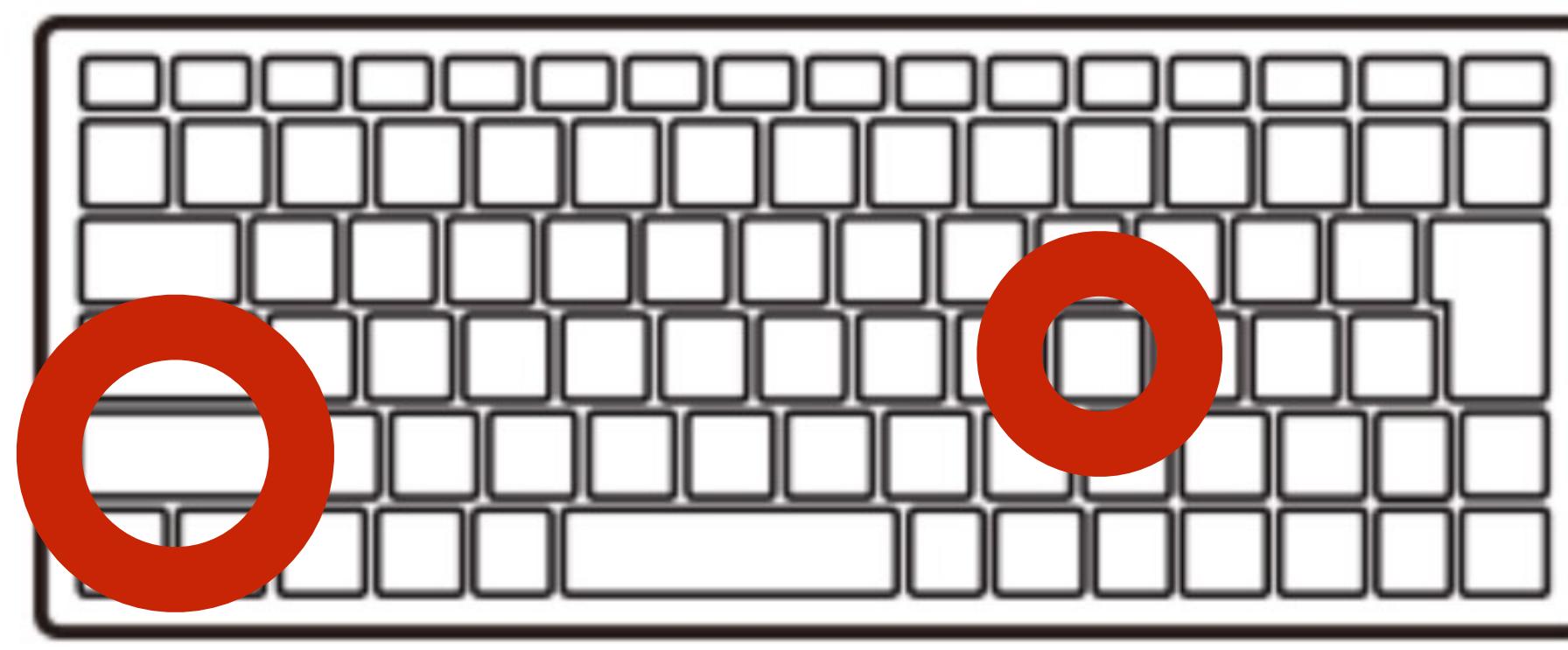
Space Shift + ;

:

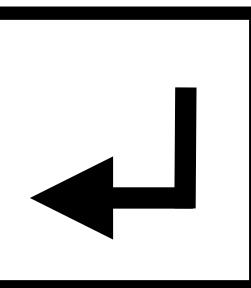
;

Colon

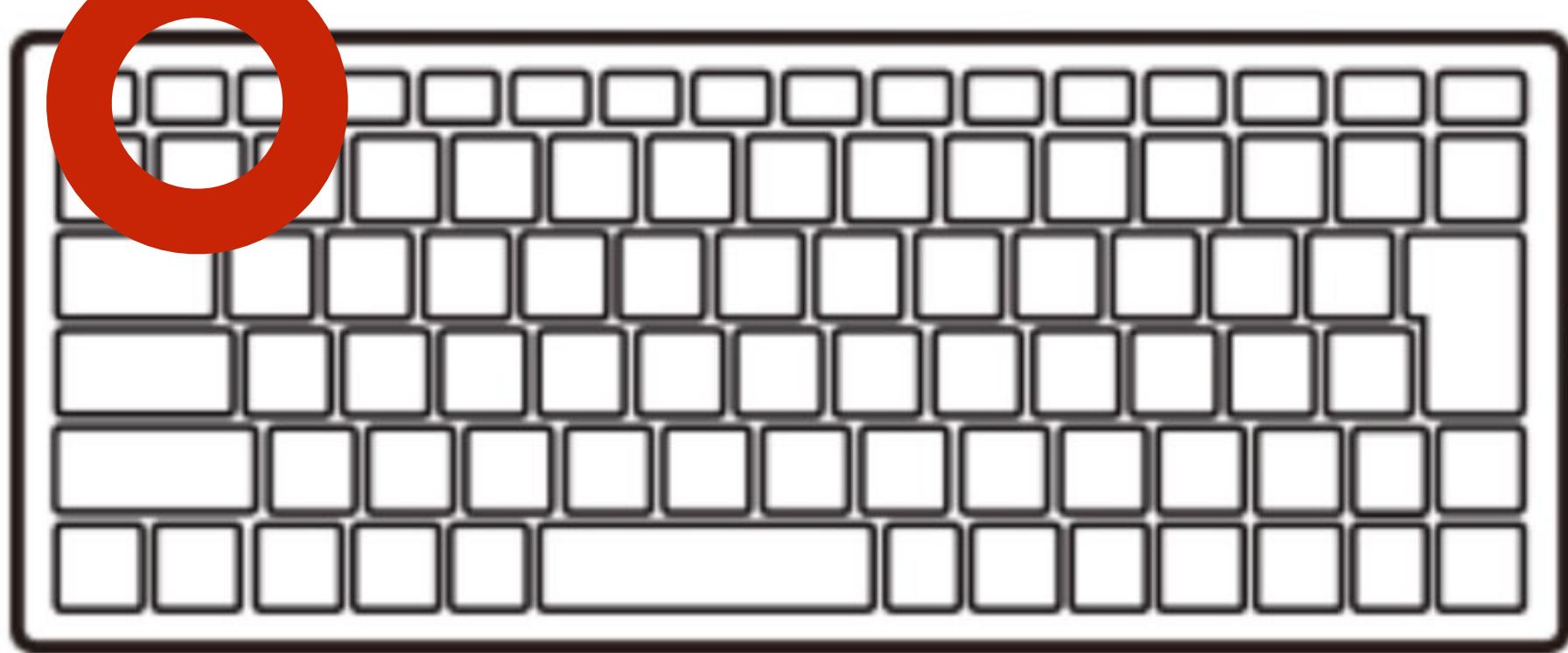
Semicolon



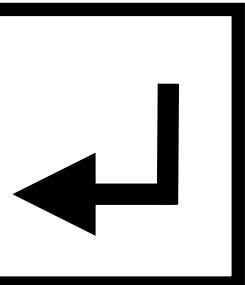
Clear Screen!

CLS 

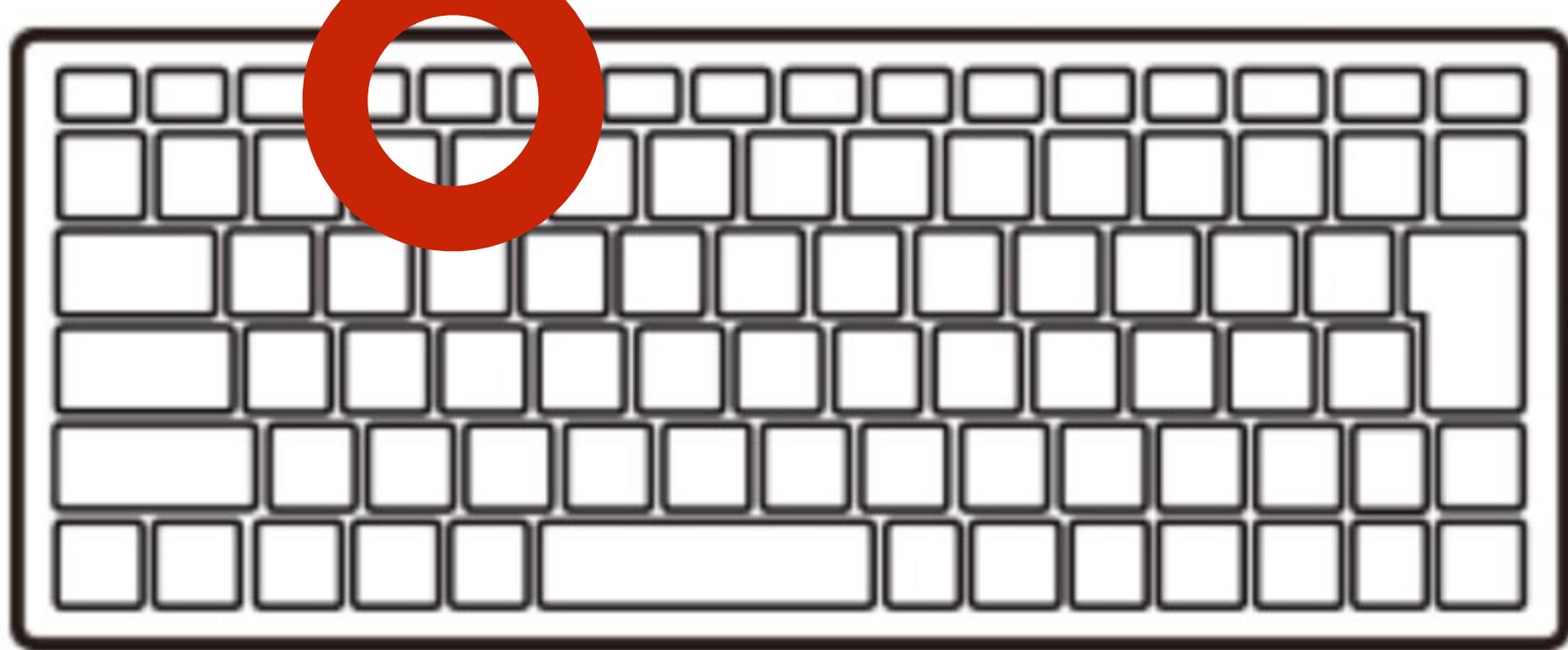
F1



Show me the program

L I S T 

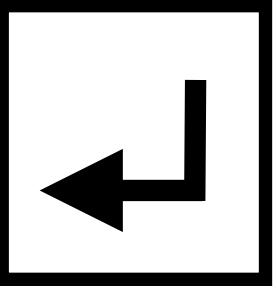
F 4



I remember it!



Run the program

RUN 

F5

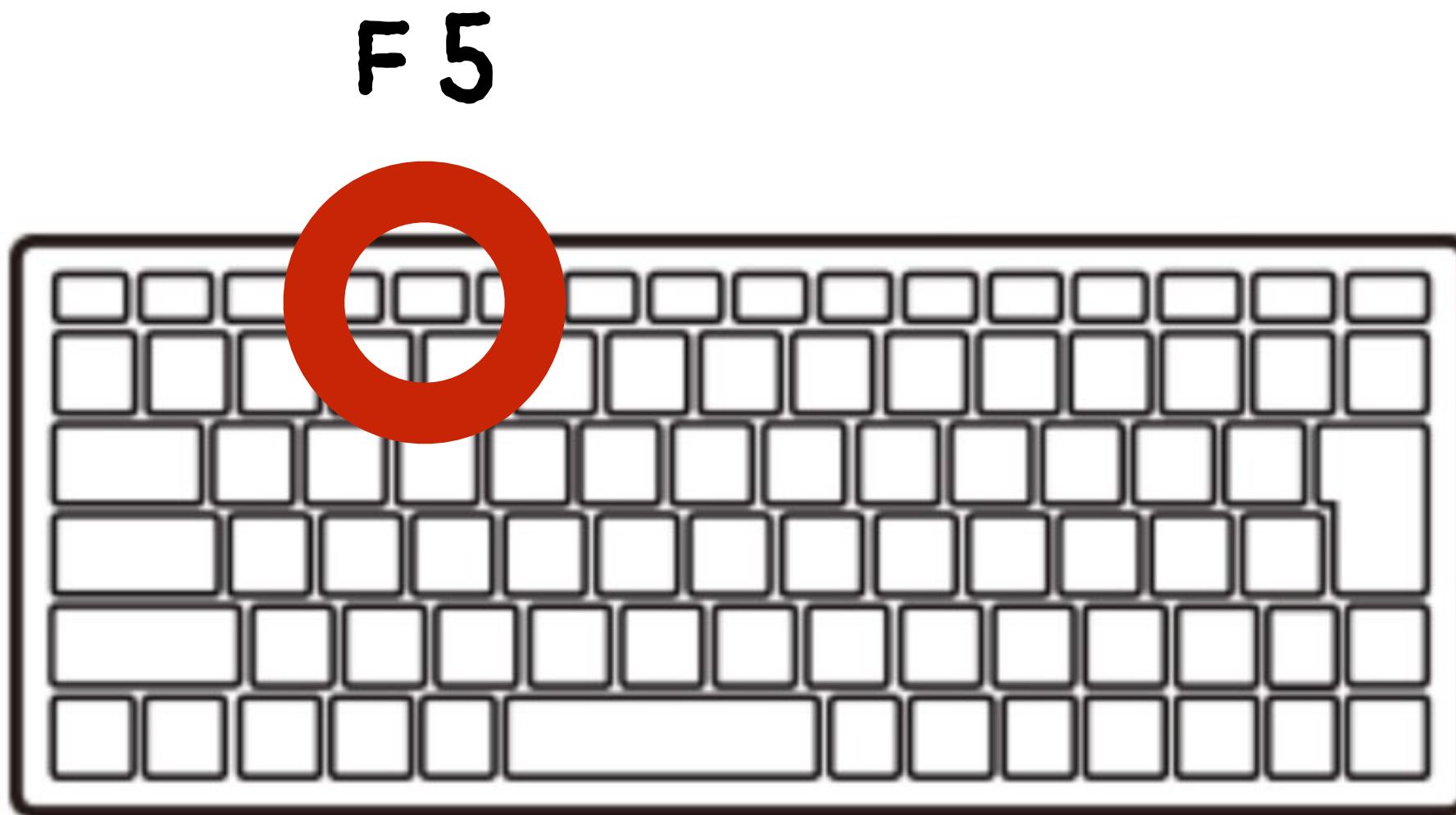


Can you do
1000 times?



To repeat

3 GOTO 1 ↵



How many times?

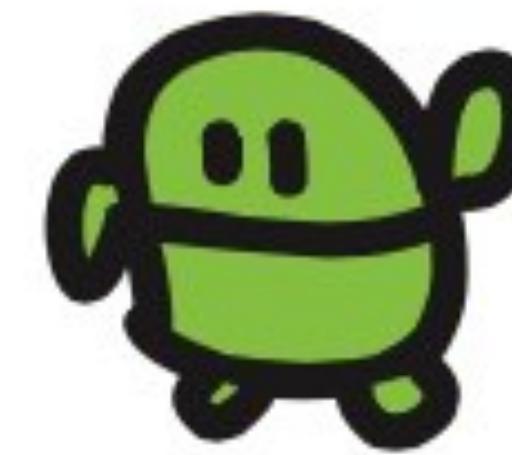
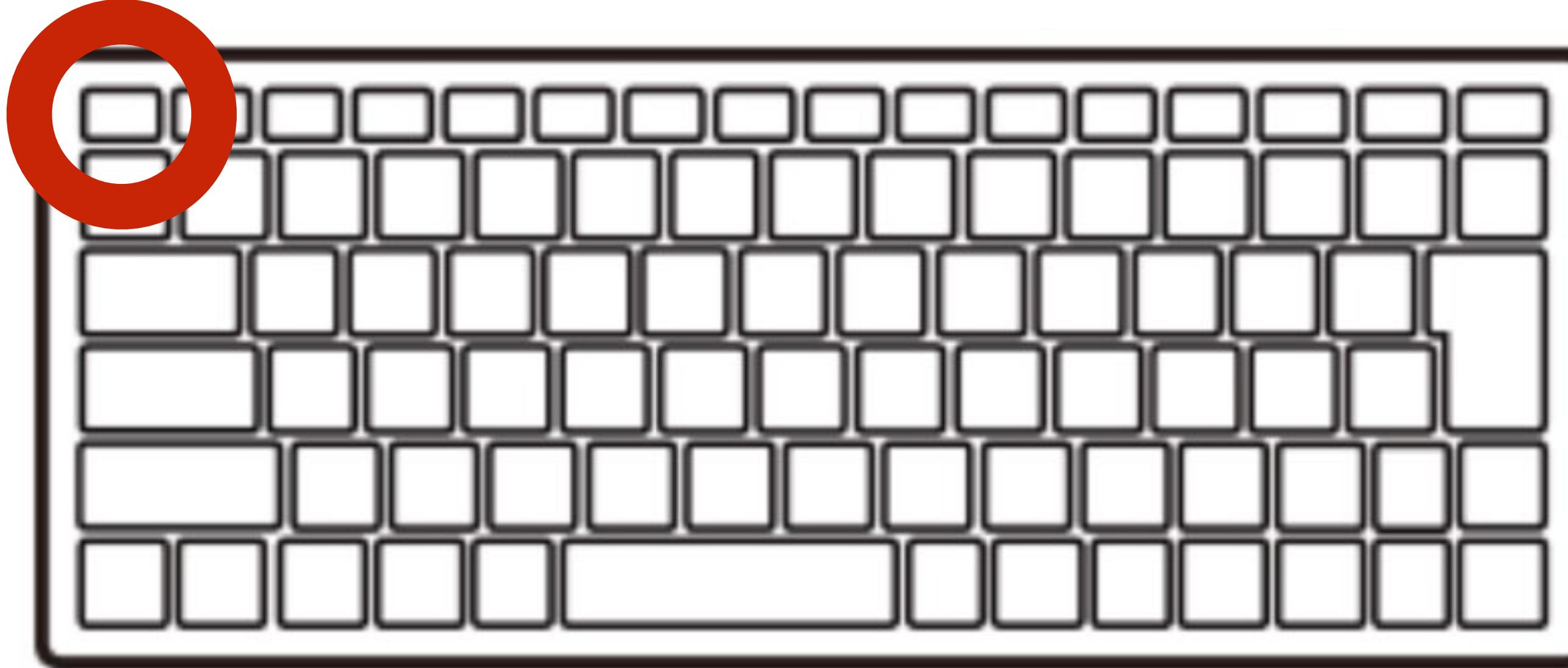
Game with LED!

If the LED will be ON,
you're WINNER!



