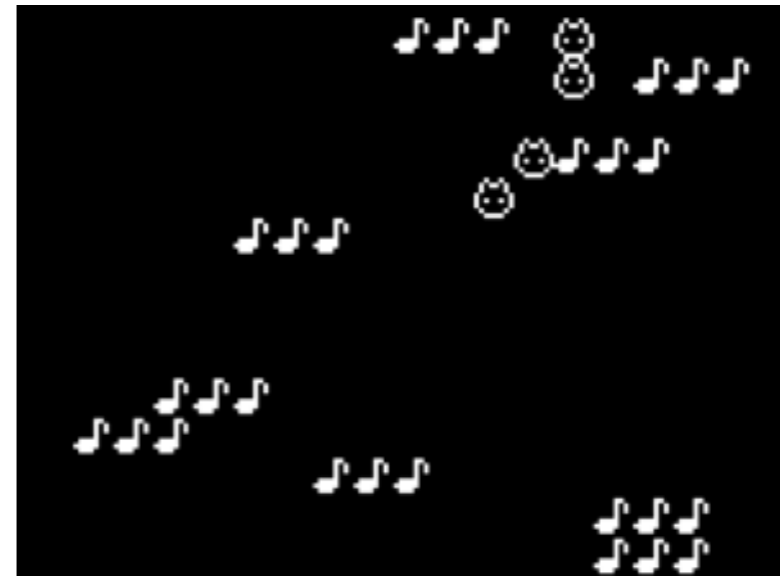


Deployment and Application of Low-Cost Programming Platform for Elementary and Junior High school Students of Nepal



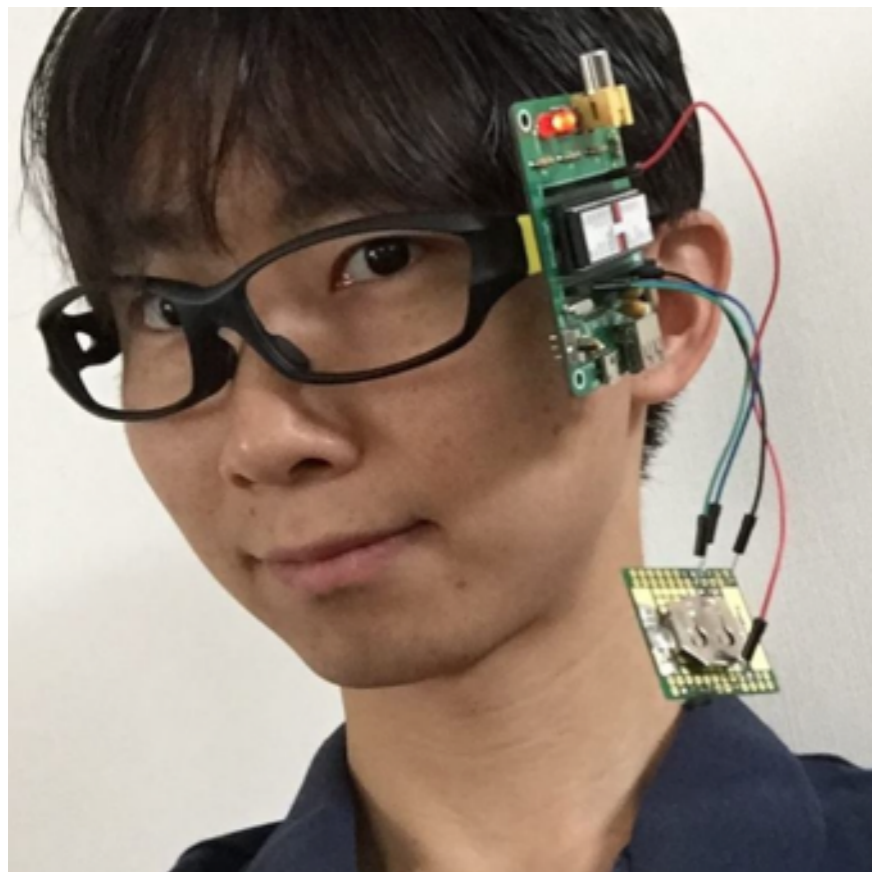
IchigoJam



Taisuke Fukuno
IchigoJam inventor



<http://ichigojam.net/>



FUKUNO Taisuke

福野 泰介

Inventor of IchigoJam computer

Chair of jig.jp co., Ltd.

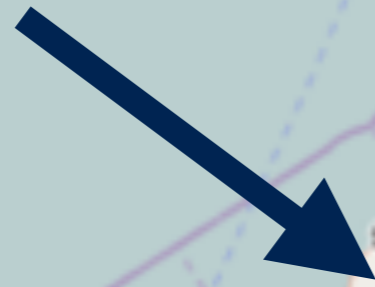
Co-founder of PCN

(Programming Club Network)



Japan Government's
Open Data Evangelist

Fukui pref
Sabae city



じいじ

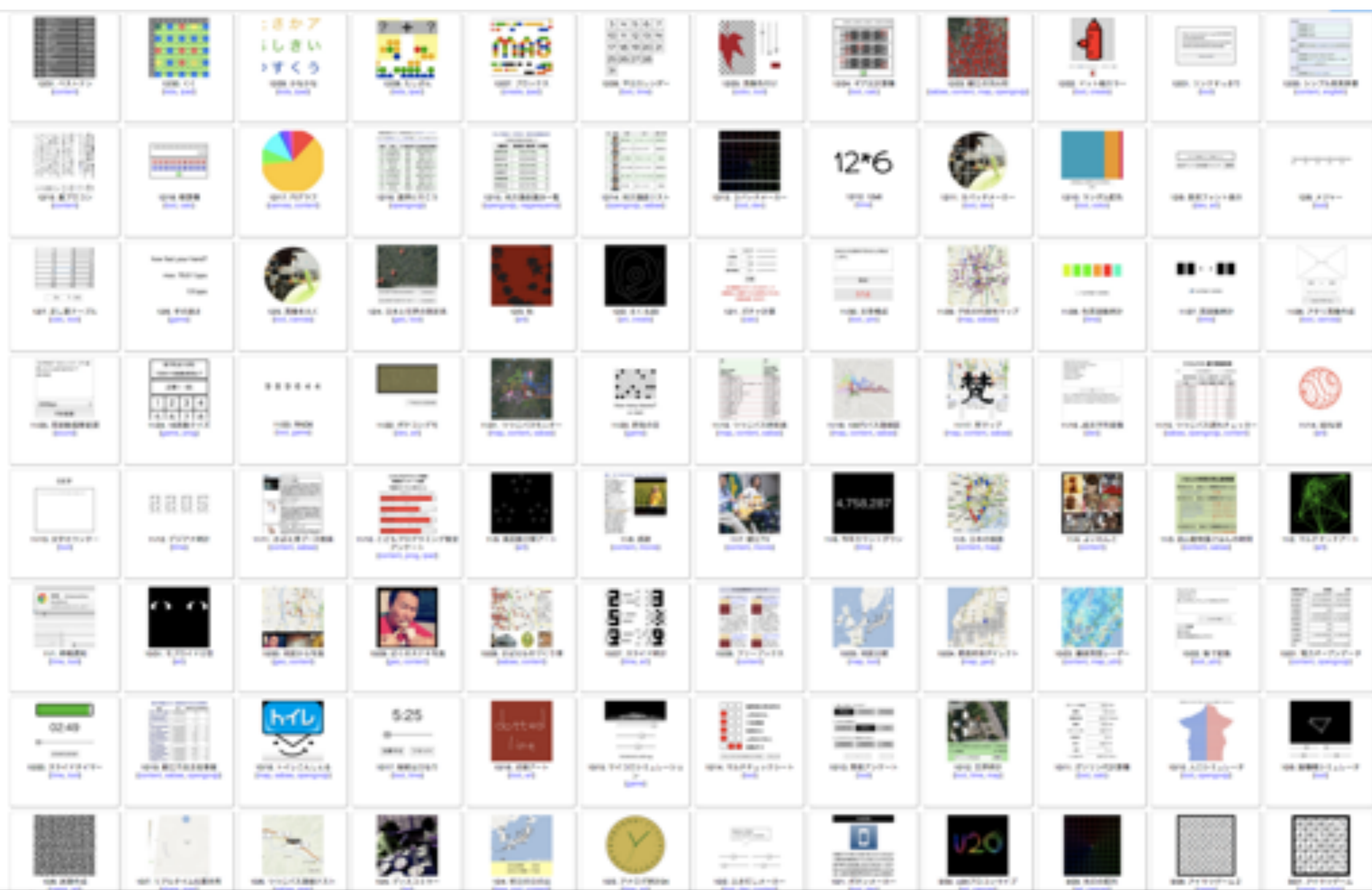
mobile tool softwares
closed you for better society

since 2003



一日一創

Ichi-Nichi Issou (one day, one creation) <https://fukuno.jig.jp/>



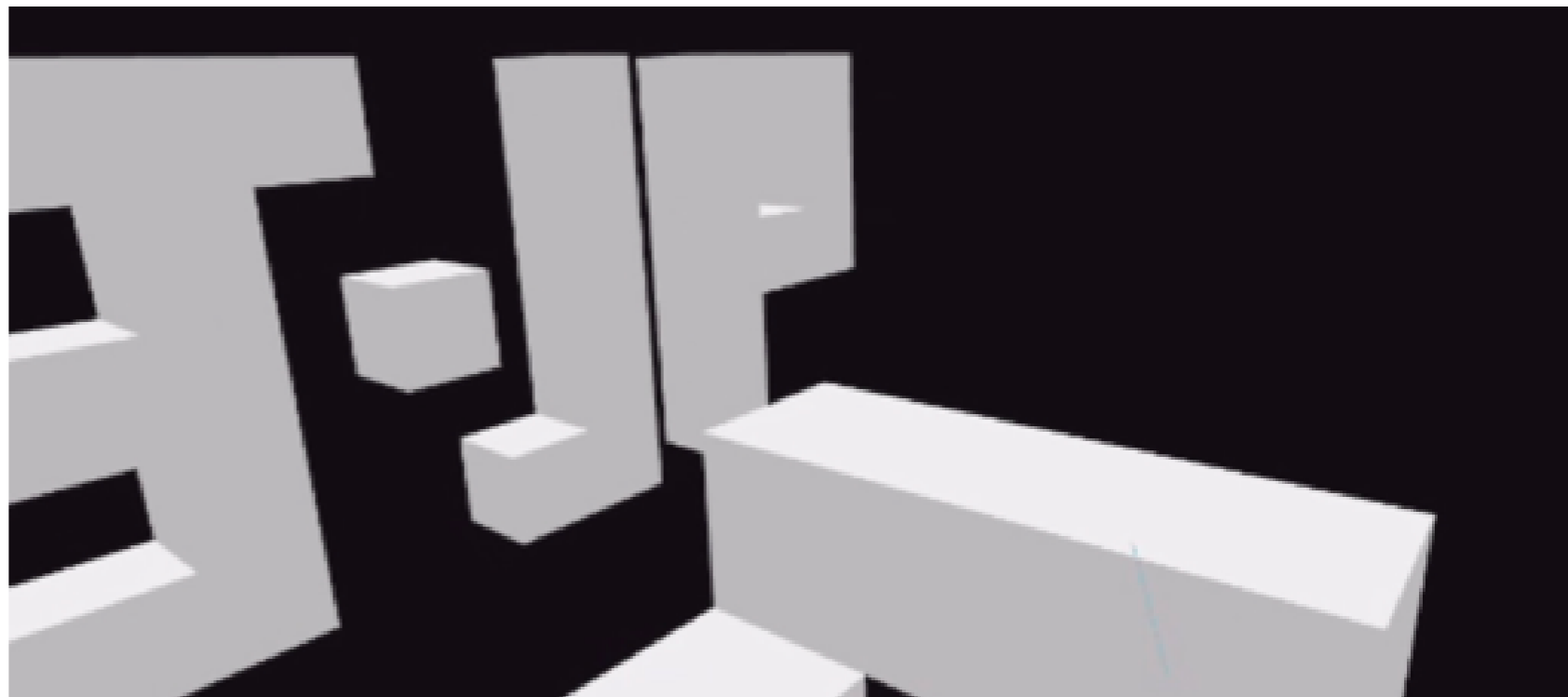
I created 366 web apps in 2012. <http://fukuno.jig.jp/2012/>