press **ESC** key to stop

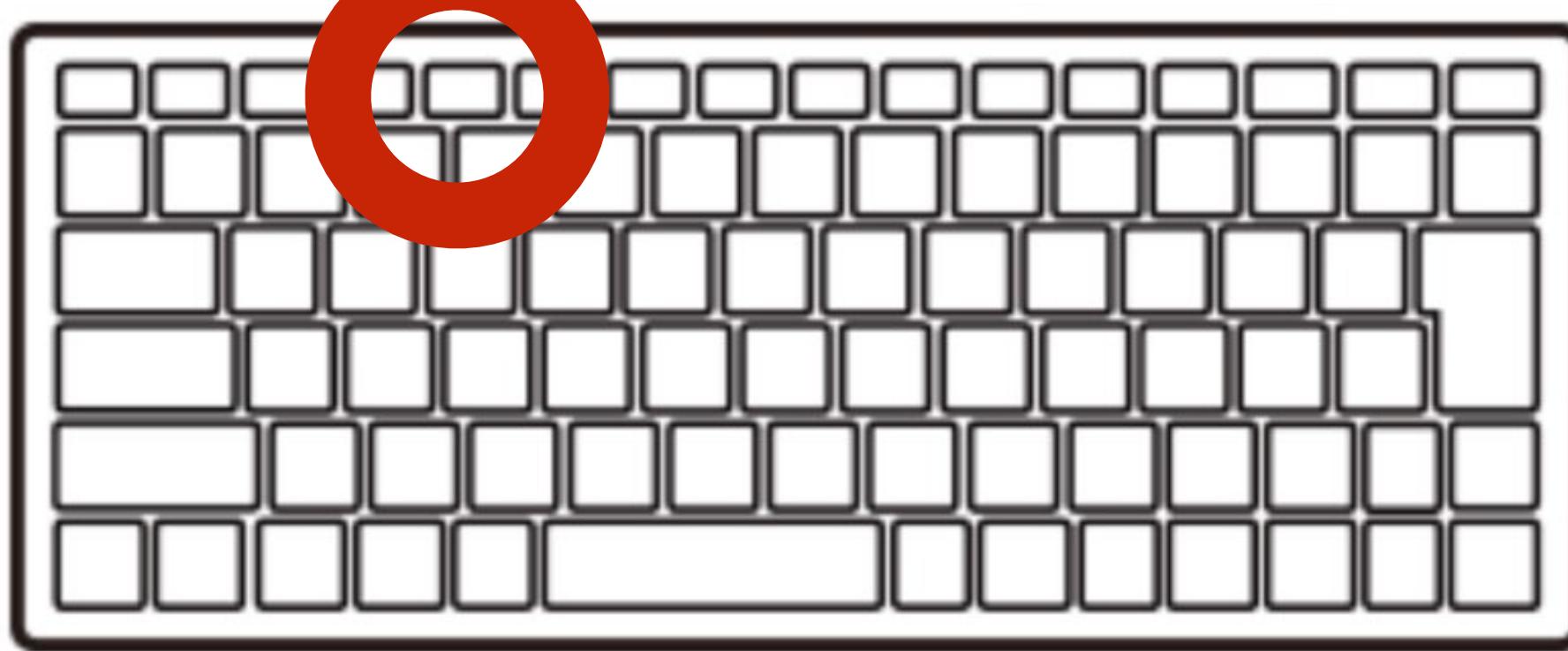
[**ESC**] key



Show me LIST of program

L I S T

F 4



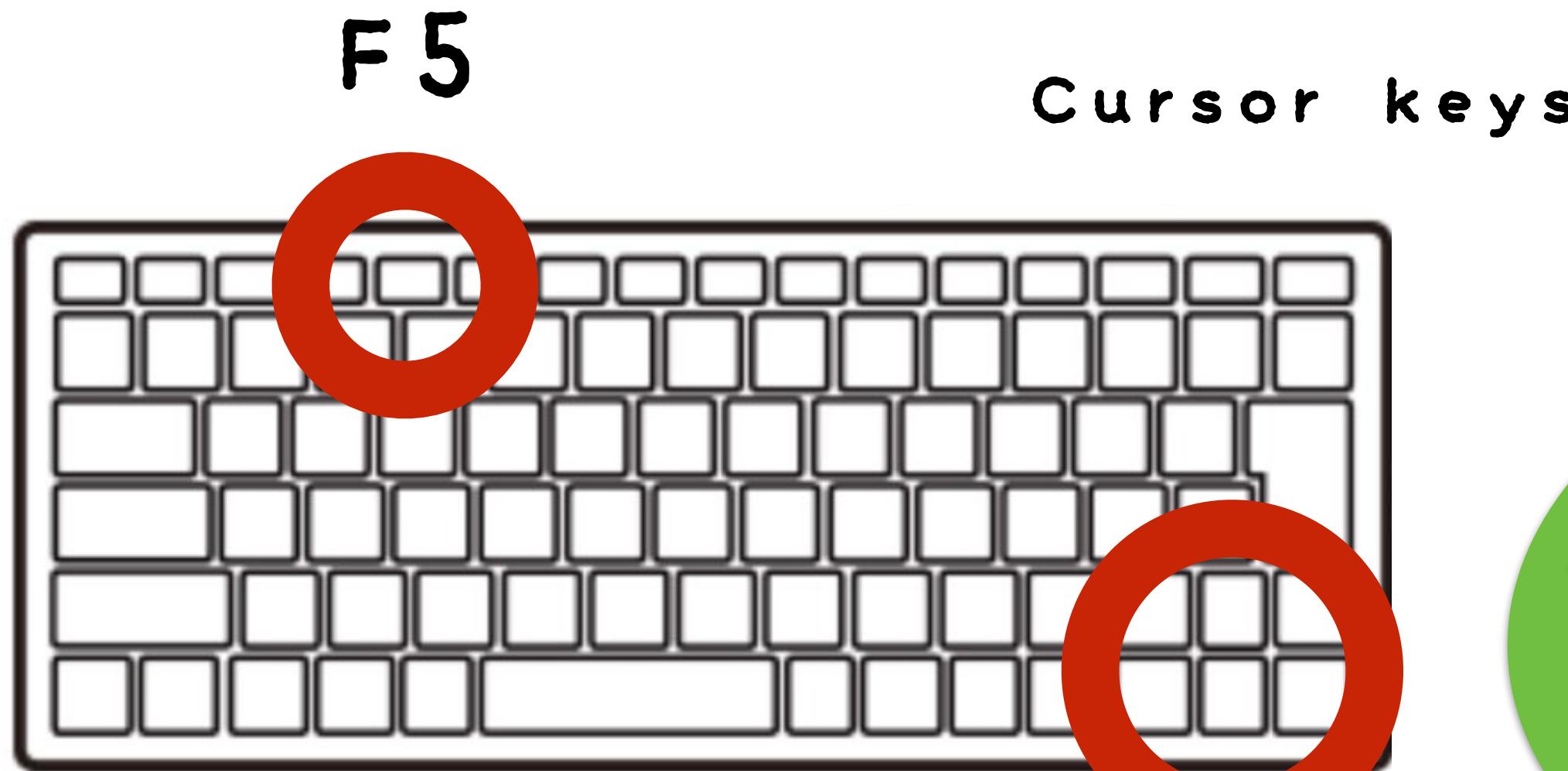
I remembered



Let's modify with cursor and backspace keys.

Press **Enter** key and **F5** key after modifying.

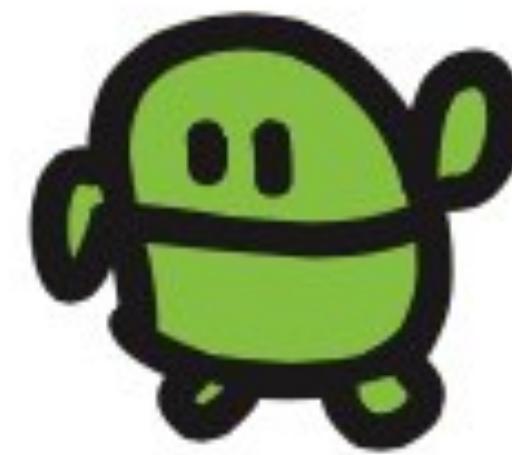
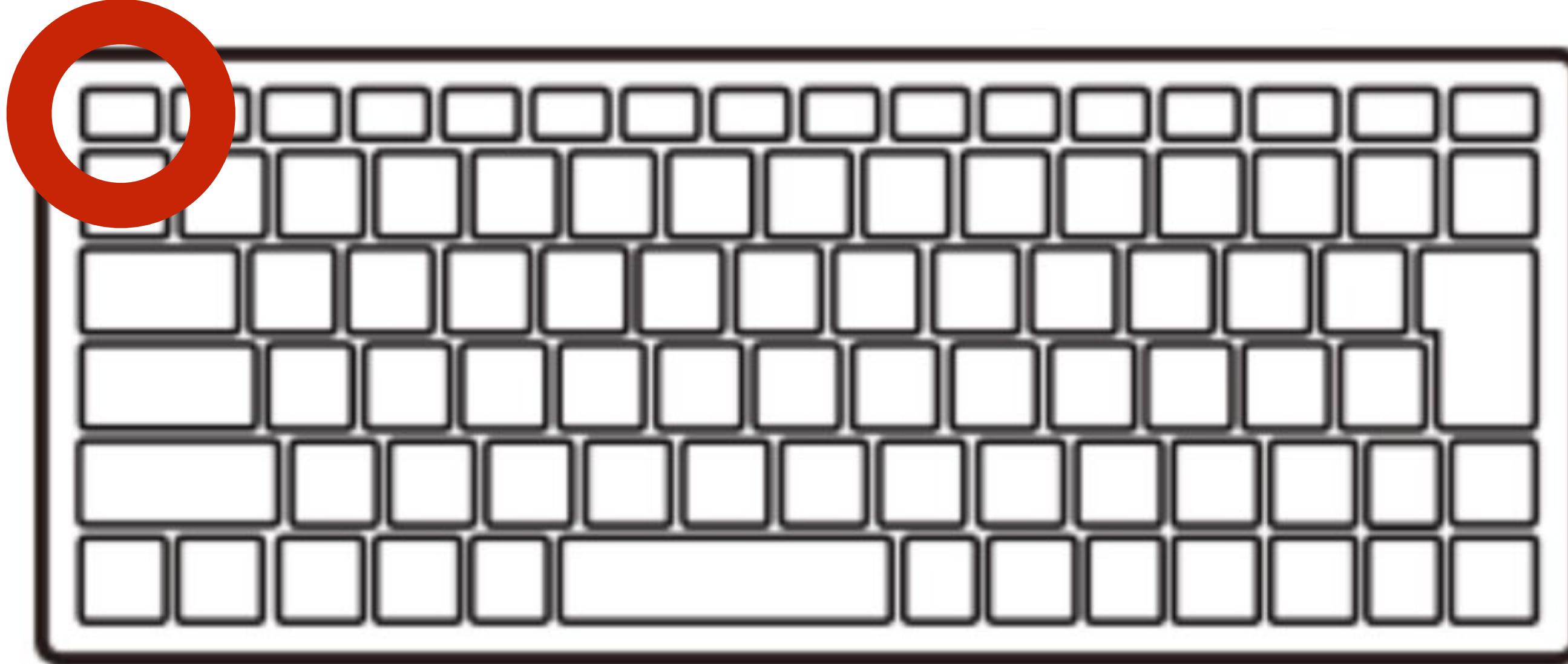
```
1 LED1:WAIT10
2 LED0:WAIT30 ←
3 GOTO1
```



You can modify freely

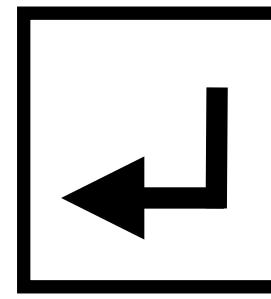
Press ESC key to stop

[ESC] key

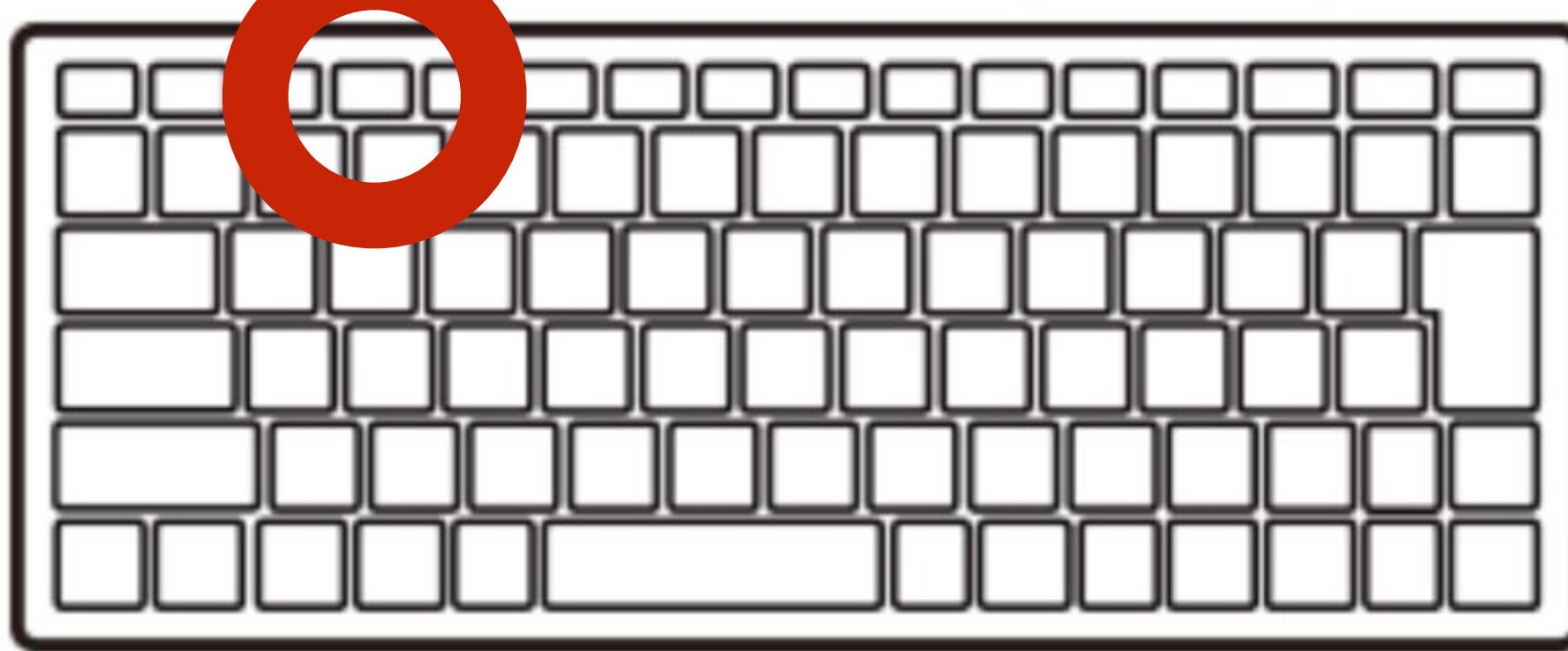


S a v e t h e p r o g r a m

SAV E ↵



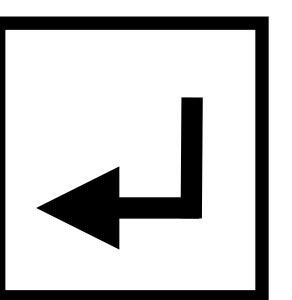
F 3



F3, 0, Enter



To confirm

FILES 

@ LED1 : WAIT1@

Check the file

F9



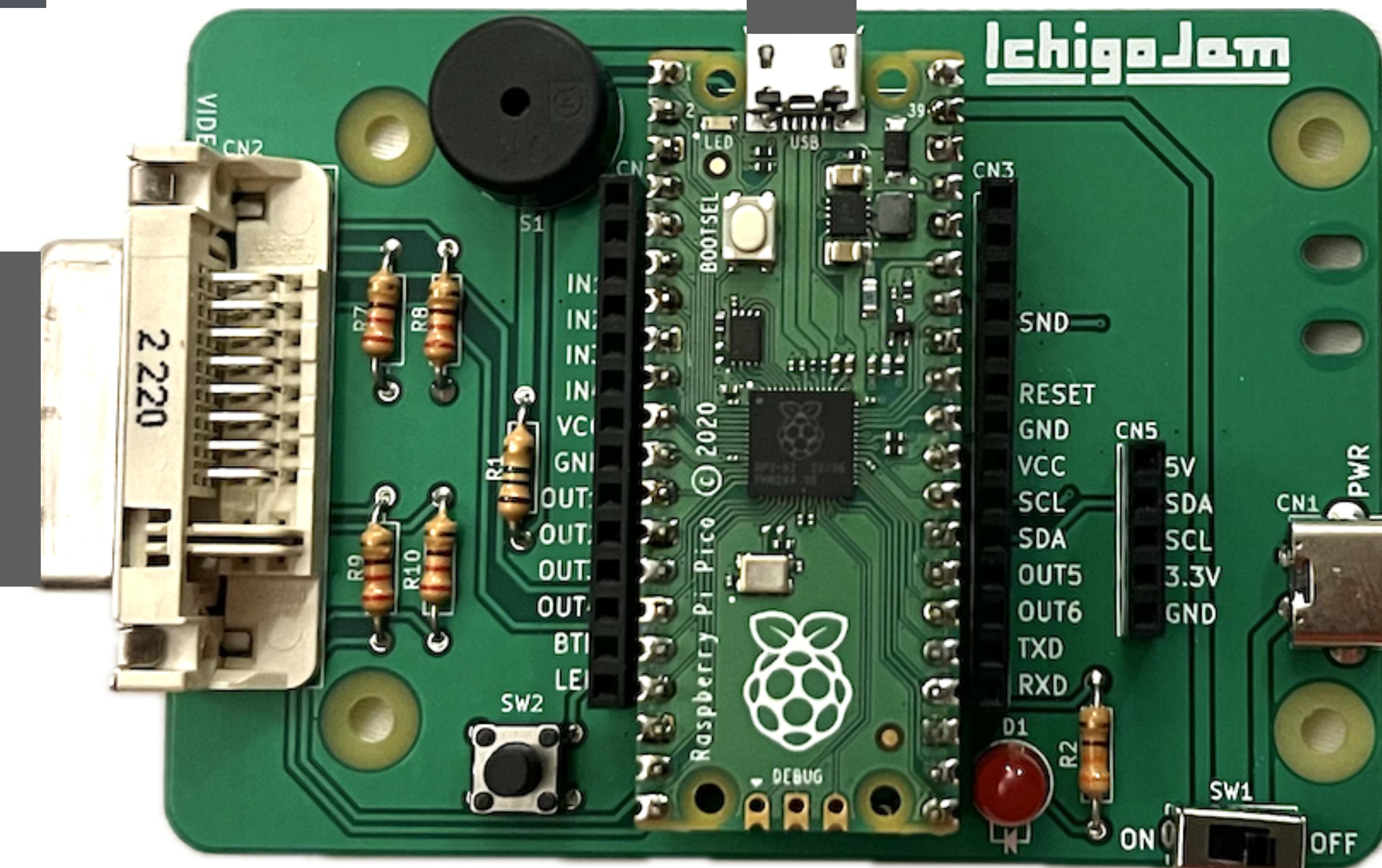
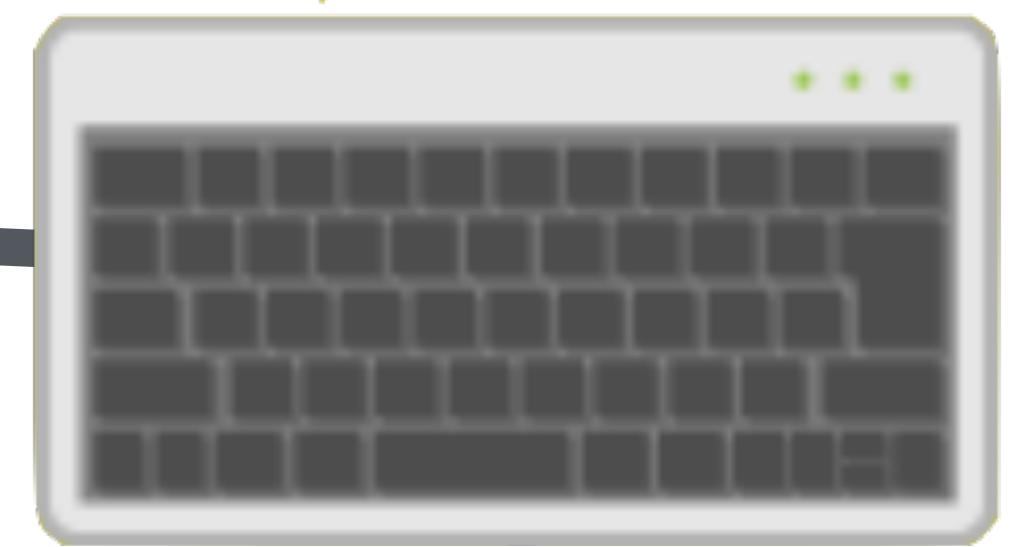
F9



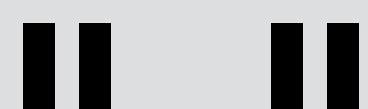
Monitor



Keyboard



OFF

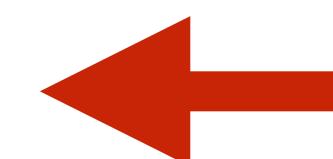
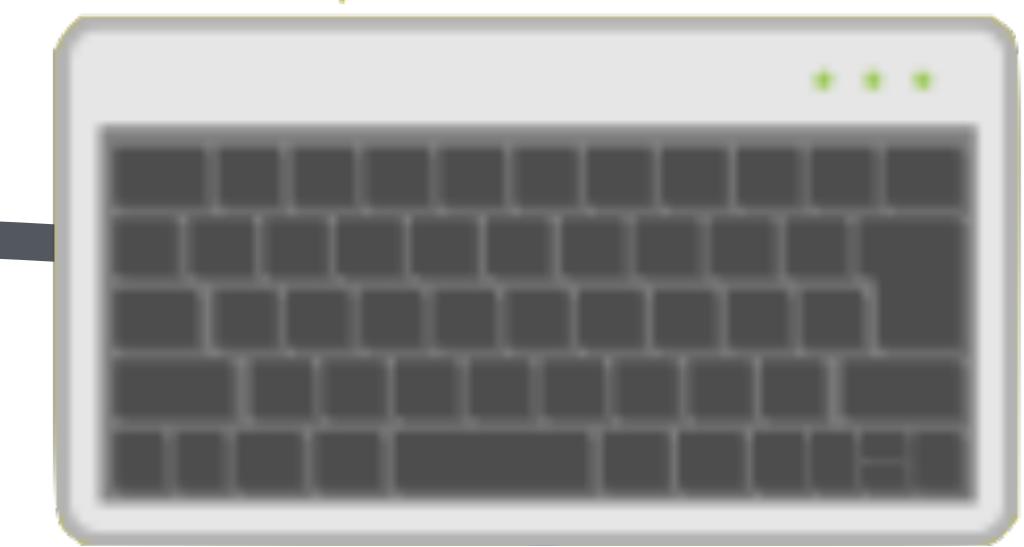


Power Source

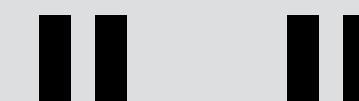
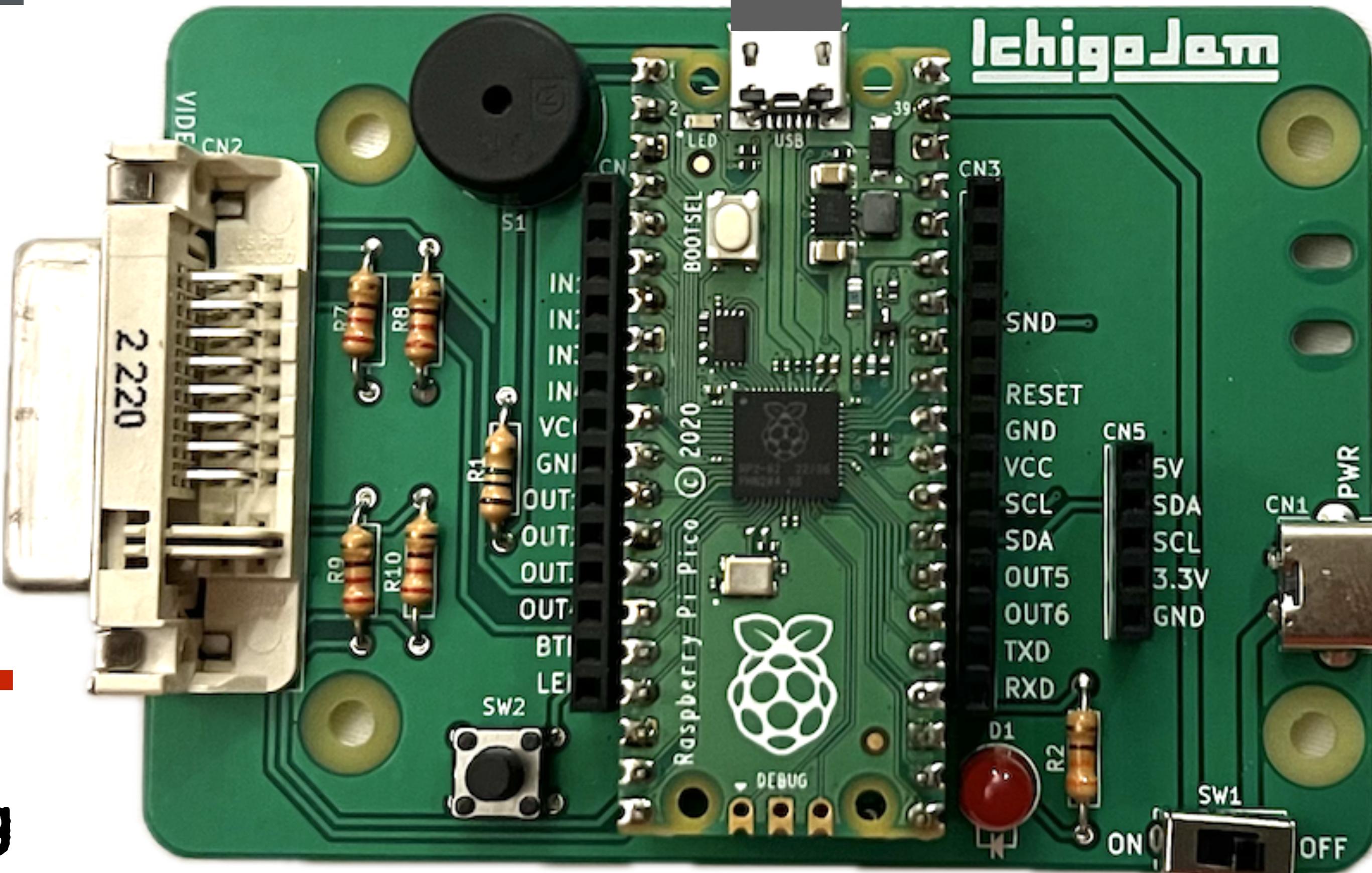
Monitor



Keyboard

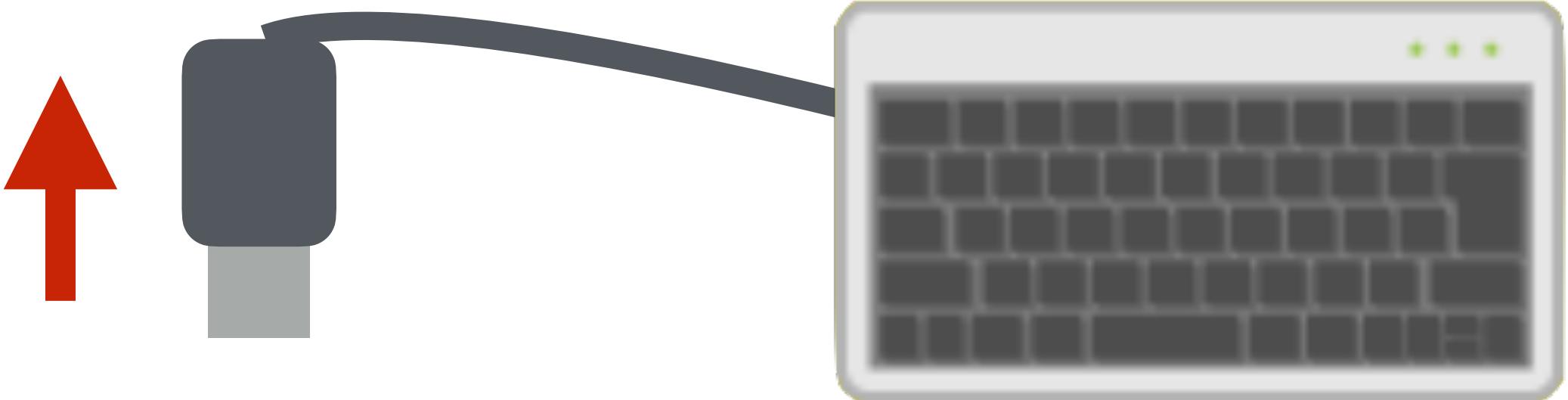


Unplug

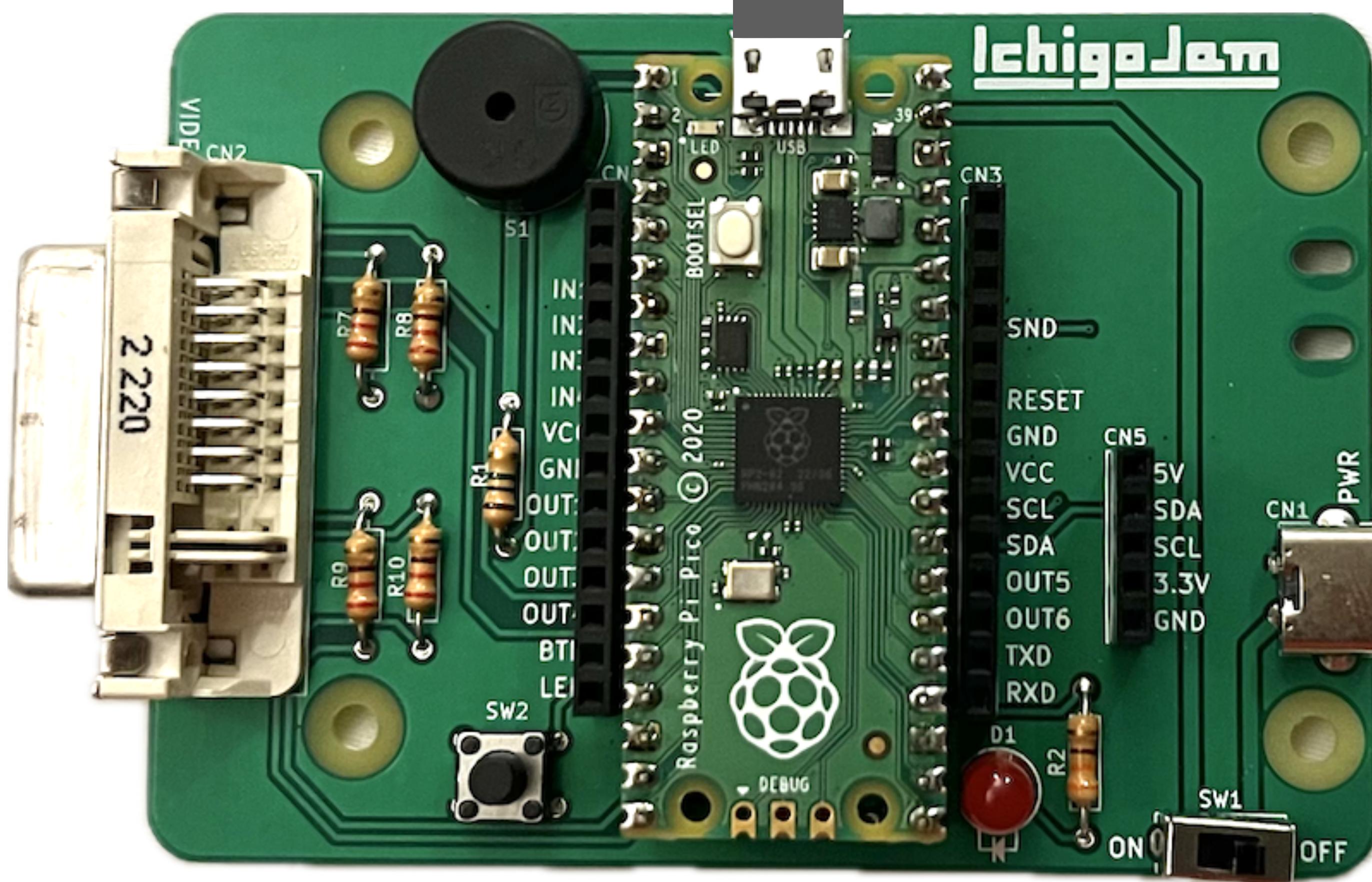


Power Source

Unplug

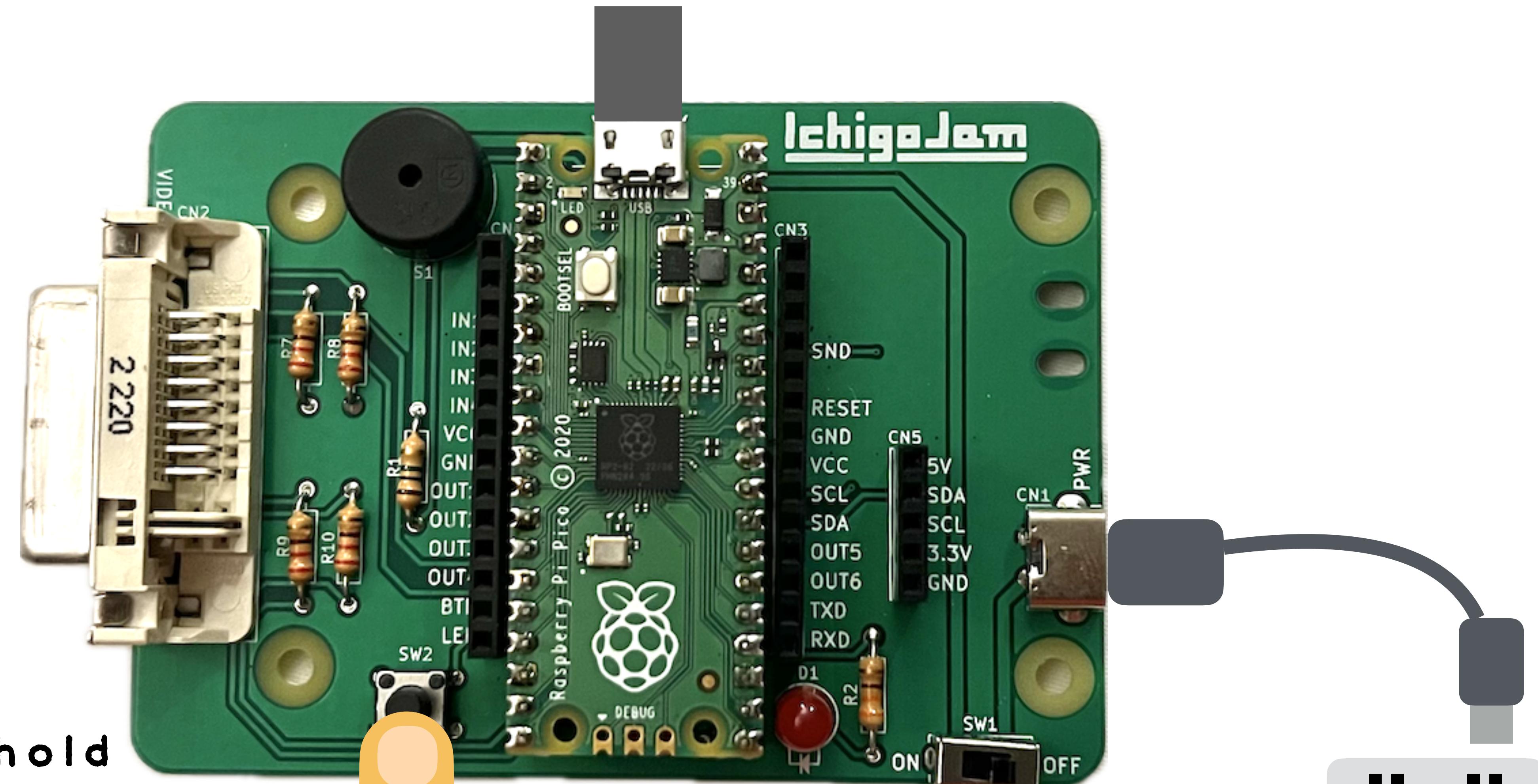


Keyboard

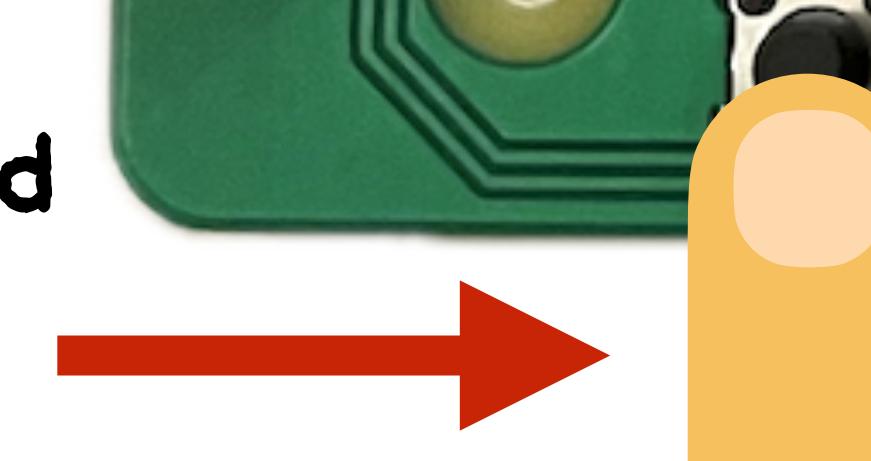


The image consists of four black vertical bars arranged in two pairs. The first pair is located on the left side of the frame, and the second pair is located on the right side. Each pair of bars is positioned side-by-side.

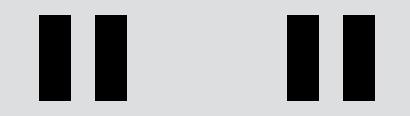
Power Source

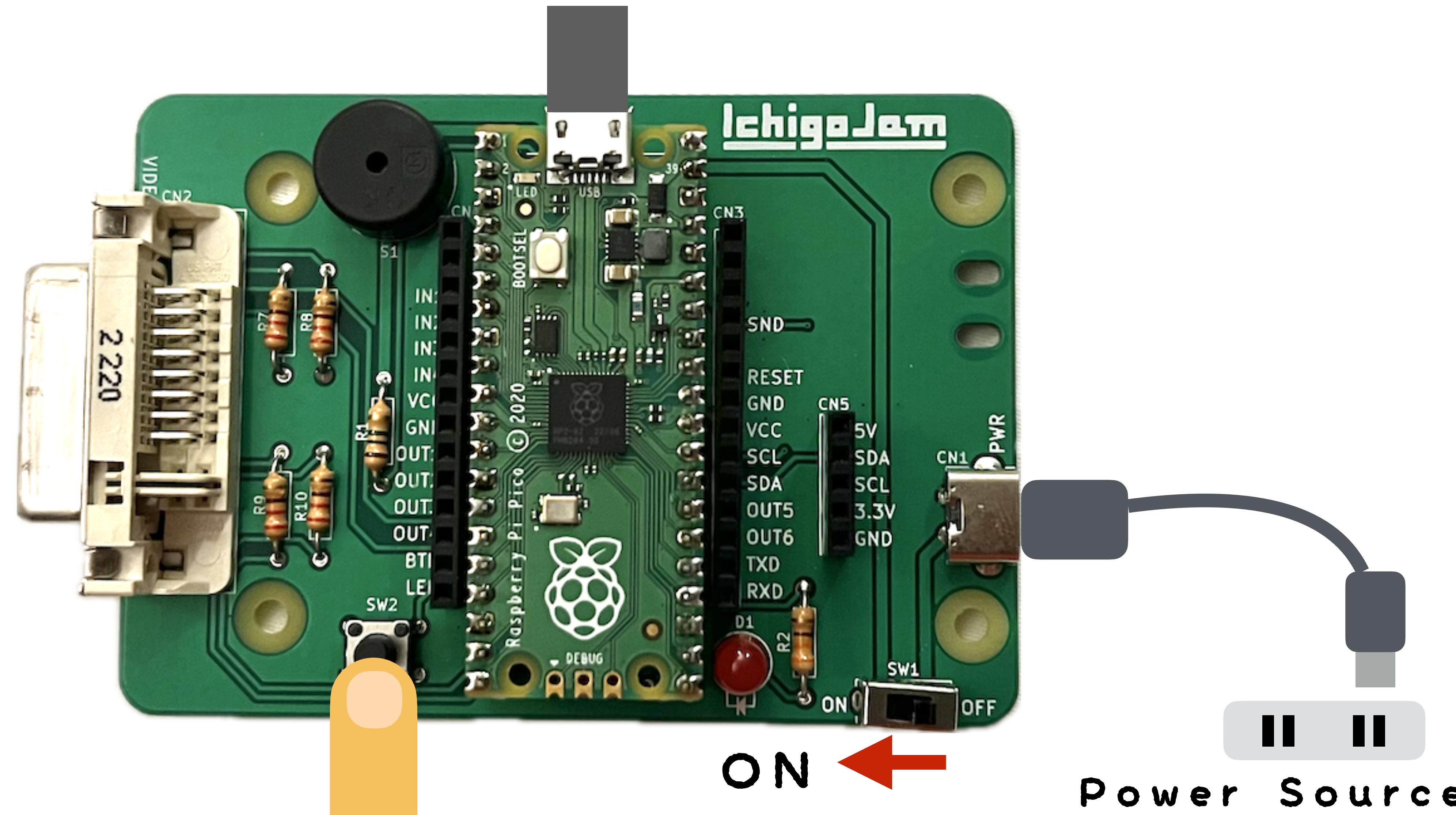


Press and hold
the button



Power Source

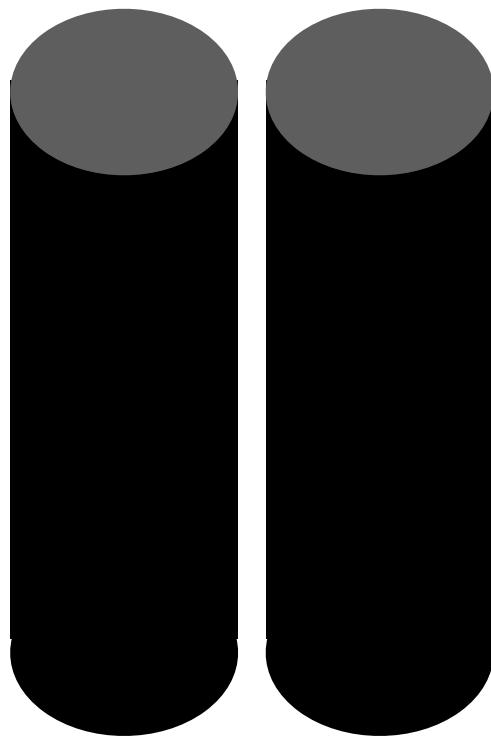
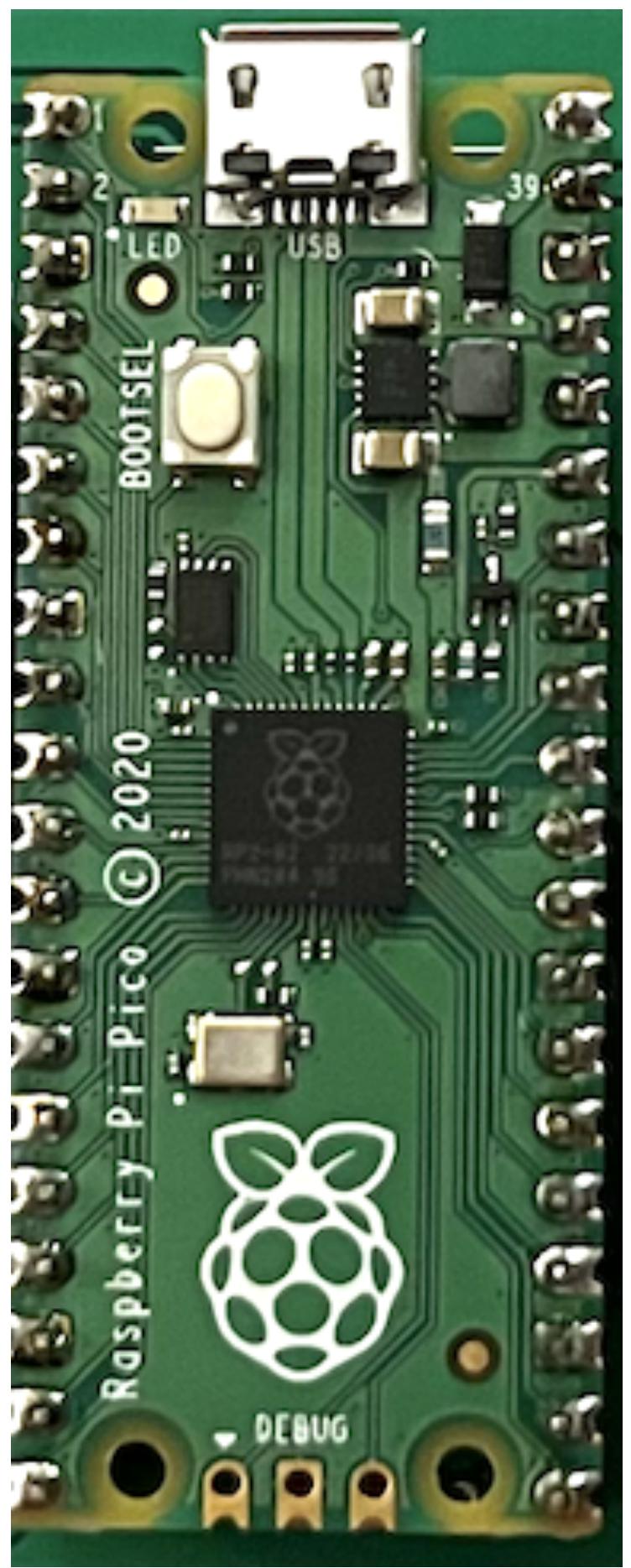




You made a robot!



Robot
Computer + Power source = Accessary
Anything!



Robots around you



by Panasonic



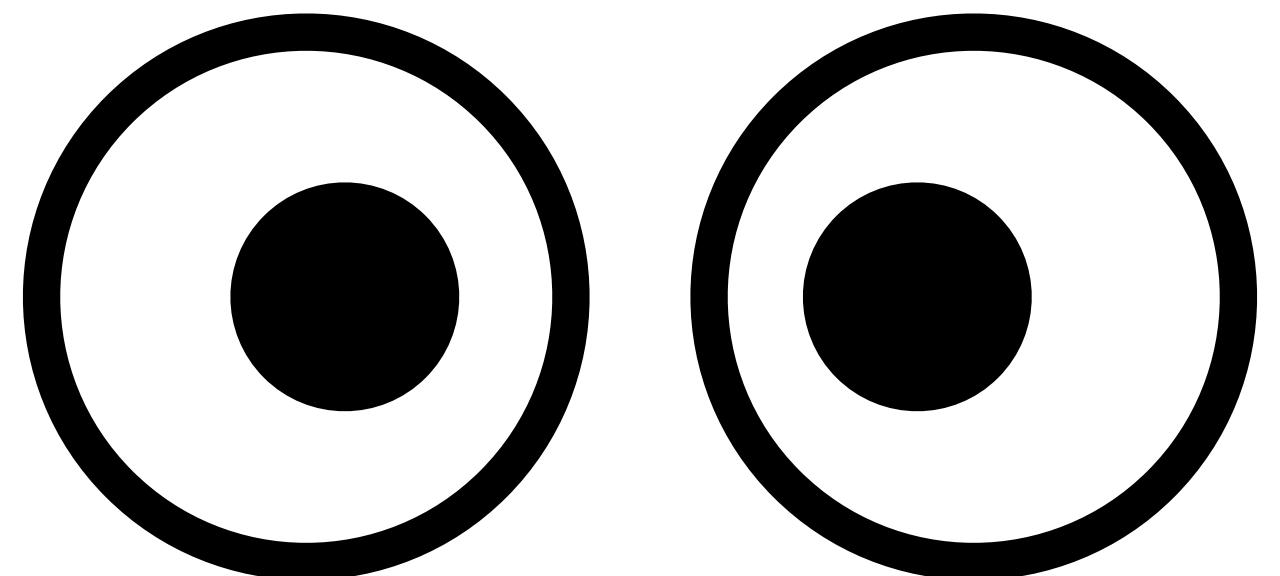
All someone
programmed it!