“Oculus Quest”

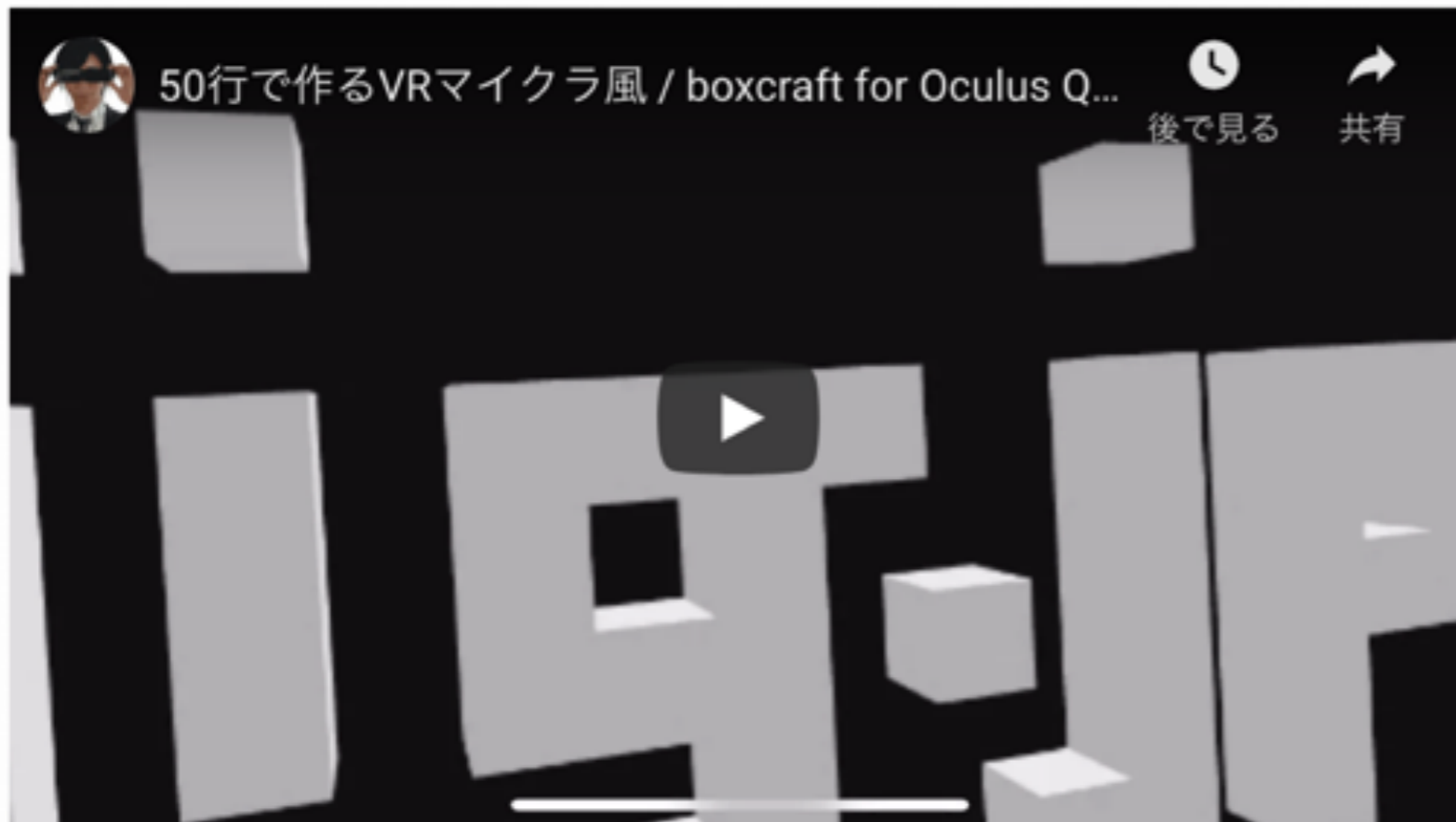
The Latest computer: Mobile VR



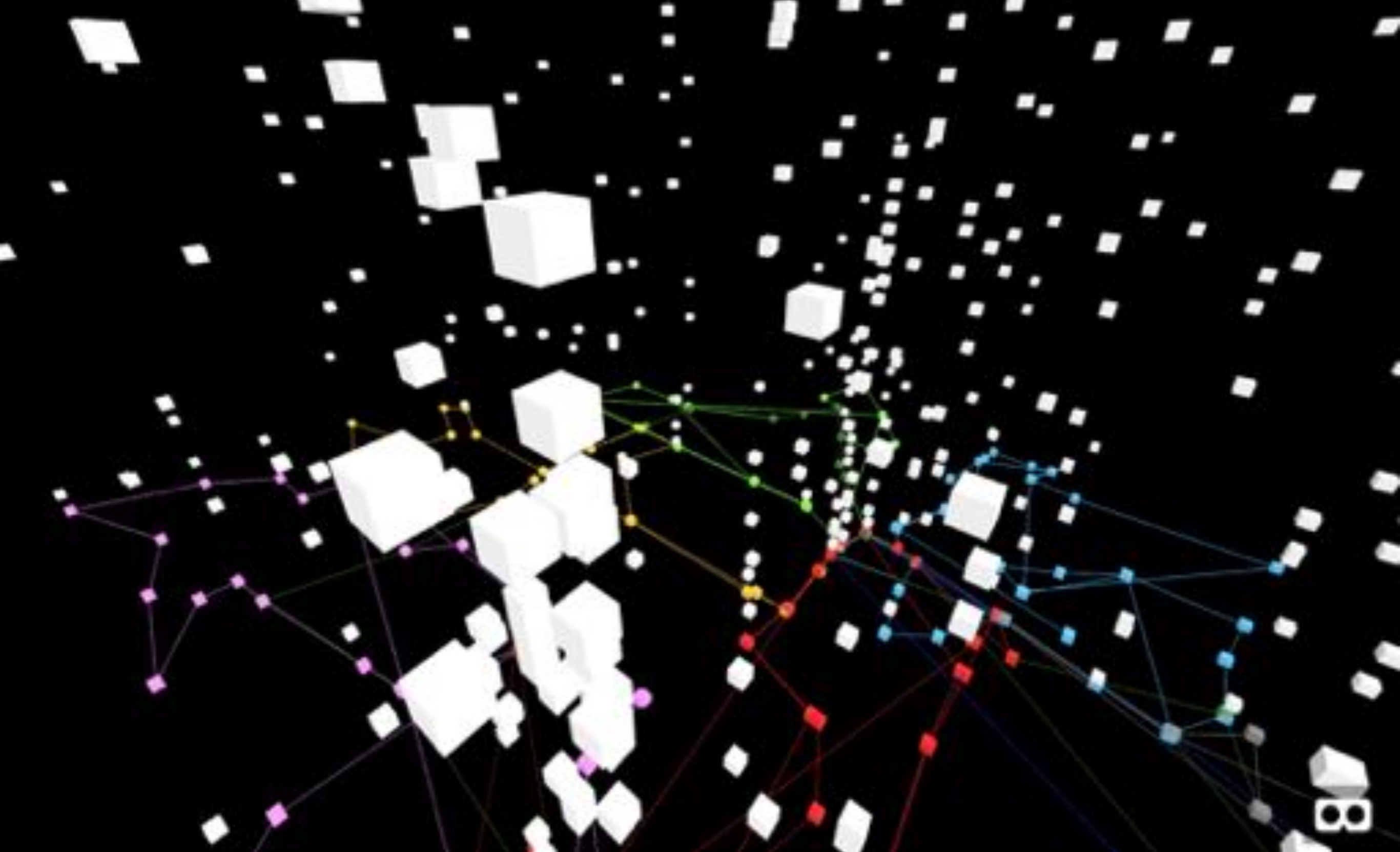
¥49,800-



Like a Minecraft Just 50 lines program!



```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8"/>
  <title>boxcraft for Oculus Quest - A-Frame</title>
  <script src="https://aframe.io/releases/0.9.1/aframe.min.js">
</script>
</head>
<body>
<script>'use strict'
window.onload = function() {
  const scene = document.querySelector('a-scene')
  const list = []
  handright.addEventListener('triggerdown', function(evt) {
    const p = handright.getAttribute('position')
    const snap = 0.1
    let p2 = {
      x: Math.floor(p.x / snap) * snap + snap / 2,
      y: Math.floor(p.y / snap) * snap + snap / 2,
      z: Math.floor(p.z / snap) * snap + snap / 2,
    }
    let box = document.createElement('a-box')
    box.setAttribute('position', p2)
    box.setAttribute('mixin', 'voxel')
    scene.appendChild(box)
    list.push(box)
  })
  handright.addEventListener('gripdown', function(evt) {
    const b = list.pop()
    if (b)
      scene.removeChild(b)
  })
  handright.addEventListener('buttondown', function(evt) {
    const boxes = scene.querySelectorAll('a-box')
    for (let i = 0; i < boxes.length; i++)
      scene.removeChild(boxes[i])
  })
}
</script>
<a-scene>
  <a-assets>
    <a-mixin id="voxel"
      geometry="primitive: box; height: 0.1; width: 0.1; depth: 0.1"
      material="shader: standard">
    </a-mixin>
  </a-assets>
  <a-entity id=handleft oculus-touch-controls="hand: left"></a-entity>
  <a-entity id=handright oculus-touch-controls="hand: right" laser-
controls raycaster="showLine: true; far: .05" line="color: white;
opacity: 0.75;"></a-entity>
</a-scene>
</body>
</html>
```