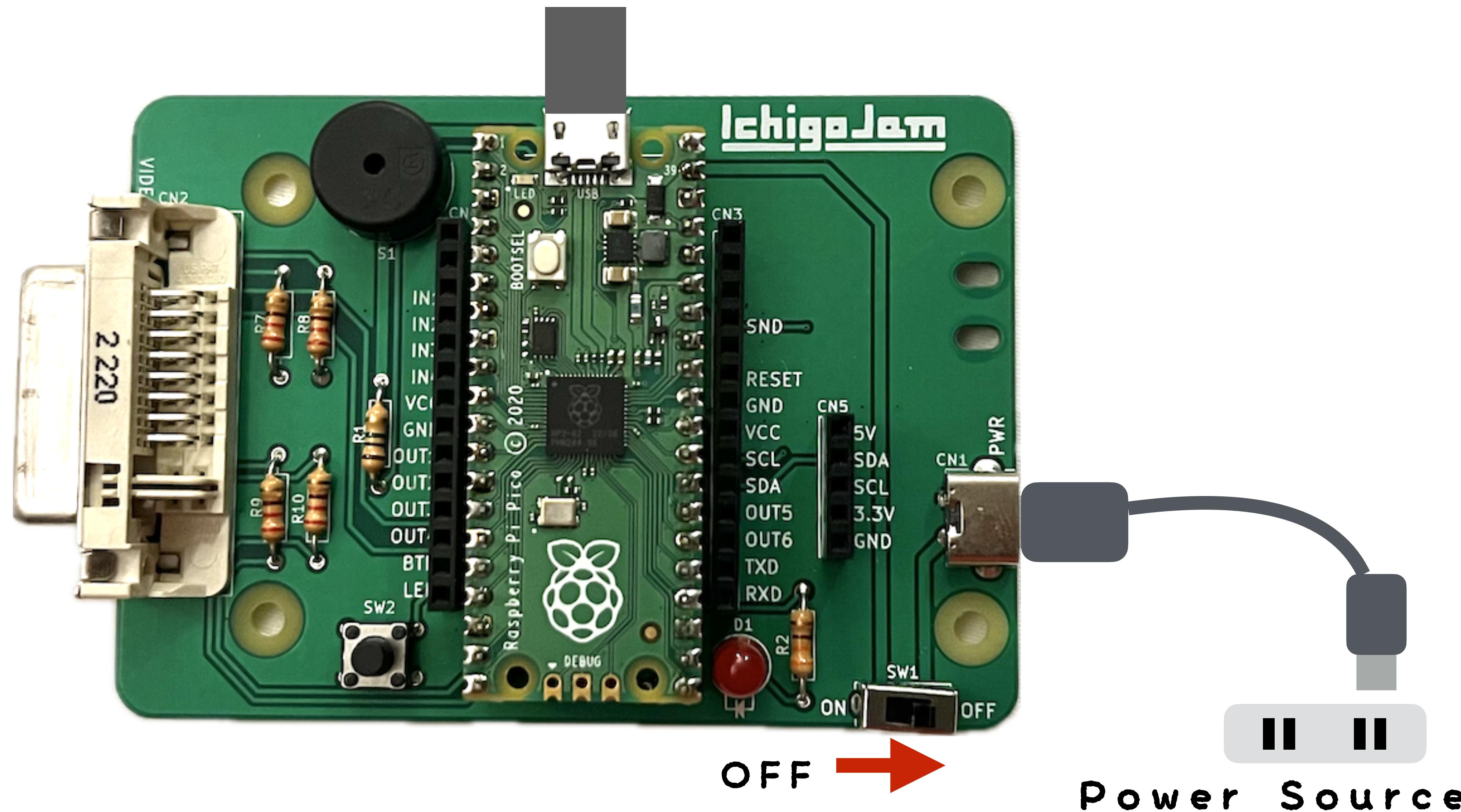
Image: LPC1114 by Akizuki Denshi

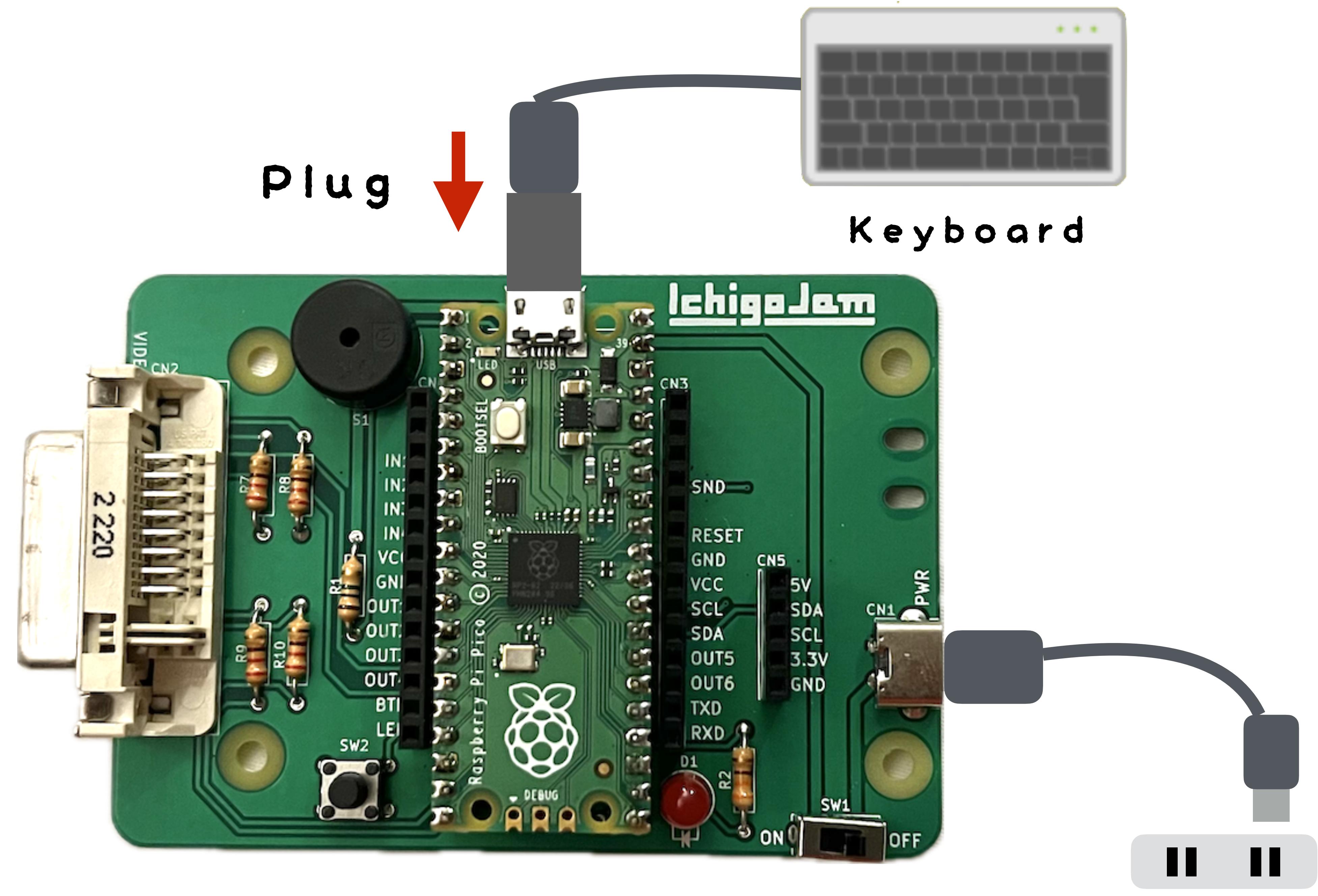
Where are
computers?



Let's find
computers
around you!



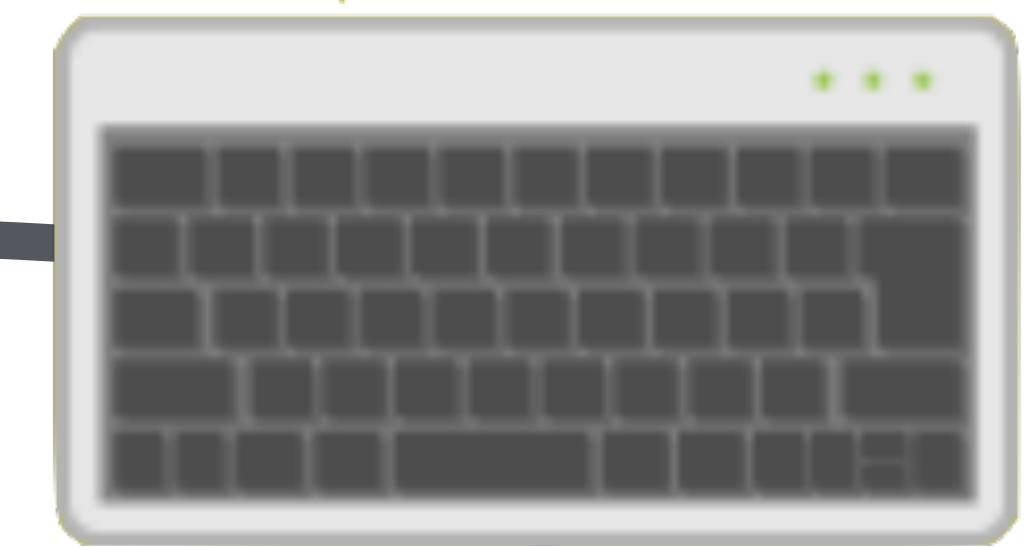




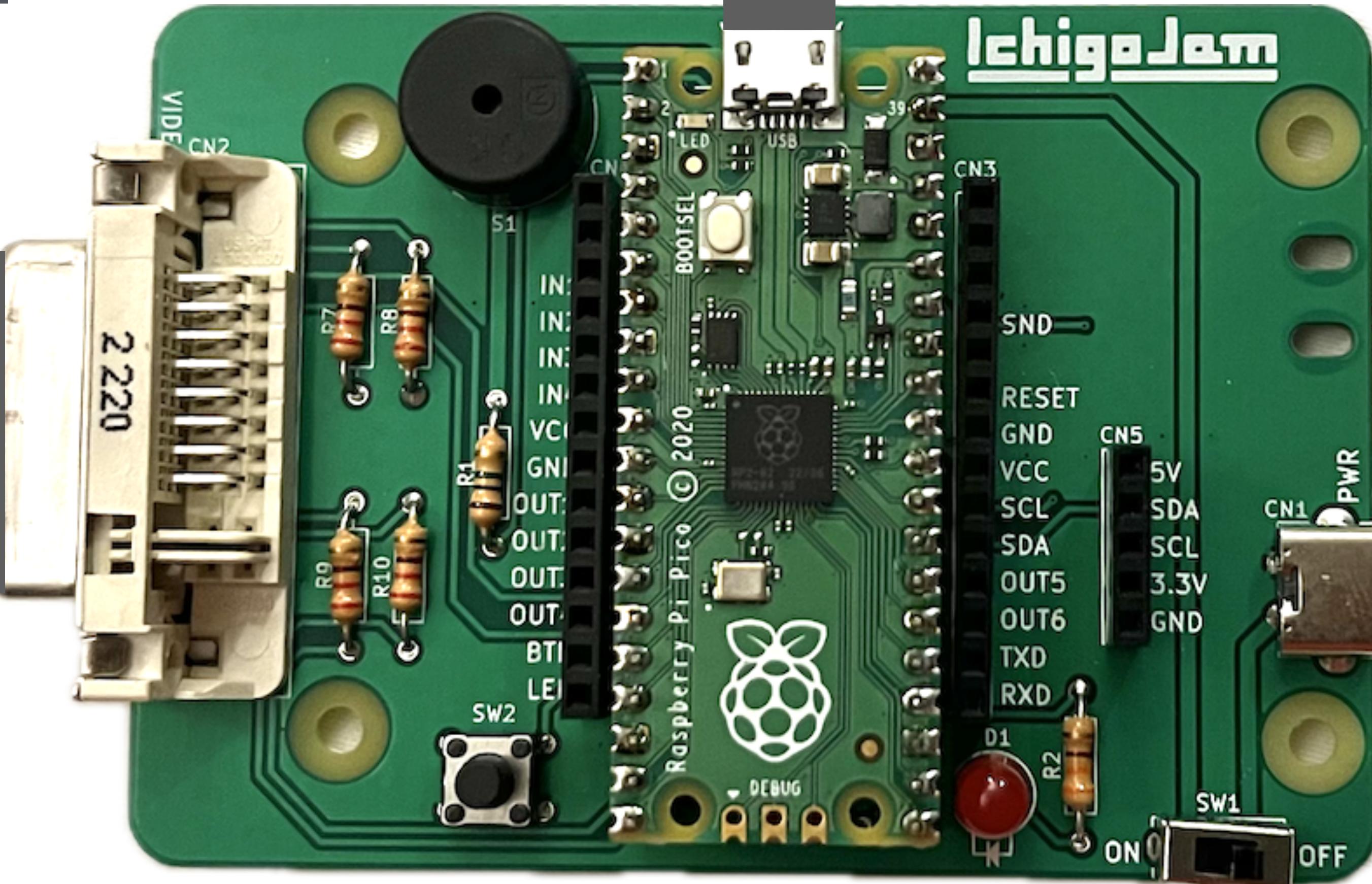
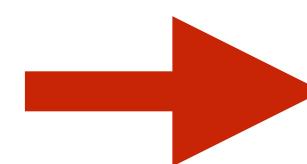
Monitor



Keyboard



Plug

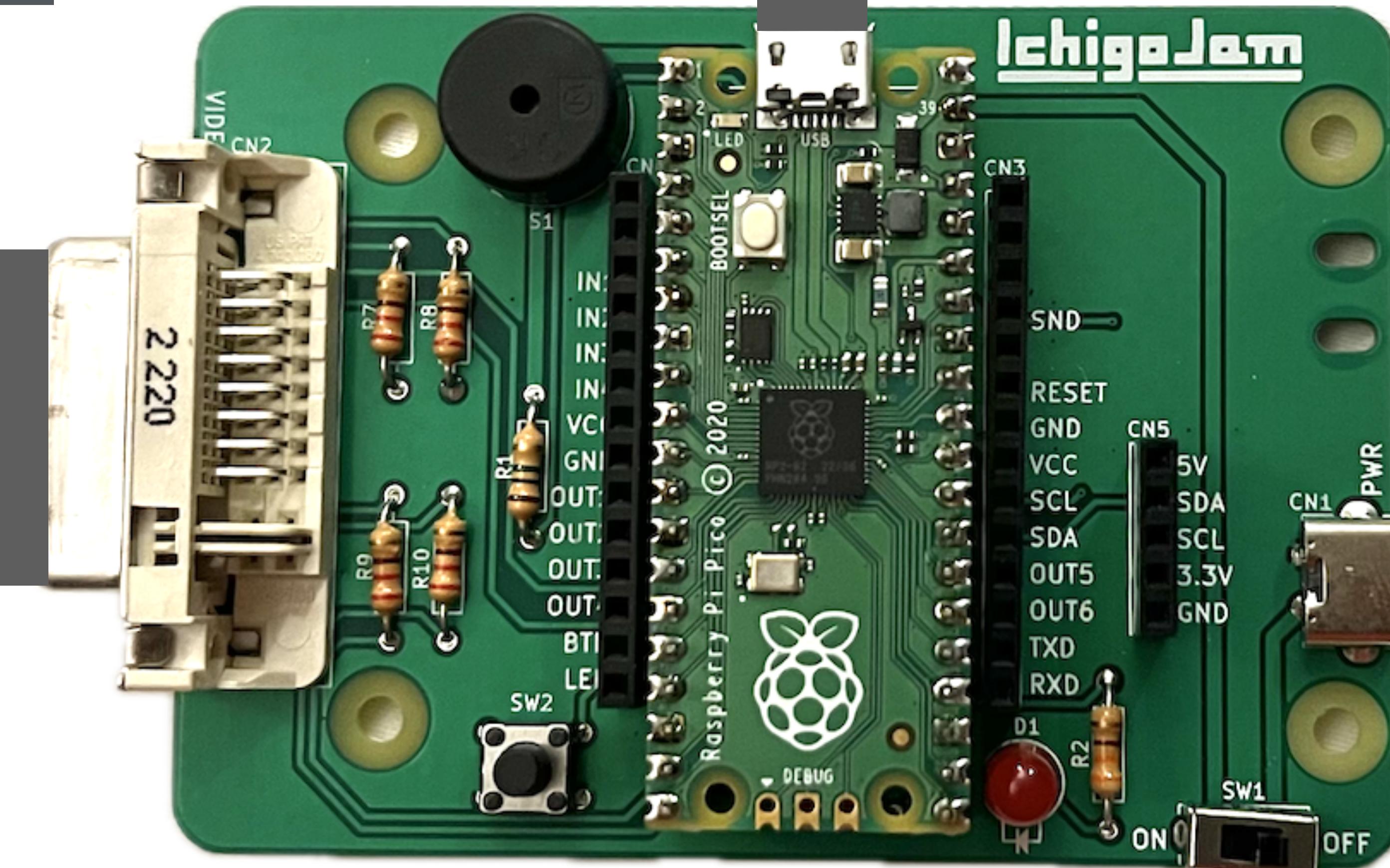
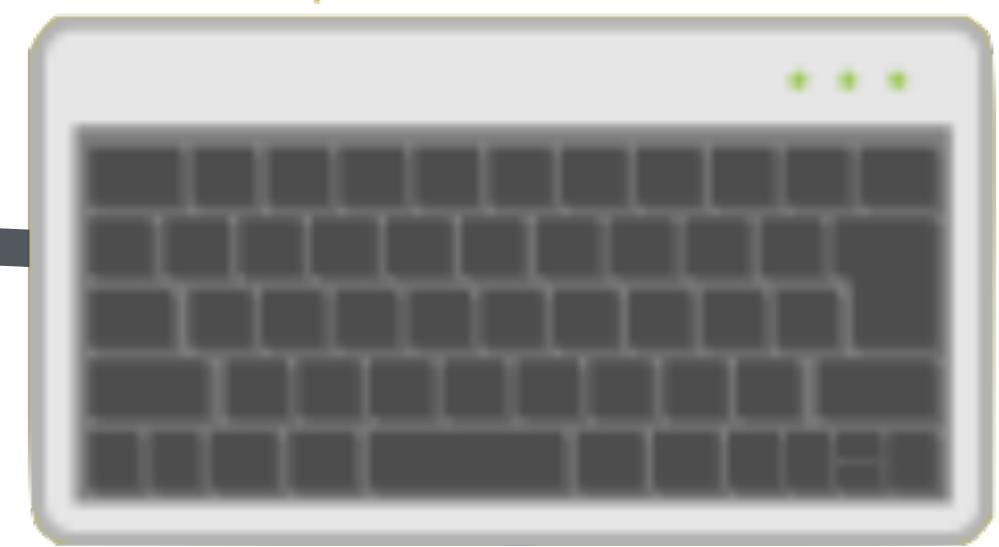


Power Source

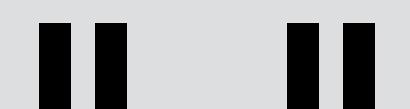
Monitor



Keyboard

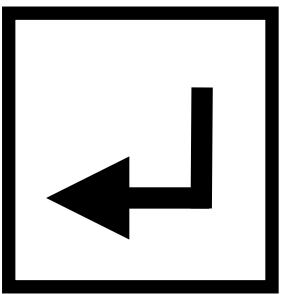


ON ←



Power Source

To load the program

LOADS 

F2



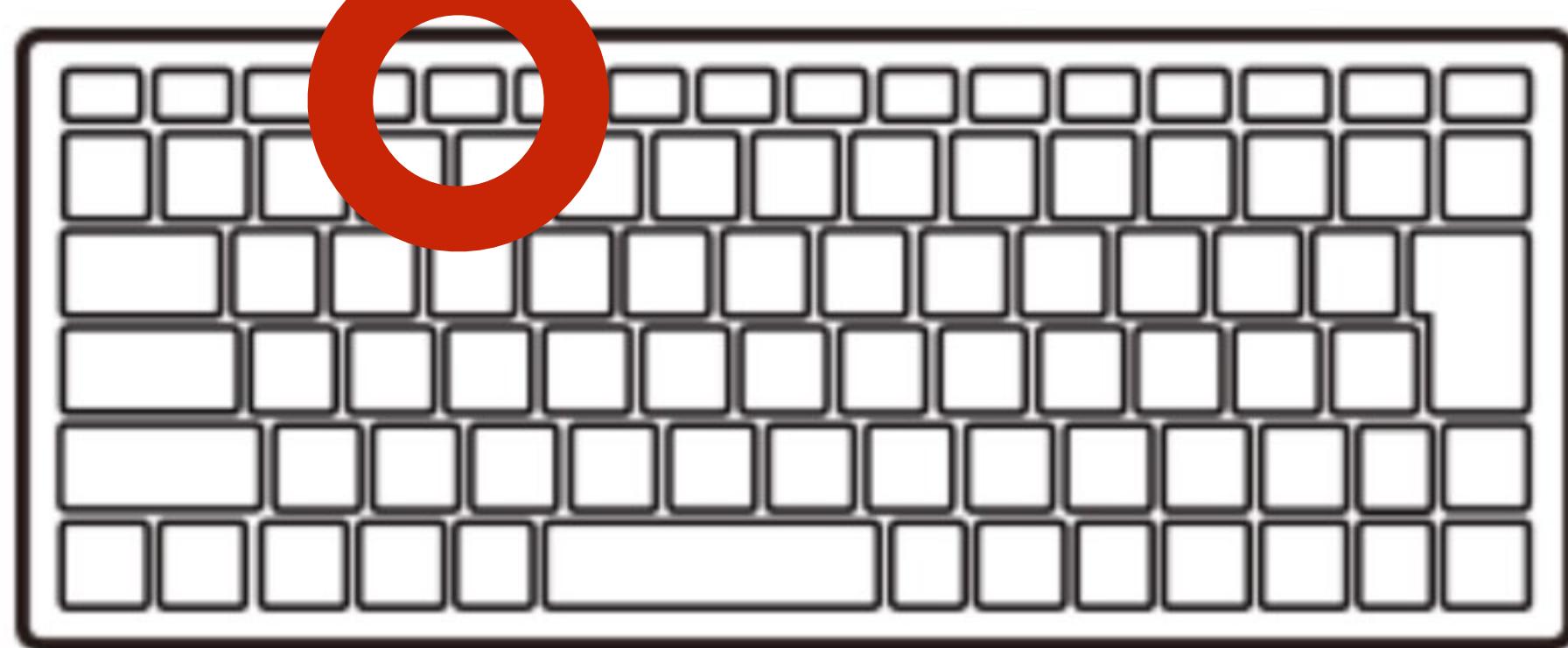
F2, 0, Enter



Show me List of program

L I S T

F 4



Let's make TV game!