Realtime Bus Location Open Data
VR visualization of Sabae city

Primary School Kids in Nepal - TabularMaps

Nepal		Taplejung 33,117	Sankhuwasabha 25,719	Solukhumbu 20,410	Panchthar 31,059	Ilam 32,955
Dhankuta 20,787	Terhathum 14,966	Bhojpur 26,535	Okhaldhunga 23,685	Khotang 41,894	Udayapur 45,751	Jhapa 99,079
Morang 106,666	Sunsari 105,010	Saptari 90,082	Siraha 88,649	Dolakha 28,739	Sindhupalchok 42,904	Rasuwa 5,638
Sindhuli 54,201	Ramechhap 28,819	Kavrepalanchok 58,467	Nuwakot 38,345	Dhading 51,949	Makwanpur 67,401	Lalitpur 61,387
Bhaktapur 30,233	Kathmandu 185,783	Dhanusa 123,543	Mahottari 123,106	Sarlahi 154,034	Rautahat 122,770	Bara 155,144
Parsa 101,385	Chitwan 77,954	Manang 285	Mustang 1,505	Gorkha 40,421	Lamjung 22,175	Tanahu 46,286
Syangja 35,407	Kaski 58,130	Myagdi 15,642	Parbat 16,104	Baglung 45,222	Gulmi 44,086	Palpa 38,136
Arghakhanchi 29,932	Nawalparasi 95,954	Rupandehi 133,612	Kapilvastu 105,528	Dolpa 6,013	Jumla 20,311	Kalikot 34,909
Mugu 10,888	Humla 11,794	Pyuthan 47,047	Roipa 47,468	Rukum 59,730	Salyan 46,293	Surkhet 66,941
Dailekh 59,893	Jajarkot 56,072	Dang 81,579	Banke 85,237	Bardiya 67,846	Bajura 25,845	Bajhang 48,928
Darchula 20,861	Achham 58,680	Doti 41,851	Dadeldhura 21,839	Baitadi 54,903	Kailali 133,717	Kanchanpur 64,865

App of Nepal - using Open Data Nepal



Nepal and me (Thank you introduce me Mr. Achyut Sapkota Kisarazu, KOSEN)

I graduated from FUKUI KOSEN.

KOSEN bring up ICT people local area in Japan.

5 years tech school, KOSEN is spreading
to outside of Japan.



IchigoJam CLUB in Mongol KOSEN (2015)

If all Kids can program?

**There are a lot of problems
in the world.**

**Let's solve by IT
across any borders!
(ages, areas and cultures)**



IchigoJam workshop in Nepal

by PCN & KidsVenture

at SHREE
MADAN-AASHIRIT ADARSHA
BASIC SCHOOL
2019/04/16
(2076/1/3 at Nepal)





PCN Kathmandu
A teacher who can teach
programming was born!



Do you know the price of
latest VR development software?

Do you know the price of
latest VR development software?

\$0

Do you know the price of
latest AI development software?

Do you know the price of
latest AI development software?

\$0

It's really excited era
by programmer!

Message for Nepali Kids

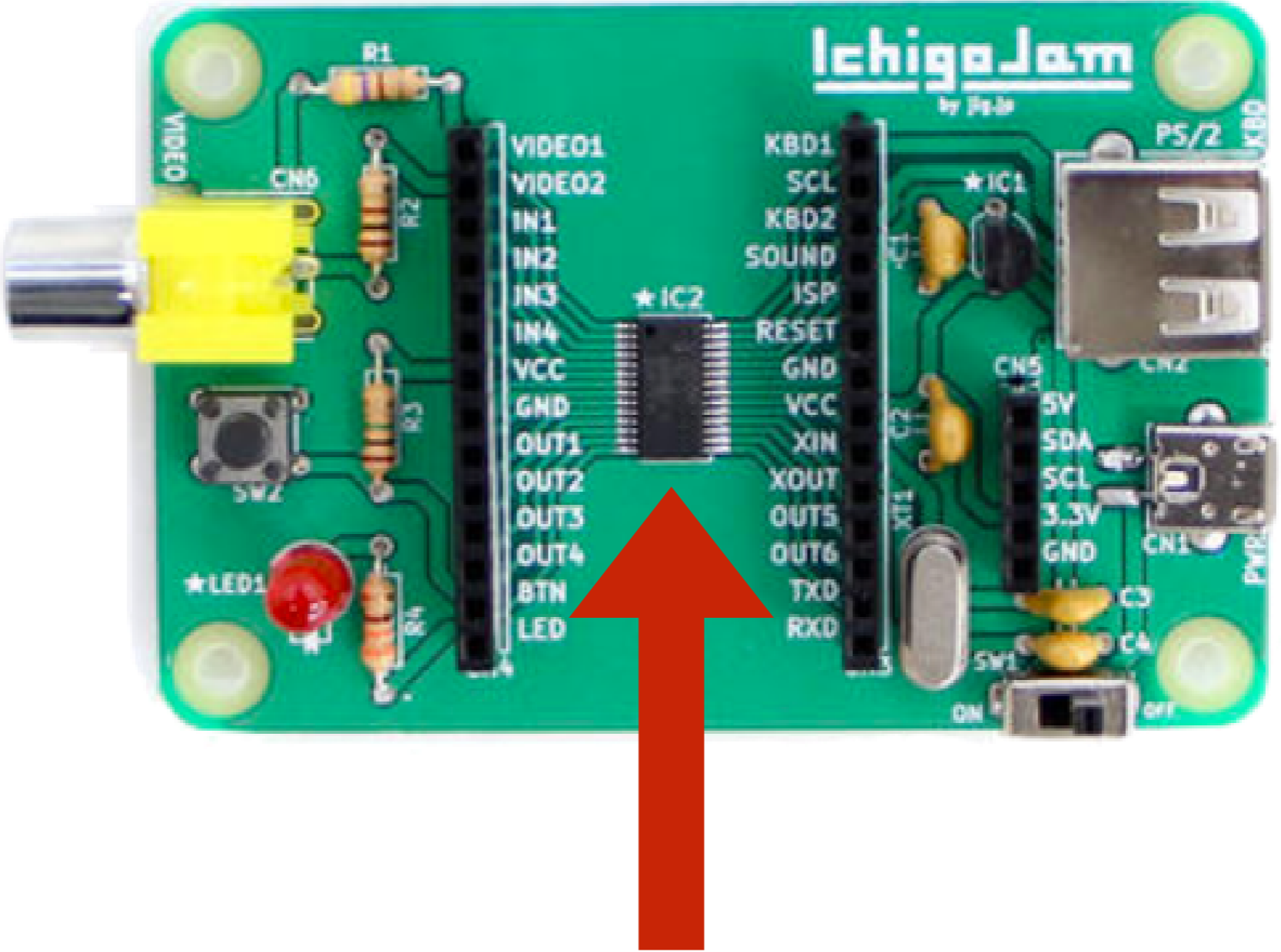
Your dreams come true by learning.

Learn how to learn.

Try to get own web device.

You're lucky that you can use global language!!
(I hope to collaborate with Japanese Kids also)

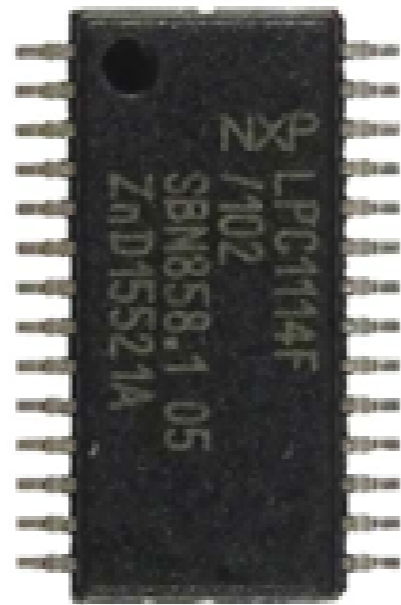
Do you know the price of CPU?



Do you know the price of CPU?



1 \$ CPU



1\$ CPU

**How many times can it
calculates in 1 second?**



50,000,000 times!

(ARM RISC CPU, maximum clock: 50MHz)

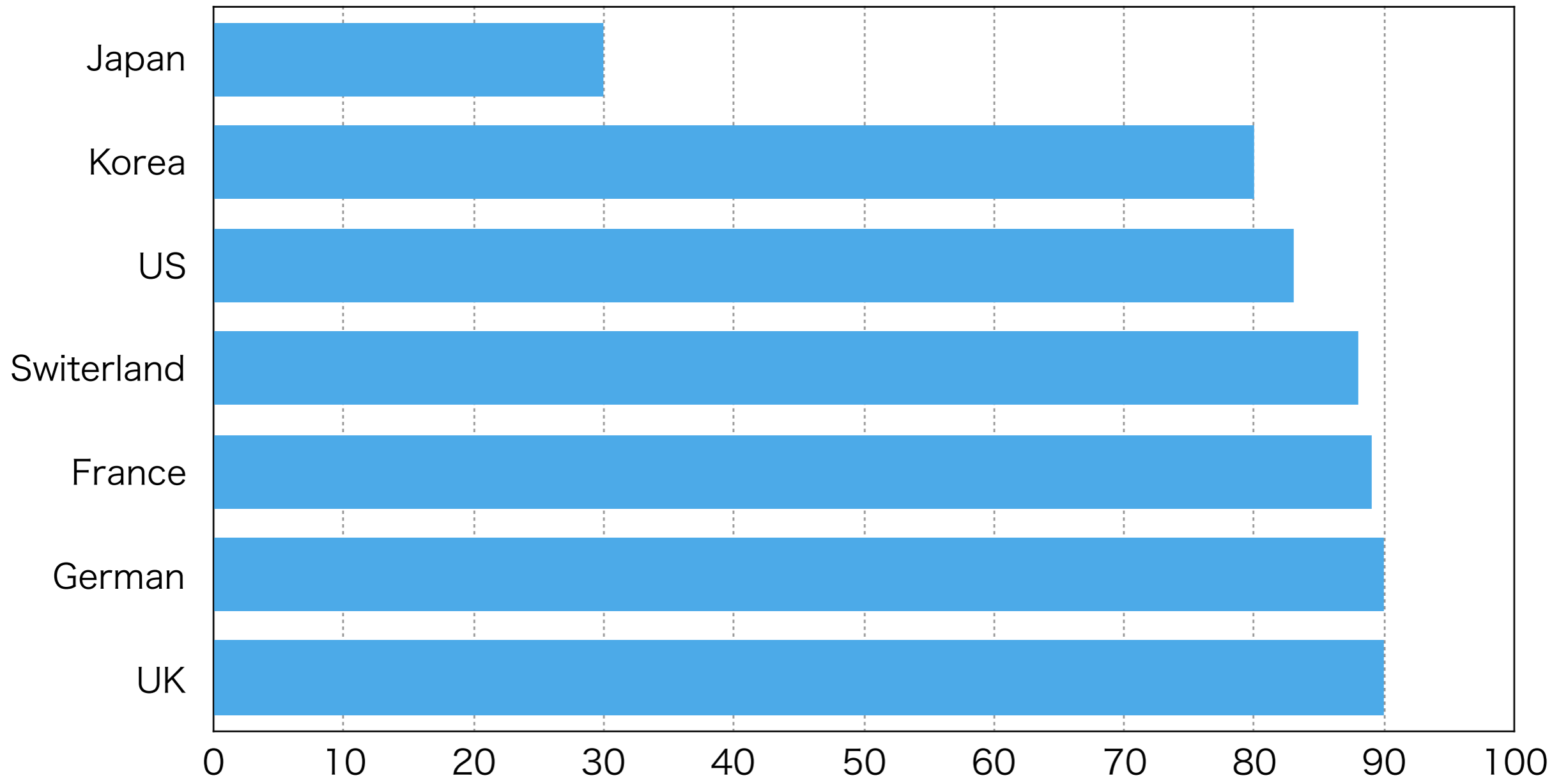
Can you see computers around you?