with IchigoJam

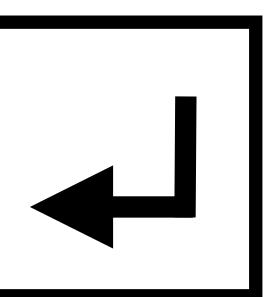


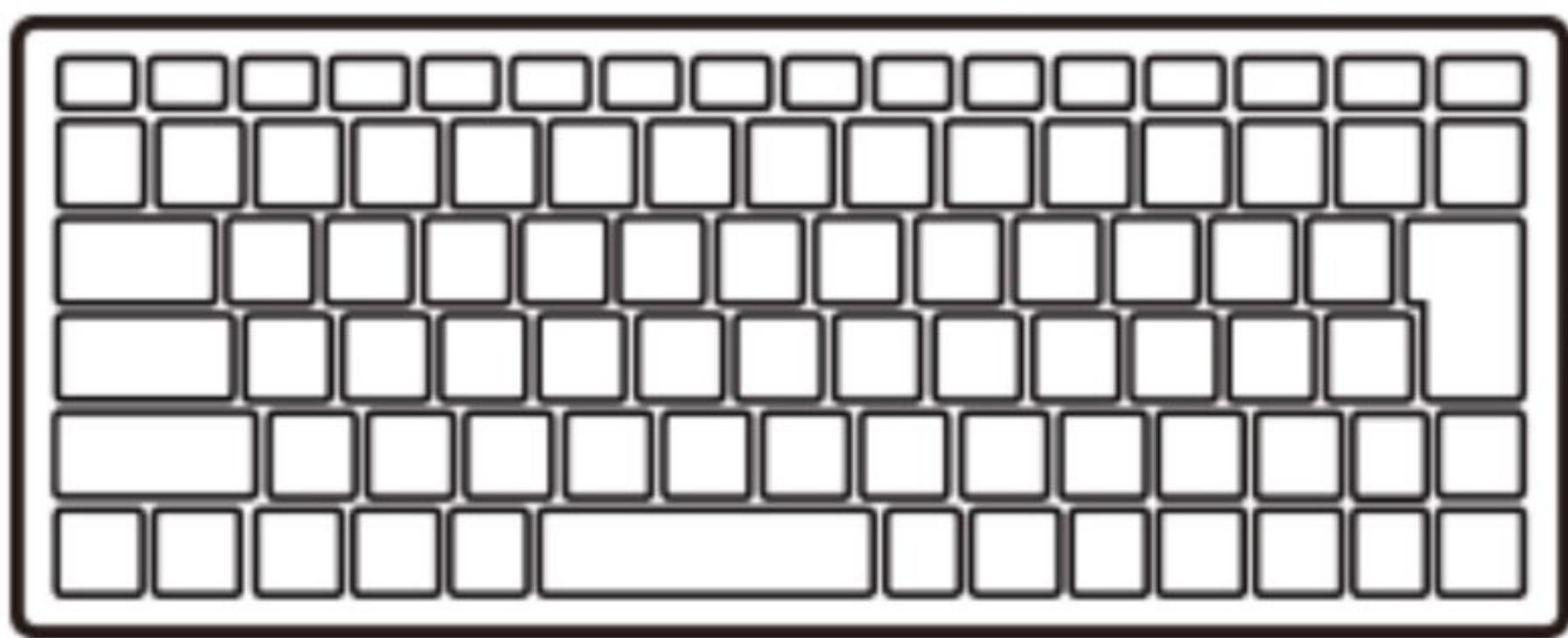
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<https://ichigojam.net/>



To start the new program

NEW 



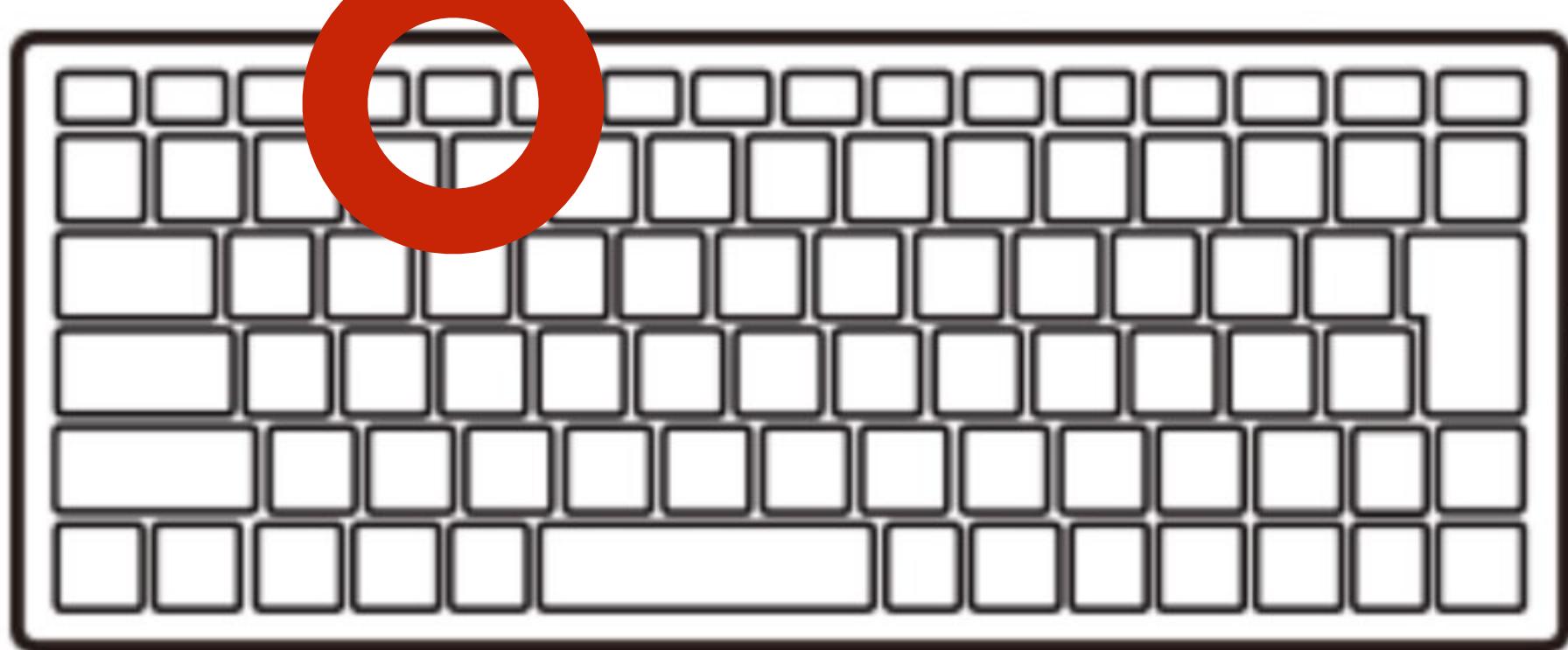
To be new!



Show me list of program

L I S T

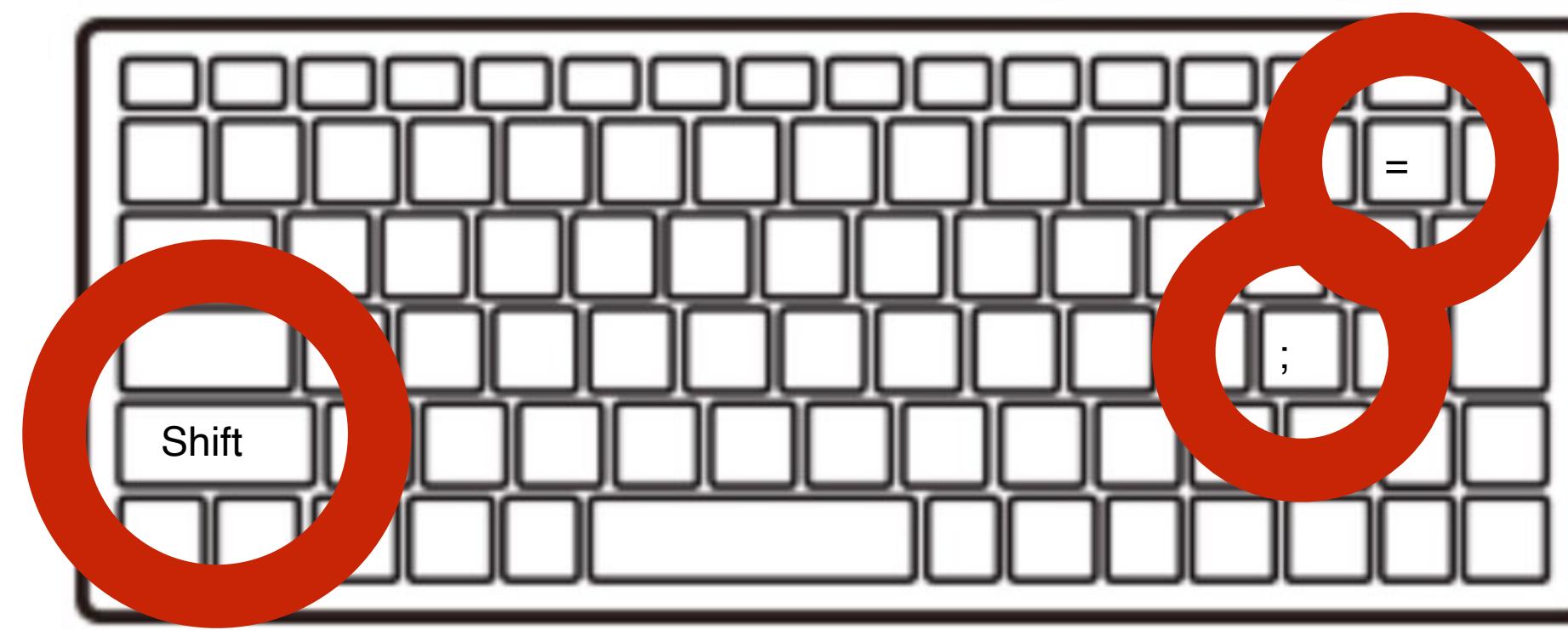
F 4



Colon
(Shift)

10 CLS : X = 15 ←

Equal

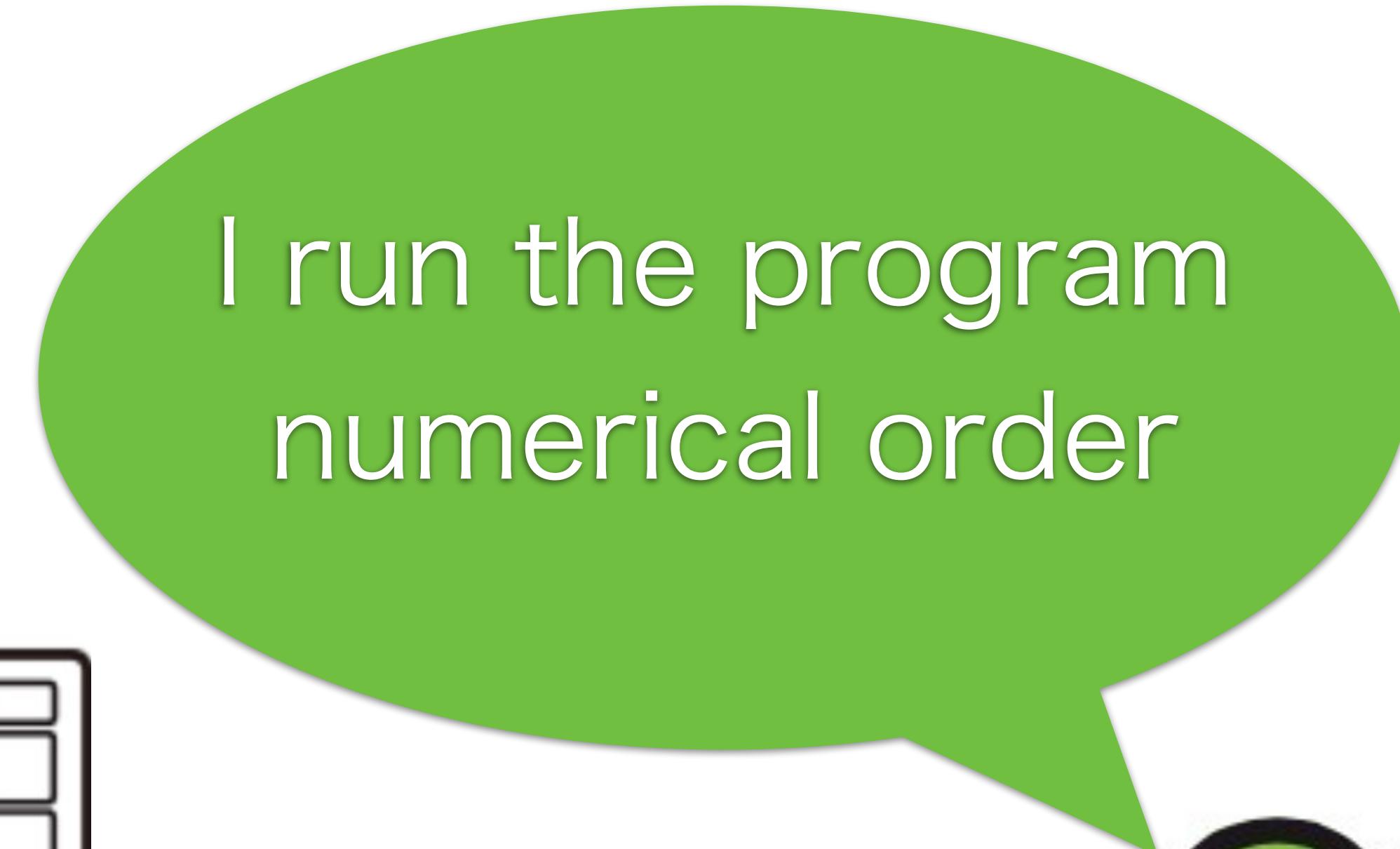


First, clear screen

Run the program

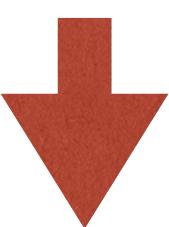
RUN

F5

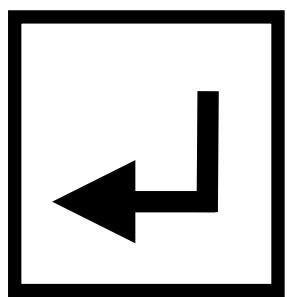


(Shift)

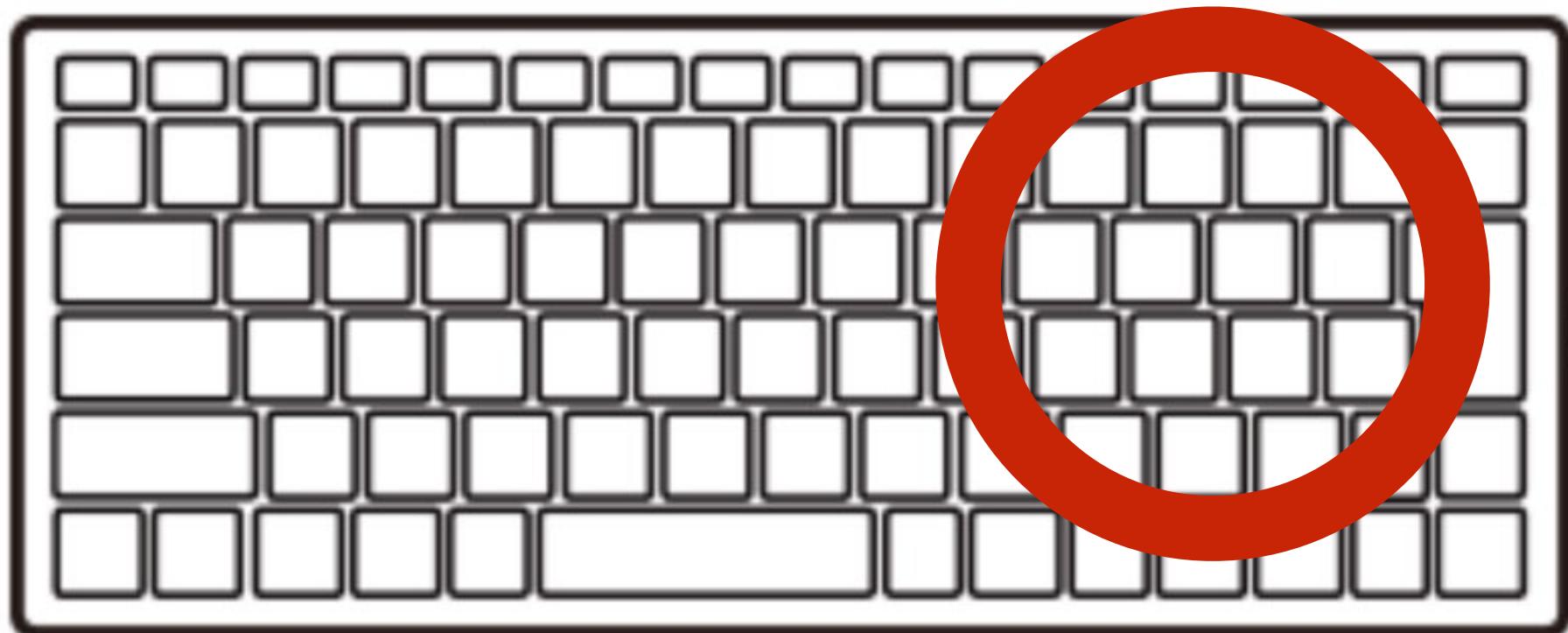
Question



? X



Symbols



What is X?