Washing Machine by Panasonic

Poor Japanese Kids

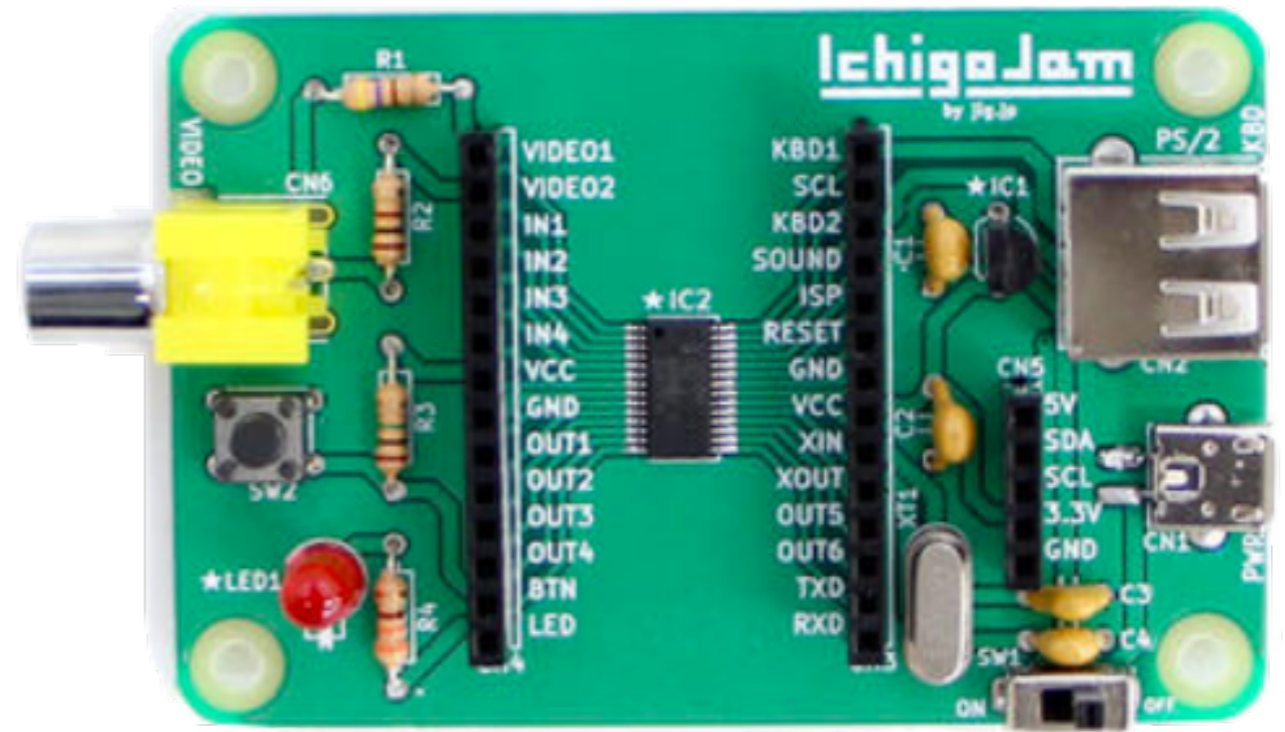
percentage of Kids(13-15) computer owner



内閣府 「わが国と諸外国の若者の意識に関する調査」 (2013) Japan Gov's stat

Solution!