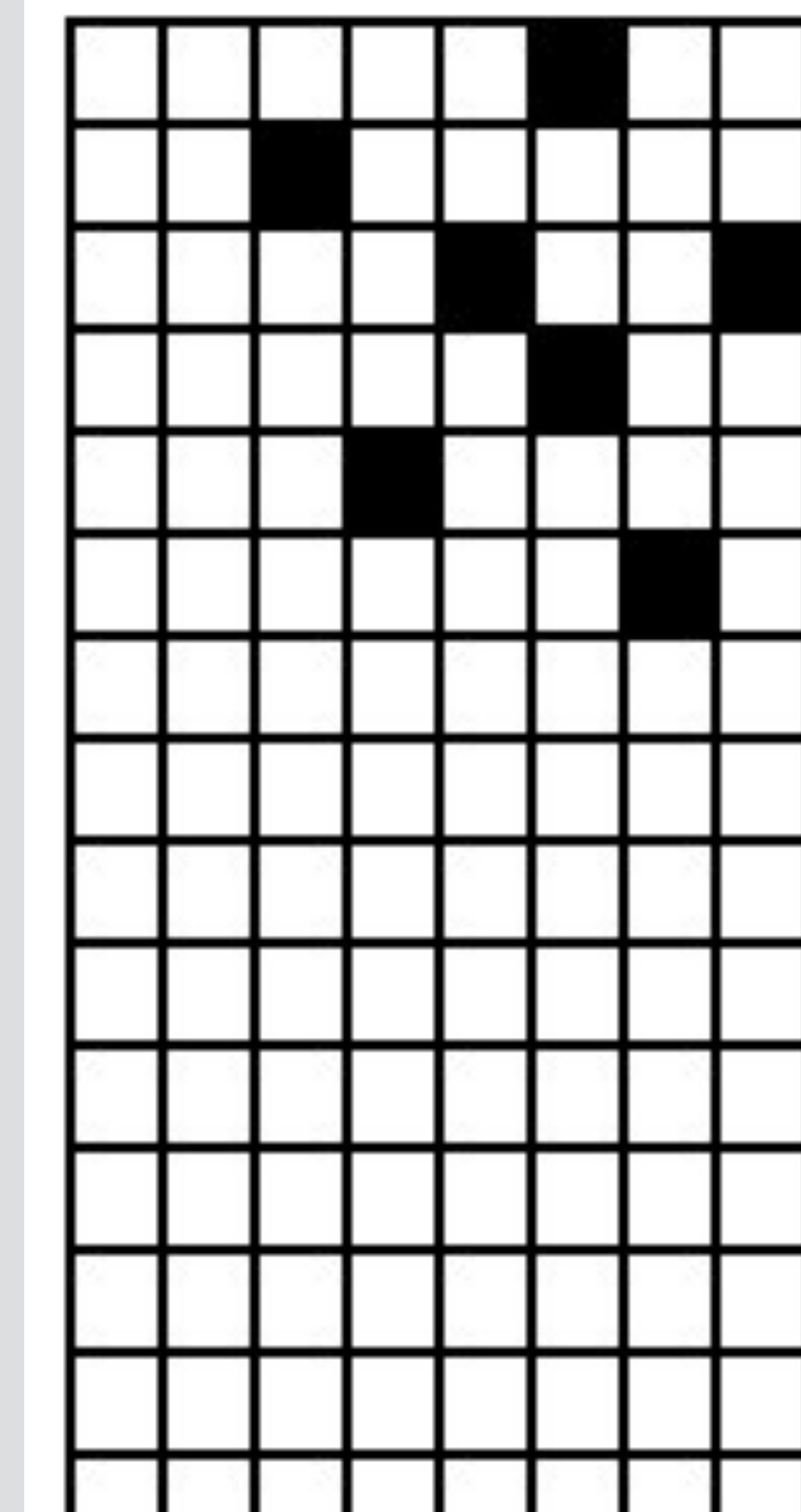
memory by computer

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

I have
32768bit memory



Address



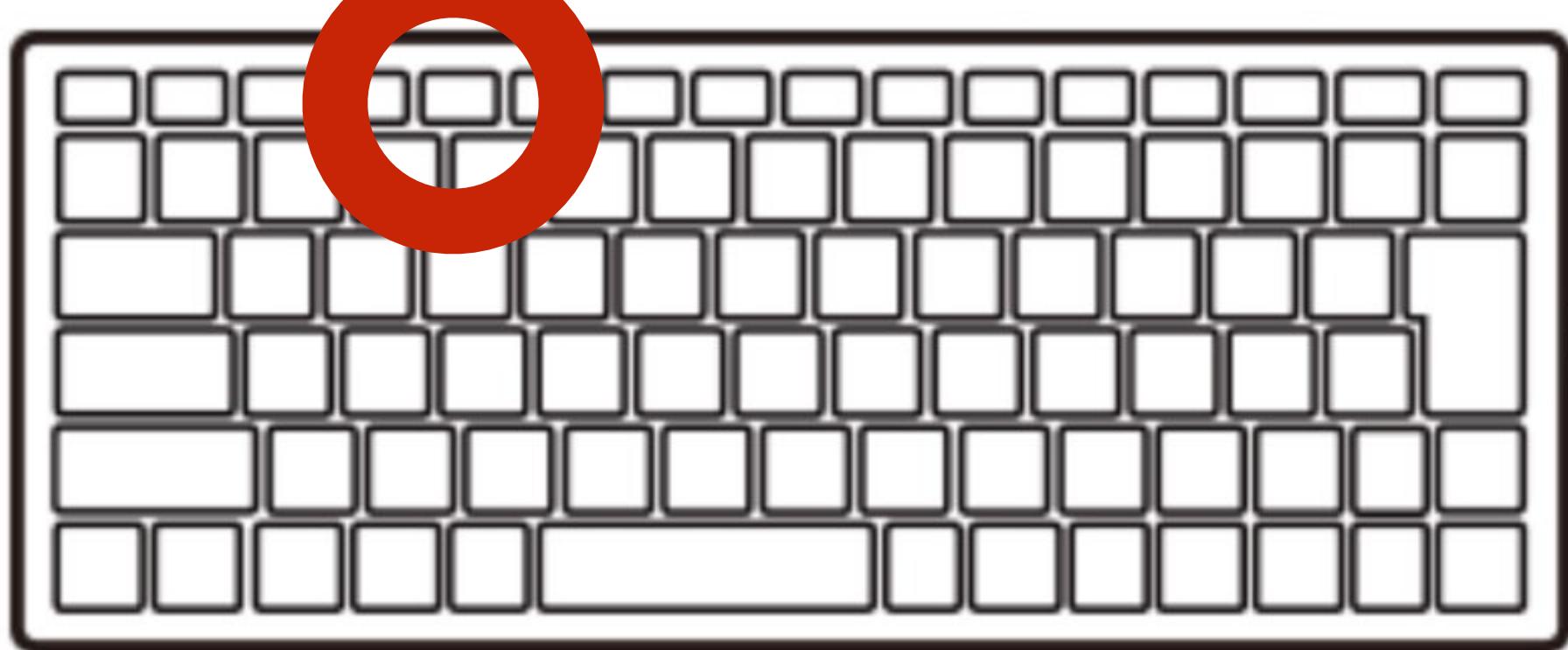
Member

3
1

Show me list of program

L I S T

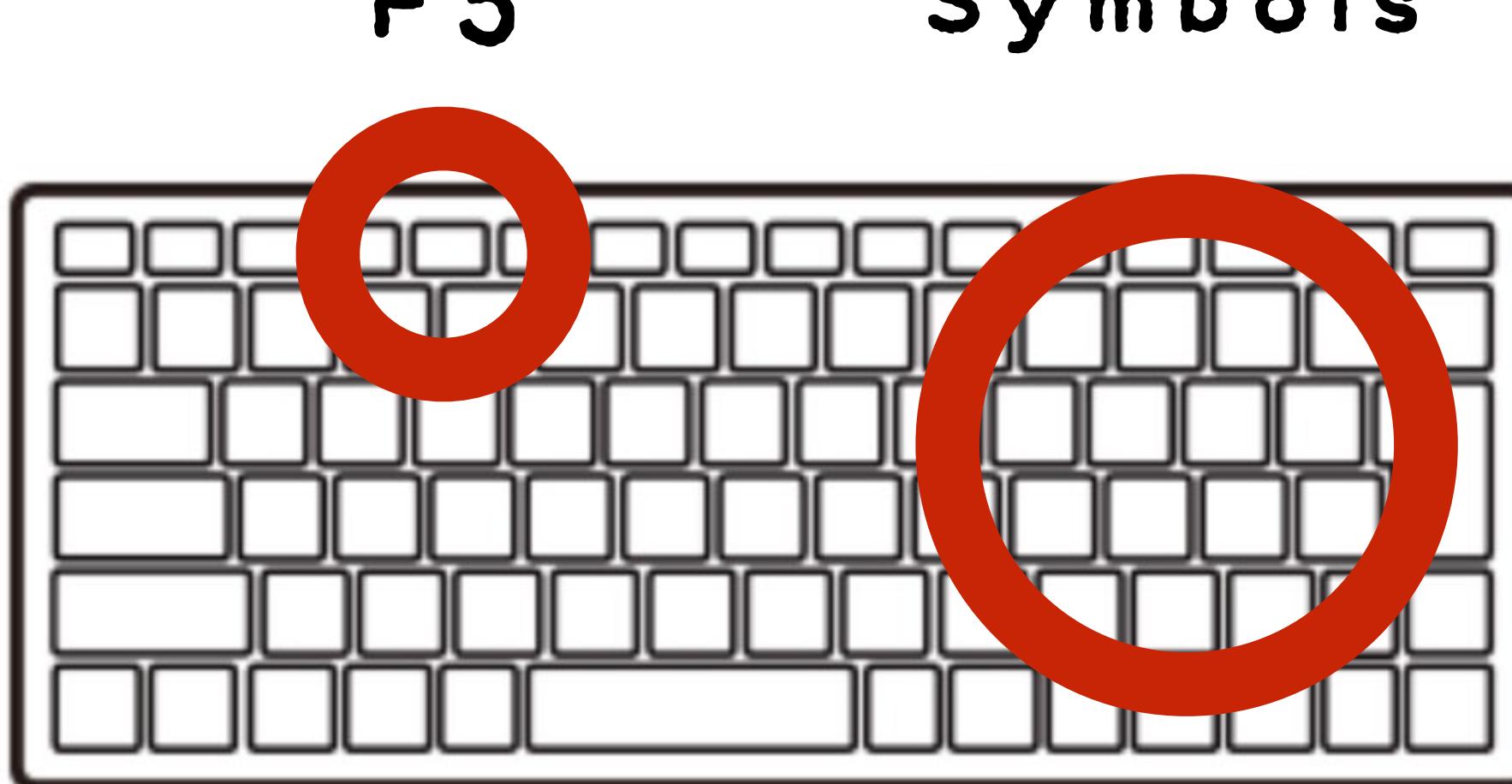
F 4



20 LC X , 5 : ? " " ←

Comma Colon Double quote
(<) (Shift) (Shift)

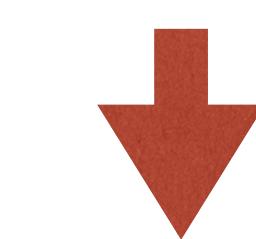
Question Alt + C
(Shift) Cat



My character

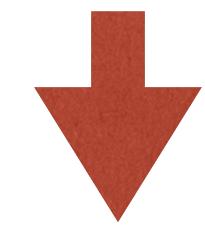
Bracket

Shift+9



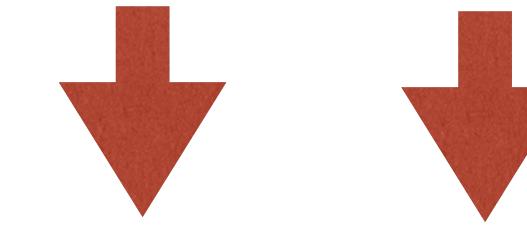
Bracket

Shift+0



Double quote

(Shift)



30 LC RND(32),23:"*" * ←

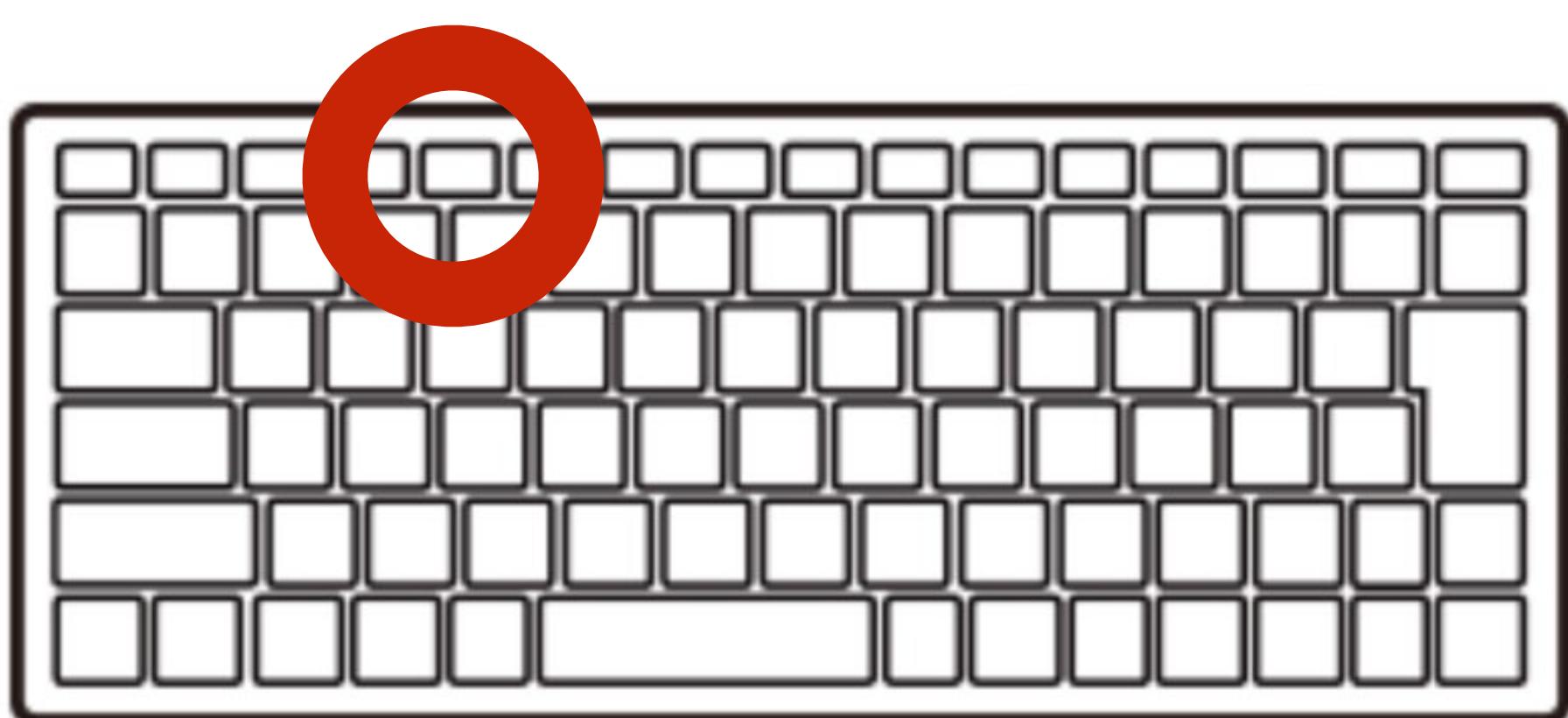
(<)

Comma

Shift+8

Asterisk

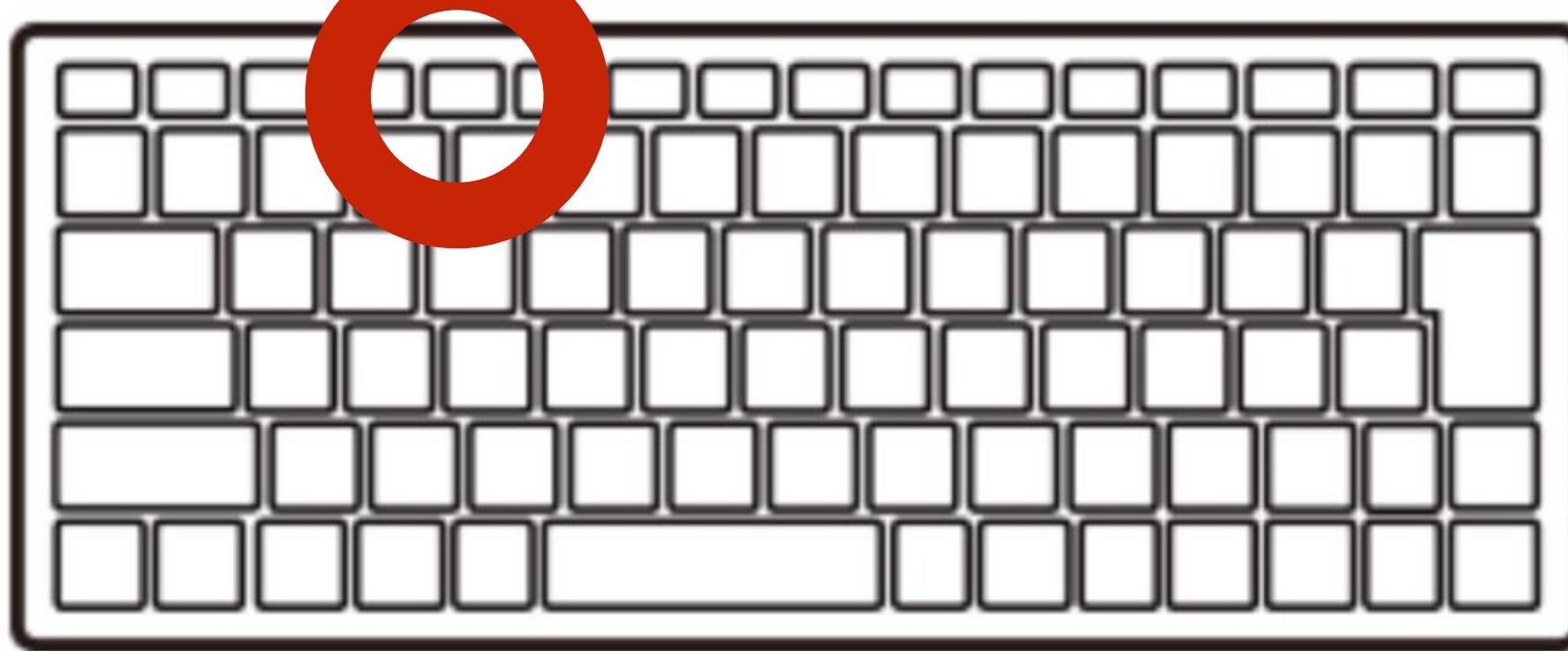
F5 Press and hold



できキャラ

40 GOTO 20 ↵

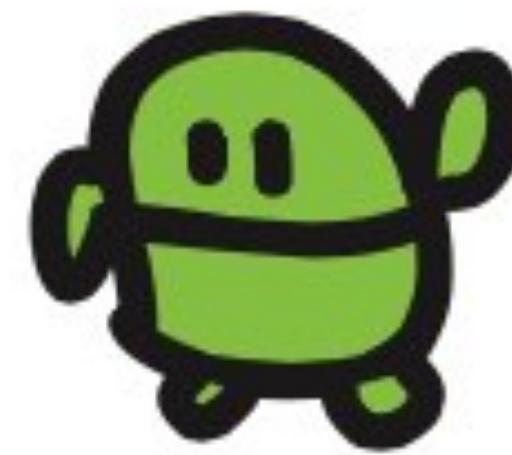
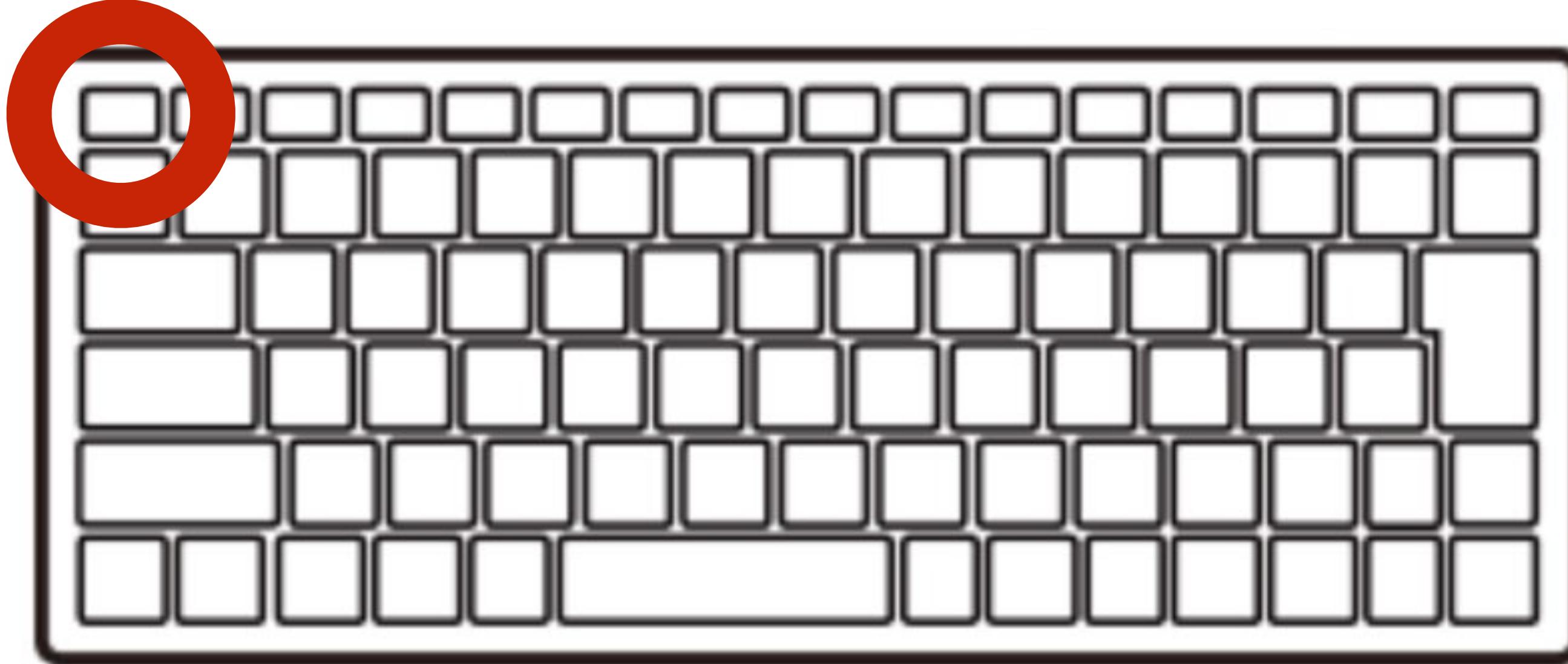
F5



! ?

ESC key to stop

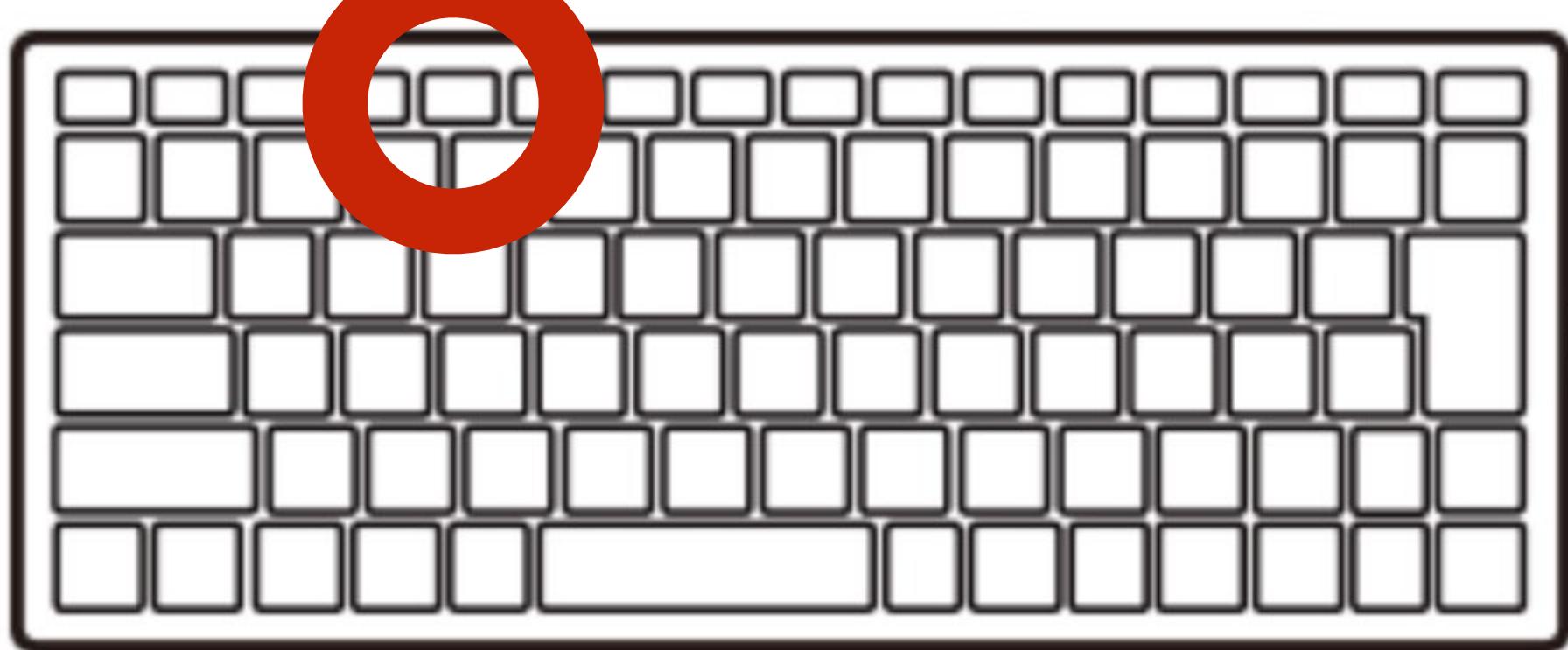
[ESC] key



Show me list of program

L I S T

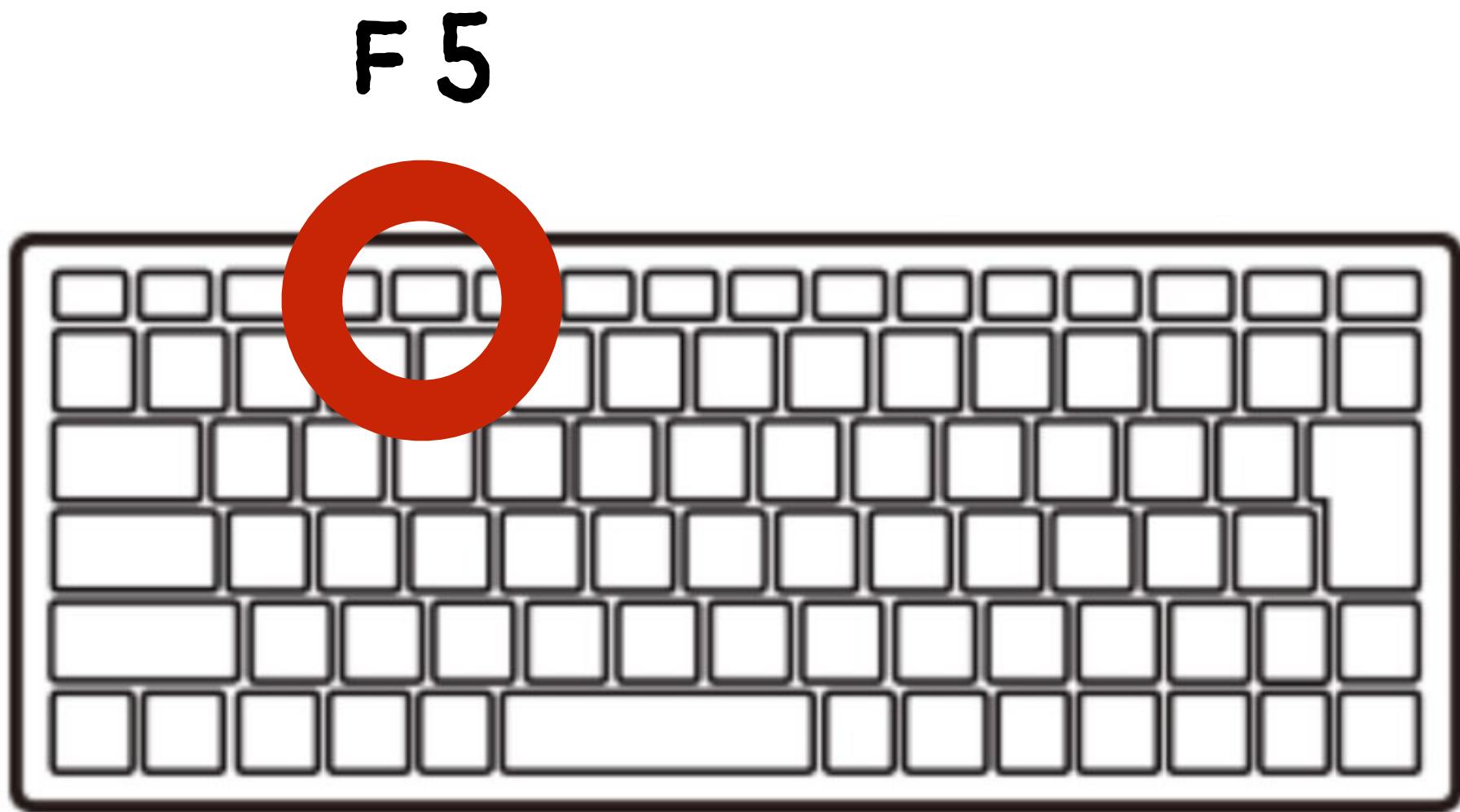
F 4



Too fast?



35 WAIT3 ↵



Modifying speed

36 $x = x - \text{BTN}(28) + \text{BTN}(29)$ ↵

Bracket Bracket
Shift+9 Shift+0

↓ ↓

Plus
(Shift+=)

Stop (ESC)

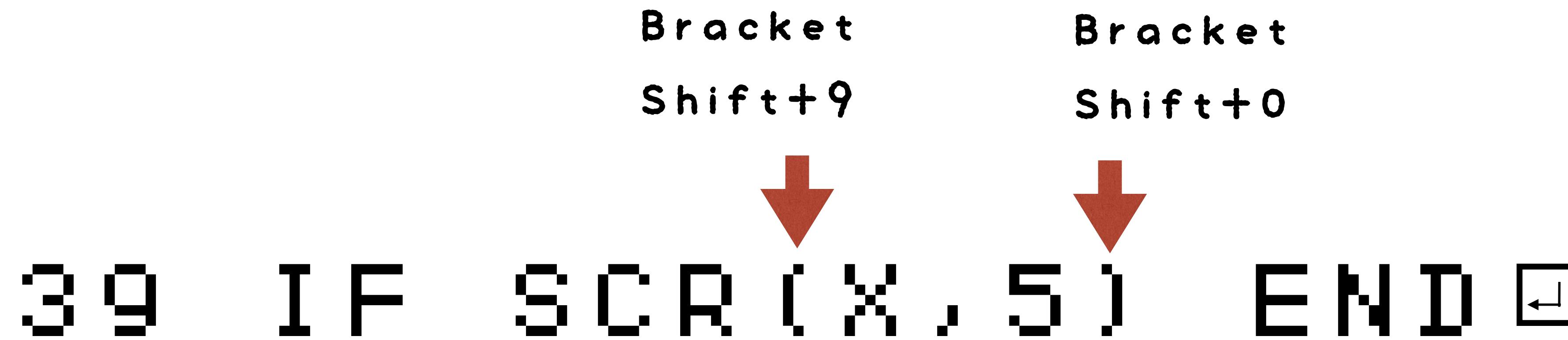
List (F4)

Run (F5)

Move by cursor
left: 28 right: 29

39 IF SCR(X,5) END ↵

Bracket Shift+9 Bracket Shift+0



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!



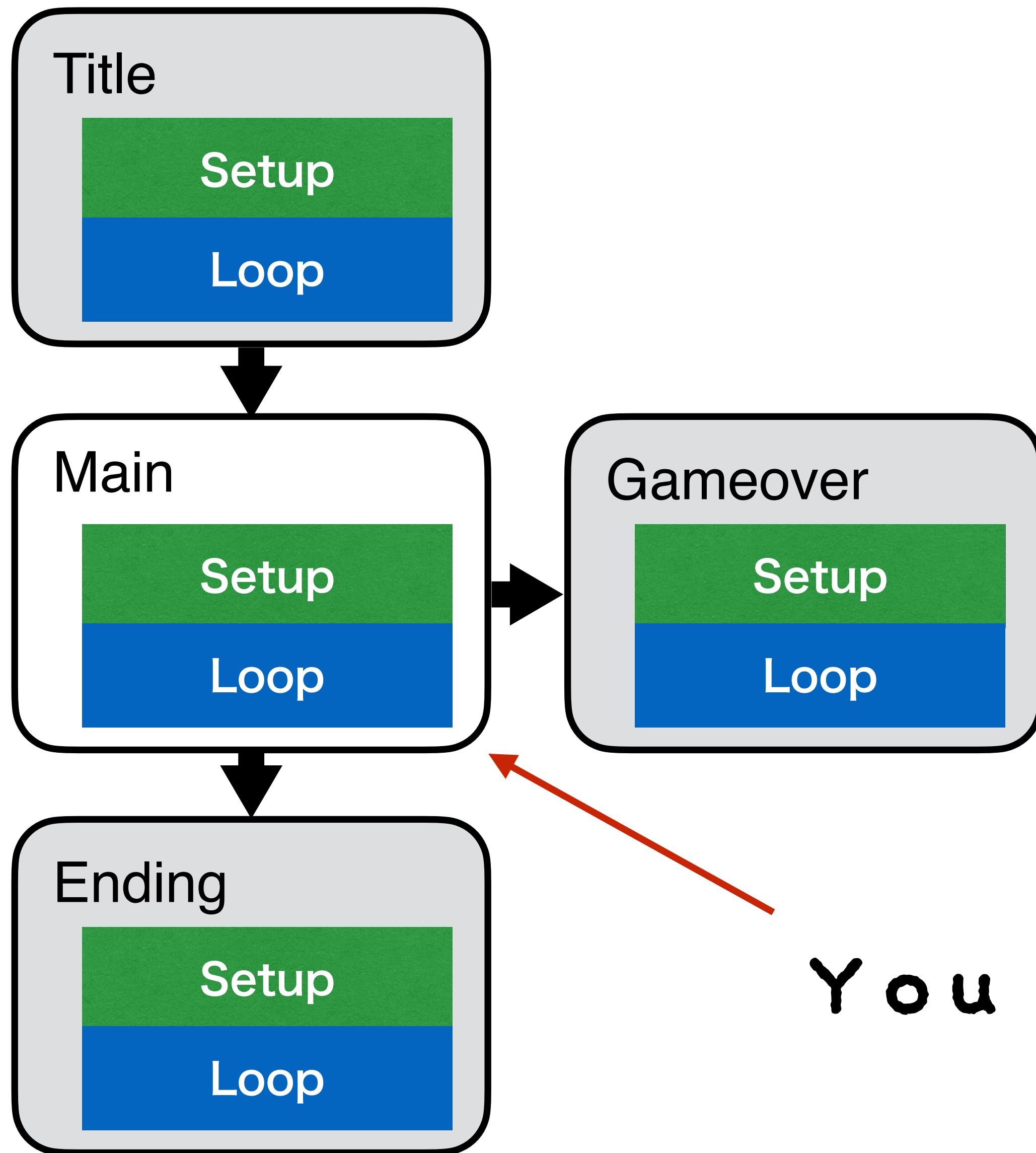
KAWAKUDARI Game

10 CLS : X = 15 ← Setup (First time only)
11 LC X, 5 : ? "0" ←
12 LC RND(32), 23 : ? " *"
13 WAIT 3
14 X = X - BTN(28) + BTN(29)
15 IF SCR(X, 5) END →
16 GOTO 20 → 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 FOR X,5;?;"0"
30 LET IT=RND(32),23:?" "
40 LET X=X-BTN(28)+BTN(29)
50 IF SCR(X,5)=END
60 GOTO 20
```

F4: List

modifying

Enter key, F5

Become harder

```
10 CLS : X=15
11 C(X,5;"0")
12 C(RND(32),23:"JUJU")
13 AIT6
14 X=X-BTN(28)+BTN(29)
15 IF SCR(X,5) END
16 GOTO 20
```

F4: List

modifying

Enter key, F5

Become easier

```
10 CLS : X=15 : CLT [ ]
11 LCX : X=RND(32),23 : ?" "
12 LCIT6(32),23 : ?" "
13 WAIT6
14 X=X-BTN(28)+BTN(29)
15 X=X&31
16 IF SCR(X,5) >? TICK() : END [ ]
17 GOTO 20
34 BEEP RND(15)
```

F4: List

modifying

Enter key, F5

Add scores

```
18 CLT:CLS:X=15
19 LCX:5:?""
20 LCRND(327,23:"?"
21AIT 10-TICK()
22X=X-BTN(28)+BTN(29)
23X=X&31
24IF SCR(X,5) ?TICK():END
25GOTO 20
```

F4: List

modifying

Enter key, F5

Slow to Fast

```
10 CLT:CLS:X=15:PLAY "$CDE2" □  
11 C X,5:?"  
12 C RND(32),23:?"  
13 A IT 10-TICK(128)  
14 X=X-BTN(28)+BTN(29)  
15 X&31  
16 IF SCR(X,5) BEEP: ?TICK():END □  
17 GOTO 20
```

F4: List

modifying

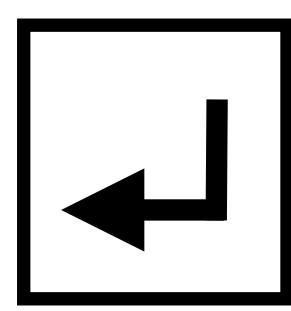
Enter key, F5

BGM

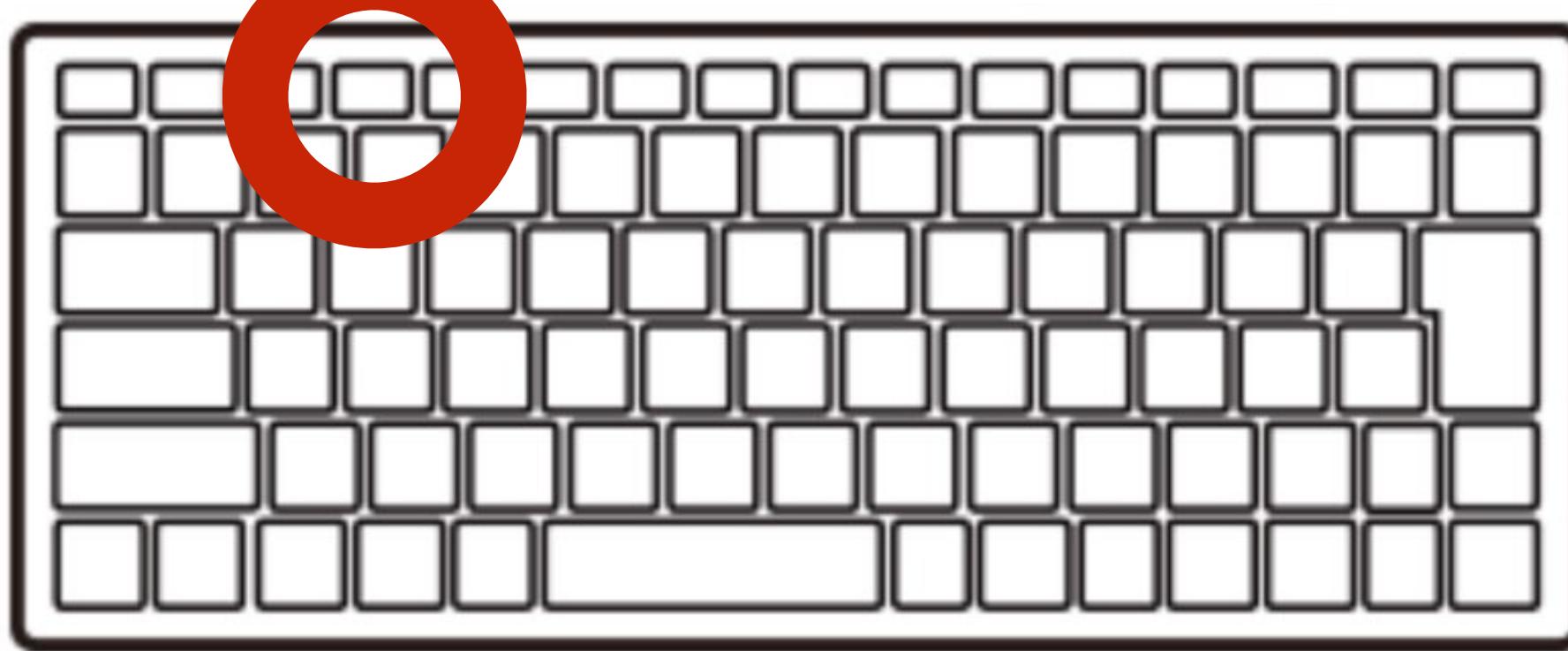
```
34 IF TICK() > 1000 ?"OME!" :END  
31 IF BTN(32) CLS  
15 L=1  
25 NC=RND(32),23:?"$";  
30 N=SCR(X,5)  
39 IF N IF N=36 L=L+1 ELSE  
L=L-1:IF L=0 BEEP:END
```

Other customizing

To save (0 ~3, 4 files)

SAVE1 

F3



F3, 1, Enter key





on your PC / smartphone
IchigoJam web

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

DEMO



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

NHK
Ohayo Nippon
(Tokai Hokuriku)
2015.12.7



IoT × Fire Alarm by SO-DEN

住宅用火災警報器連動の火災通報システム

万が一発生する火災に対し、現場にいない場合でも火災発生を素早く把握することができ、近隣住民、関係者へいち早く通知することが可能となり、被害の拡大および2次灾害を防ぐことを目的としたシステムです。

不在時の通知
留守にしている際の火災発生を携帯電話へ通知。外出先でもいち早く把握でき、近隣住民や地域関係者などへの通報など迅速な対応が可能になります。

隣接住民や地域関係者への通知
隣接住民や地域関係者へ通報することで早い消火・救助活動が可能になります。

遠方の家族へ通知
親世帯や子世帯などの離れて暮らしておられる近親者が本人に変わって通報することができます。

建物所有者や防火管理者への通知
建物所有者や防火管理者へ素早く通知することにより初期消火や早期避難・救助活動が可能になります。

SAKURA internet サイト内検索

無線通信端末機

火守くん
HOMORI-KUN

独居老人世帯
近年増加傾向にある独居老人世帯や体の不自由などで自力での対応が困難な世帯など、通知があった近親者が本人に変わり通報などの対応が可能になります。

各メーカーの住宅用火災警報器（PANASONIC製）

サイズ：幅160×高80×奥行350mm / 重さ：250g / カラー：ブラック・ホワイト
<料金面倒キッズ>

火守くん SO-DEN

導入事例・構成例

導入事例から探す > 構成例から探す > サービスのご利用に関するご相談・お問い合わせはこちら

SO-DEN IoT | 導入事例

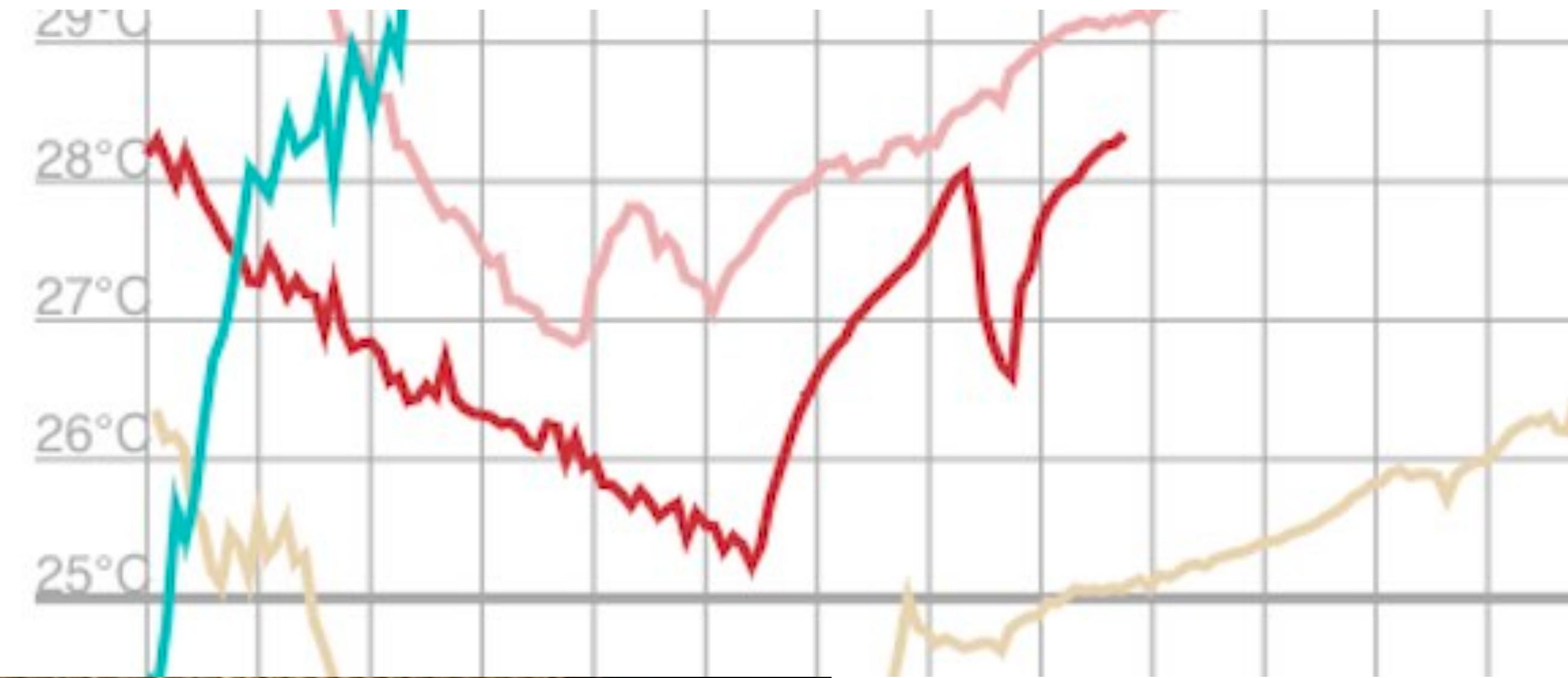
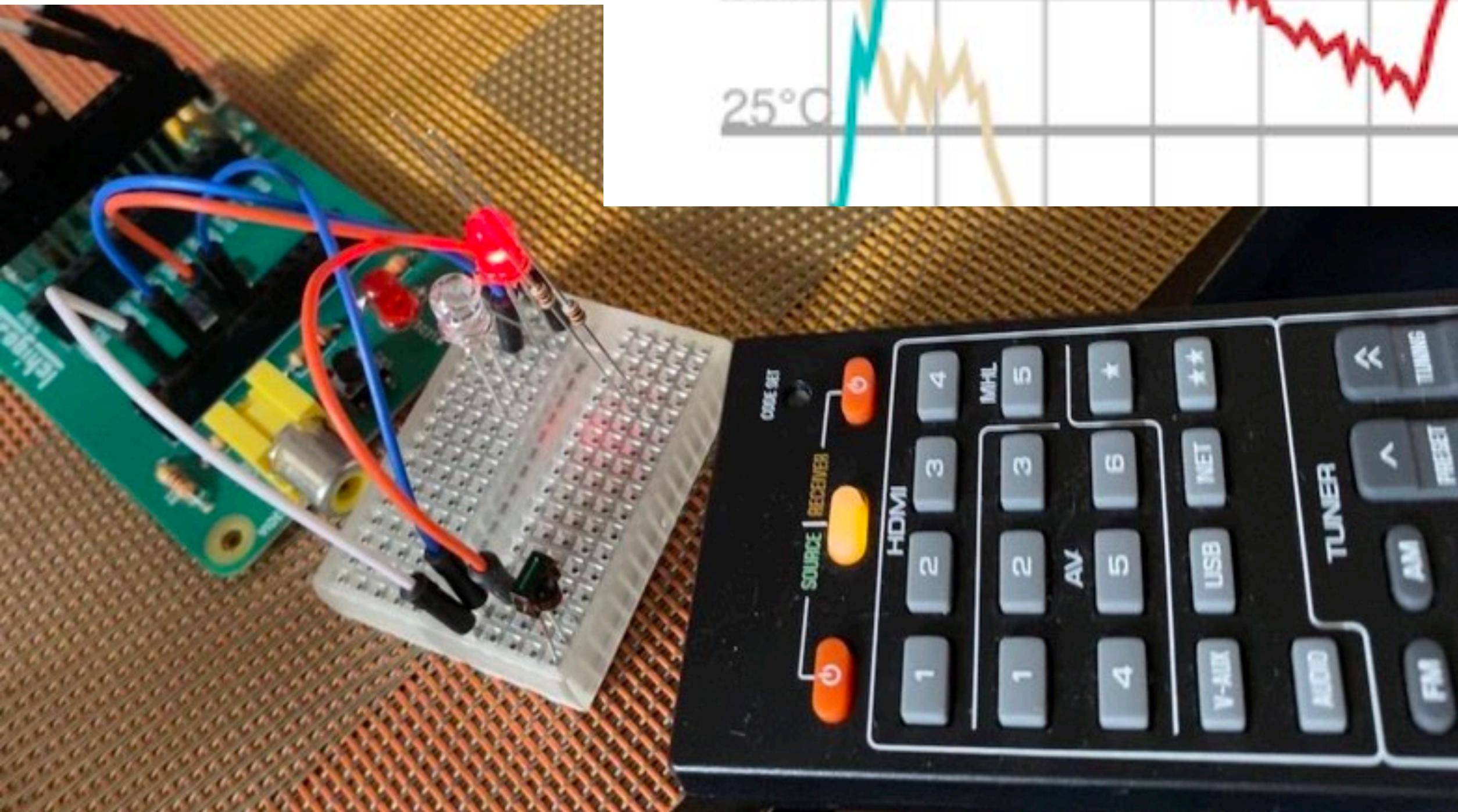
2019年01月22日 株式会社創電様

火災報知器と連動した無線通報端末「火守くん」を“IchigoSoda”で開発

ツイート

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

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（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（プログラム実行時もその行で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	カーソルキーを操作する
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	○(B)ALT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）、丁と合わせて押して「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）
F1~F8	F1:画面クリア, F2:LOAD, F3:SAVE, F4:LIST, F5:RUN, F6:FREE(), F7:QUIT, F8:VIDEO1, F9:FILES
ボタン	押しながら起動でFILED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なら光る、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、番号2の数2指定で倍電力化、数1のマイナス指定で走査線分で待つ(261でWAITと同義)	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(手引)	RUN
LIST [行番号1][行番号2] / リスト	プログラムを表示する(手引) [行番号1]で行表示、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以降は繰り返し表示。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（THENELSE以降は省略可）	IF BTN0 END
BTN0[数] / ボタン	ボタンが押されていれば1、そうで無いときは0を返す(数:0付箇所ボタン引数/UP/DOWN/RIGHT/LEFT/SPACE。省略可)	LED BTN0
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 ?
LOCATE 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(10~3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(10~3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(番号1)～数2(番号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]) / ピープ	BEEPを鳴らす(音量(1~255)と長さ(1/60秒単位)は省略可。#SOUND(EX2)-GNDに圧電サ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略語で停止 #SOUND(EX2)-GNDに圧電サンダーなどの接続必要(次項のMML参照)	PLAY "SCDE2CDE2"
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	割り算した商を返す	PRINT 10%3
(数)	カッコ内は優先して計算する	PRINT 1+(7*2)
LET 变数(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(配列に適用不可) 省略形：変数=	LET A,1

<https://ichigojam.net/IchigoJam.html>

コマンド (アリスコマド)	解説	例
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	比較して以上の時に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(AND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(ORでも可)	IF A=1 OR B=1 LED 1
NOT 式 / ノット	式の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 变数=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を初期、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、数3まで)	FOR I=0 TO 10:NEXT
IN[数] / イン	IN-1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,Aはブルアップ、IN5-Bは切り替え時)	LET A,N(I)
ANA[数] / アナログ	外部入力の電圧(DV-3.3V)を0-1023の数値で返す(AN2, 5-8bitはOUT1-4) OUT BTN, 値(%)	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へ切り替える)	OUT 1,1
PWM 数1,数2[数3] / ピードライバリューム	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, 同期20msec)、数3で同期を指定(省略時2000-20msec、マイナス指定で同期1/480)	PWM 2,100

MML (PLAYコマンド内)

コマンド	解説	例
曲	曲(CODEFGAB/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)	CDEF FG
曲+	長さを指定して曲を鳴らす (を付けると半分の長さ分伸びる)	C4 E2 D1 F32
曲-	半音上げる	C4 D#
曲↑	半音下げる	D-E-
Tn	テンポ (TEMPO命令で後から変更可) 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	CLRD
On	オクターブ指定 (10個音)から6-058(高音)まで 初期値:3	O3C02C
<	オクターブ上げる (ver1.1と迷なので注意)	C/C/C
>	オクターブ下げる (ver1.1と迷なので注意)	C/C/C
\$	これ以降のMMLを繰り返す (BGMに便利)	C5DE
Nn	1-255 曲の高さ指定して繰り返す (BGMに便利)	N1045
-	以降のMMLを鳴らさない	CDE

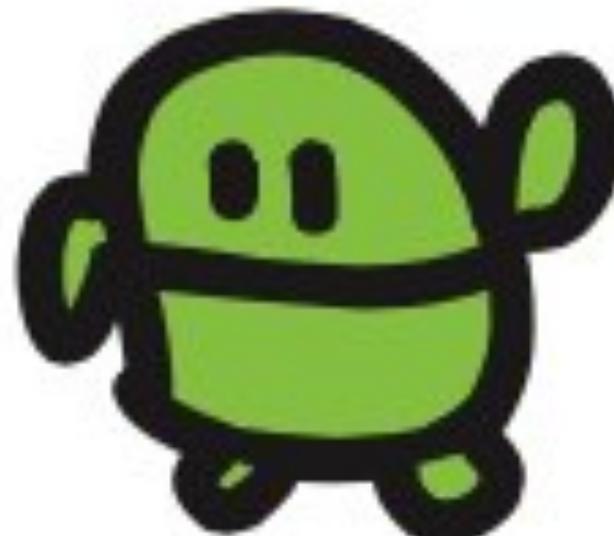
上級コマンド

コマンド	解説	例
CLV / クリア パリアル	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
CLD / クリア アウトプット	入出力ピンを初期状態に戻す	CLD
ABS(数) / アブソリュート	統計値を返す (マイナスはプラスにカウント)	ABS(-2)
[数]	配列 (0Xカラム)を返す (例: [1]=1)	[1]=1
GOSUB 行番号 RETI	ゴーサブ・リターン	GOSUB 10:RETI
DEC5(数)		DEC5(1)
#16D		#16D

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



IchigoJam first step

Light up the LED

LED1

Type in "LED1" and push Enter key

Light off the LED

LEDO

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 GOT010**

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

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:"0"
70 LC RND(32),23:"*"
80 WAIT 3
90 GOTO 20
```

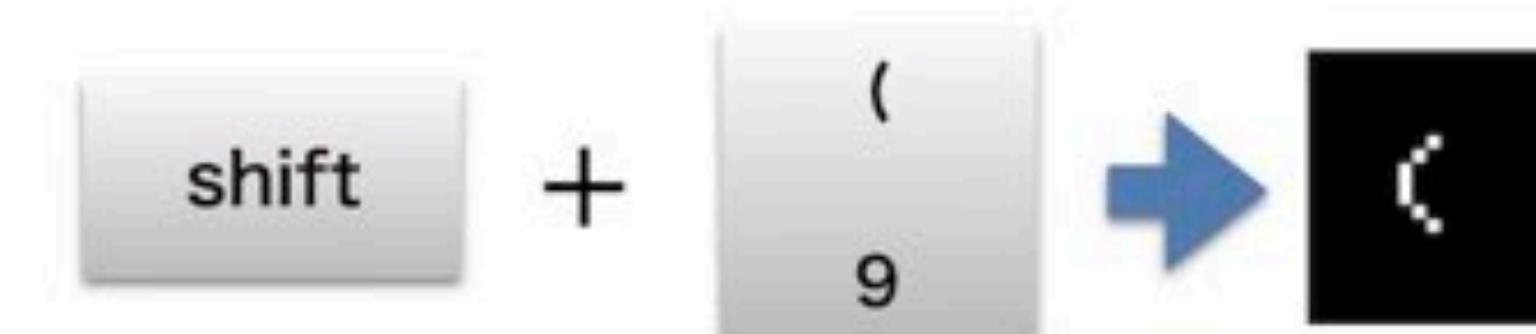
Baseball! (Push the IchigoJam button to hit)

```
10 LET Y,0
20 CLS
30 LC 4,15:?"%"
40 LC 5,Y:?"0"
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 ''''

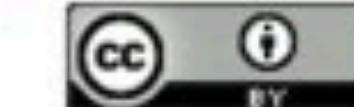


Programming in BASIC!



Kid's PC

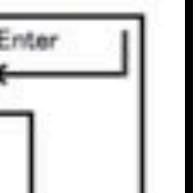
IchigoJam



<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 "LEDO" to light off.

LEDO+

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 "REDO" and press ENTER key.

REDO+

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

IchigoJam print Edu materials for A5 papers

<https://ichigojam.net/print/>

Learn how to learn

PCN Kids Programming Contest 2024

2023

11/1 [Wed.]

2024

1/11 [Thu.]

For kids!
Let's challenge
the contest
“PCN Kids
Programming Contest”

<https://pcn.club/contest/>

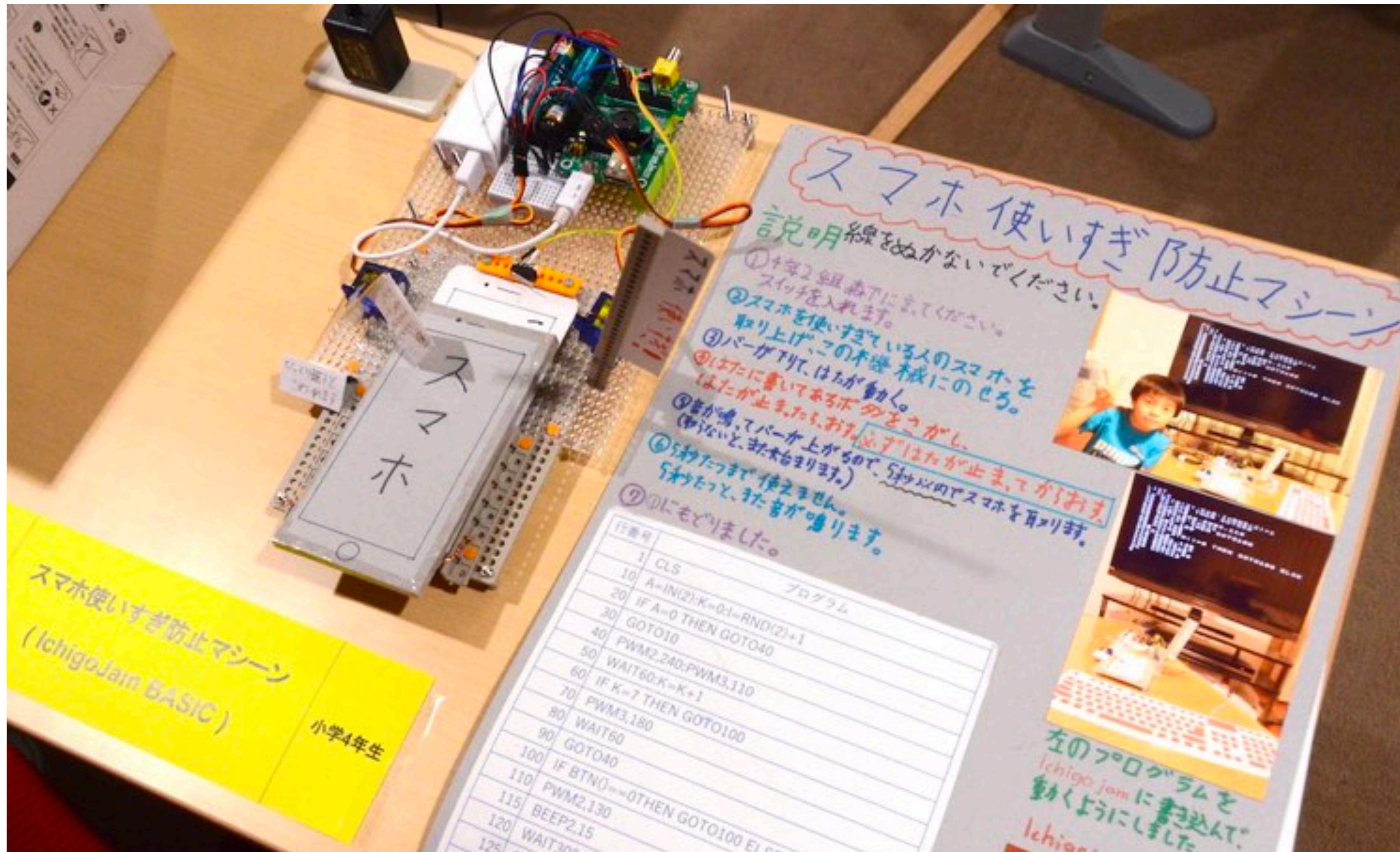


Let's won the PC!



Sponsor-shipped by Japan gov and
companies

A machine to stop Smartphone overuse by mother



A awarded staff by 9 years old kidPCN



Apple I (1976)

iPhone company
Apple's first product

from Wikipedia

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



Apple I developer - Steve Wozniak

IchigoJam

Make themselves PC

IchigoJam \$15 ~

Ichi Go

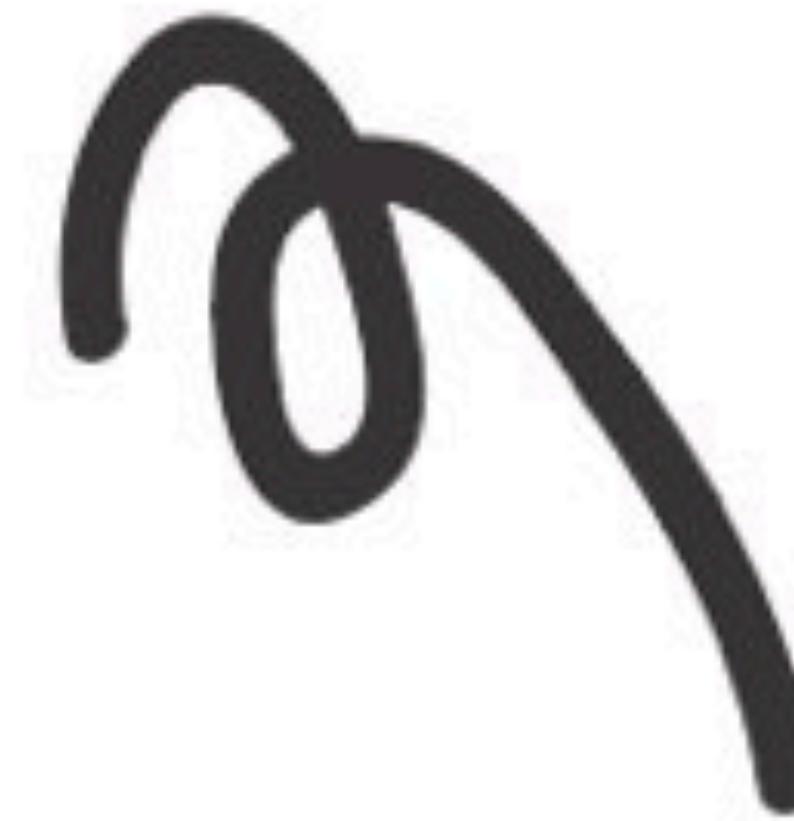
means 15 and

The strawberry in JP



Let's solder it!

Solder (0.8mm)

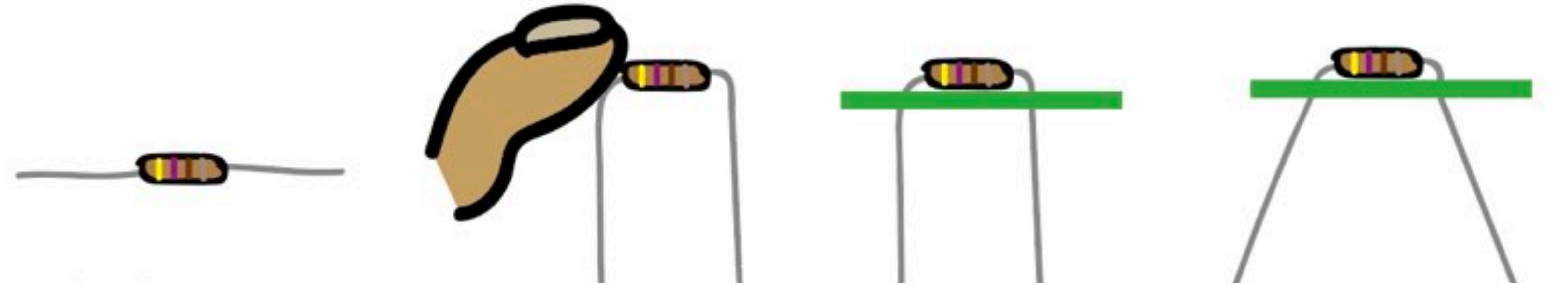


Soldering
Iron



300 degree(C)
As hot as
BBQ griddle

Let's built it!



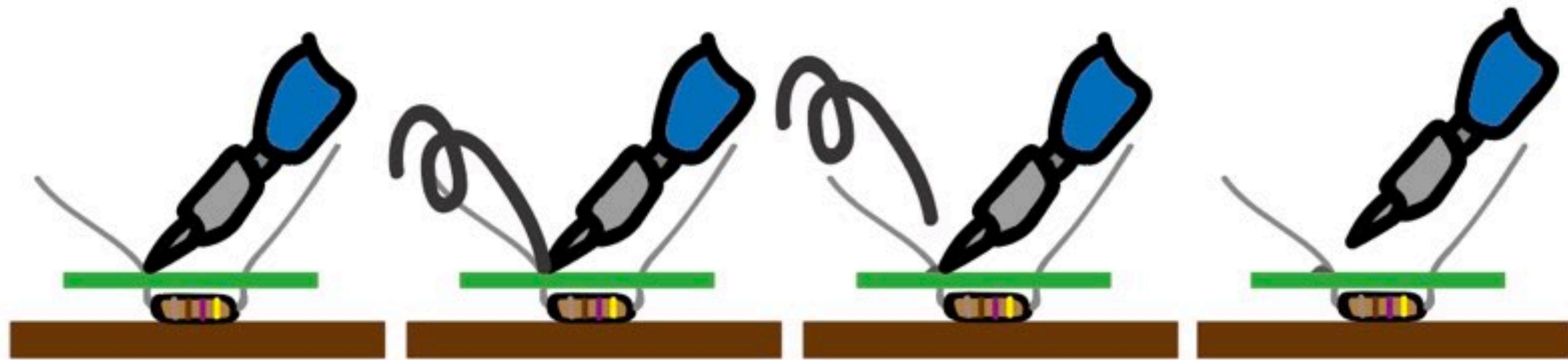
1. Pick a part
R1 is resister

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

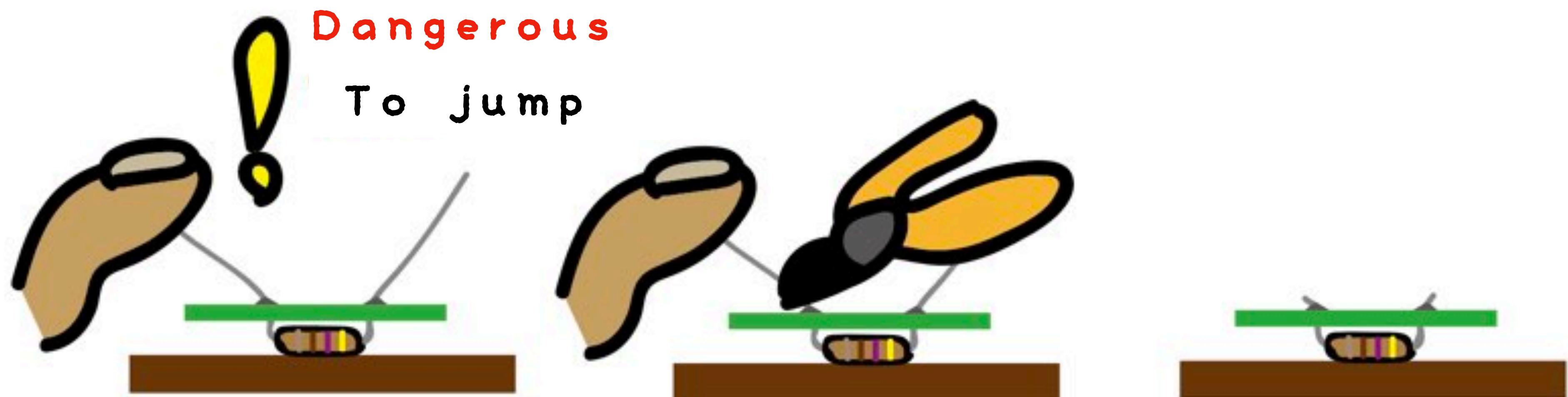


Too few

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!

IchigoJam Community

Twitter #IchigoJam

Facebook group 「IchigoJam-FAN@en」

IchigoJam-FAN@en + 招待する ◆ シェアする ...

Jon Davey トップコントリビューター · 1月 25 日 22:41 ·

Here is the listing for UFO, another simple game which I reverse engineered from the ZX81 archives. The original is here. <https://www.zx81stuff.org.uk/zx81/tape/10Games>
I changed the scoring system slightly and gave the player a generous 40 missiles to start with.
This can be altered by changing the variable M in line 50. I wrote this on IchigoJam web so
hopefully it'll work without too much tinkering on other platforms of the language.
Here is the listing.

5 REM UFO... [さらに表示](#)

[翻訳を見る](#)

ZX81STUFF.ORG.UK [ZX81 tape 10 Games by J. K. Greye](#)
ZX81 Collection details for tape 10 Games by J. K. Greye with tracks Klingons, Crash
Landing, Simon, Artist, UFO, Code, Asteroids, Bomber, Kaleidescope, Guillotine

16人が既読

グループ情報

Kids'PC IchigoJam in English
<http://ichigojam.net/index-en.html>

● 公開 誰でもグループのメンバーに見えてる

○ 検索可能 誰でもこのグループを検索できる

詳しい





Join us PCN (Programming Club Network)