IchigoJam

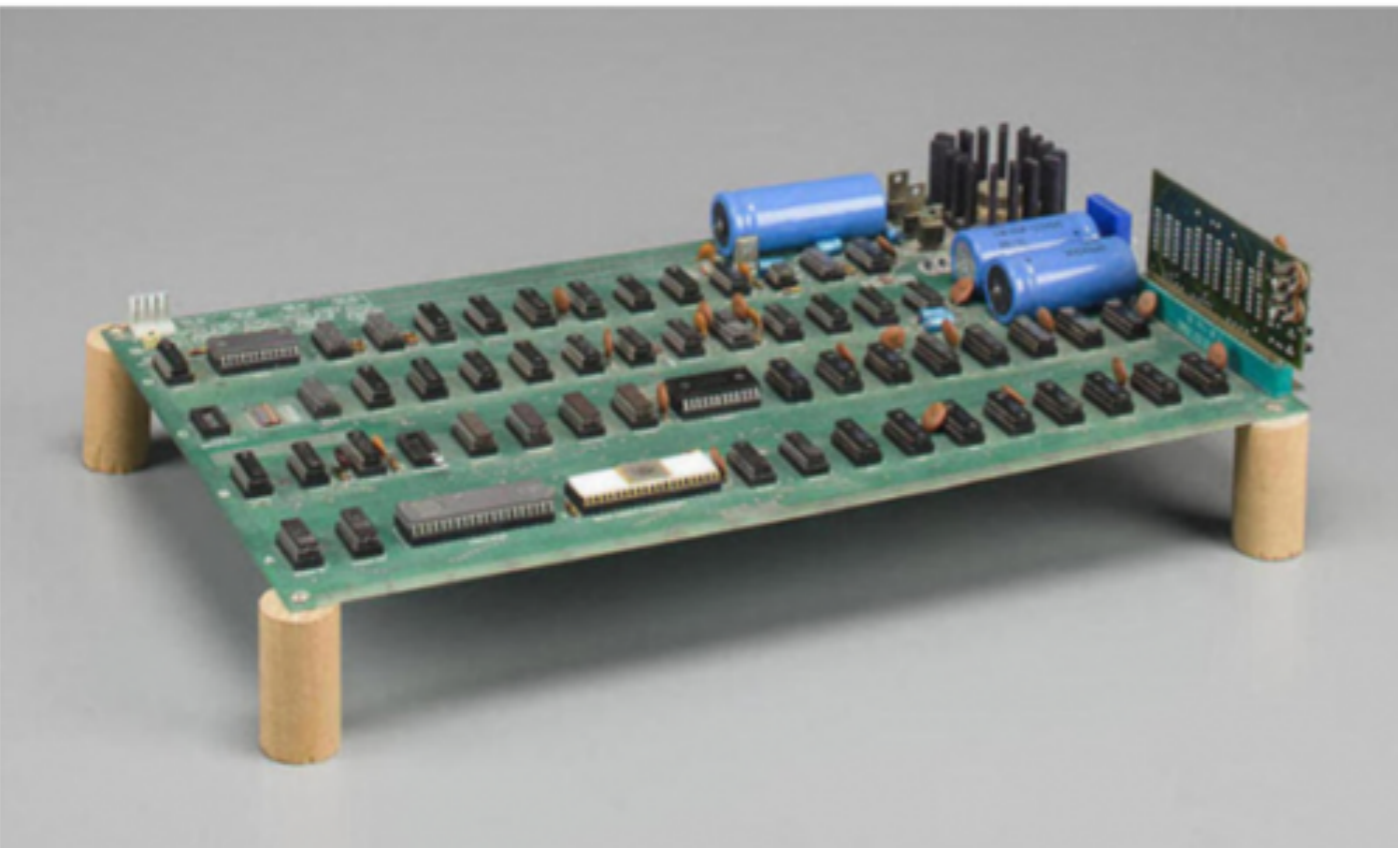


\$15 PC to learn programming

Ichigo イチゴ@ja = strawberry@en

Ichi = 1 / Go = 5 → \$15 computer





An Apple I that sold at auction for \$905,000. Source: Bonhams

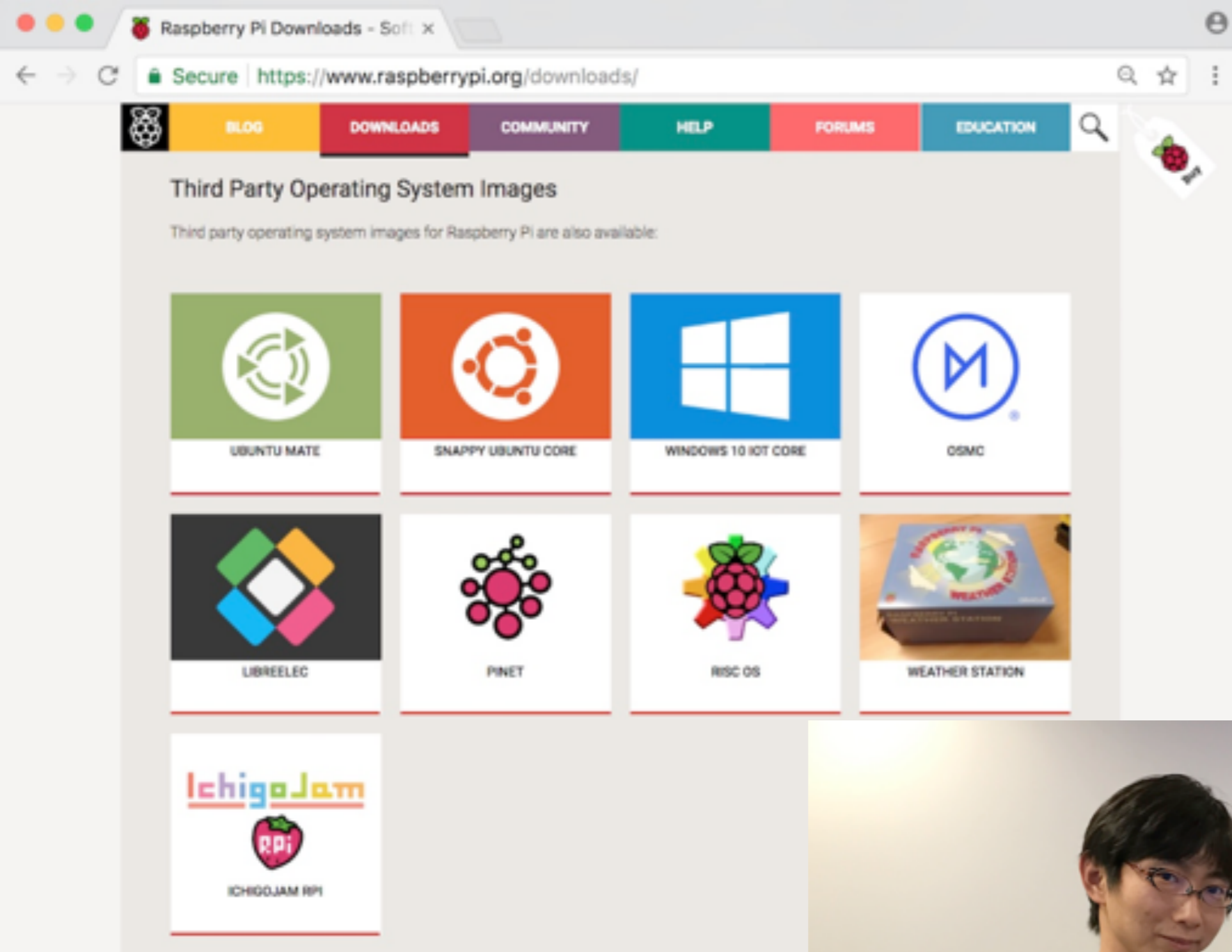
Apple I (1976)

the oldest class PC
by Apple Inc.

**IchigoJam is
similar with Apple I**



Mr. Steve Wozniak, Apple I Inventor

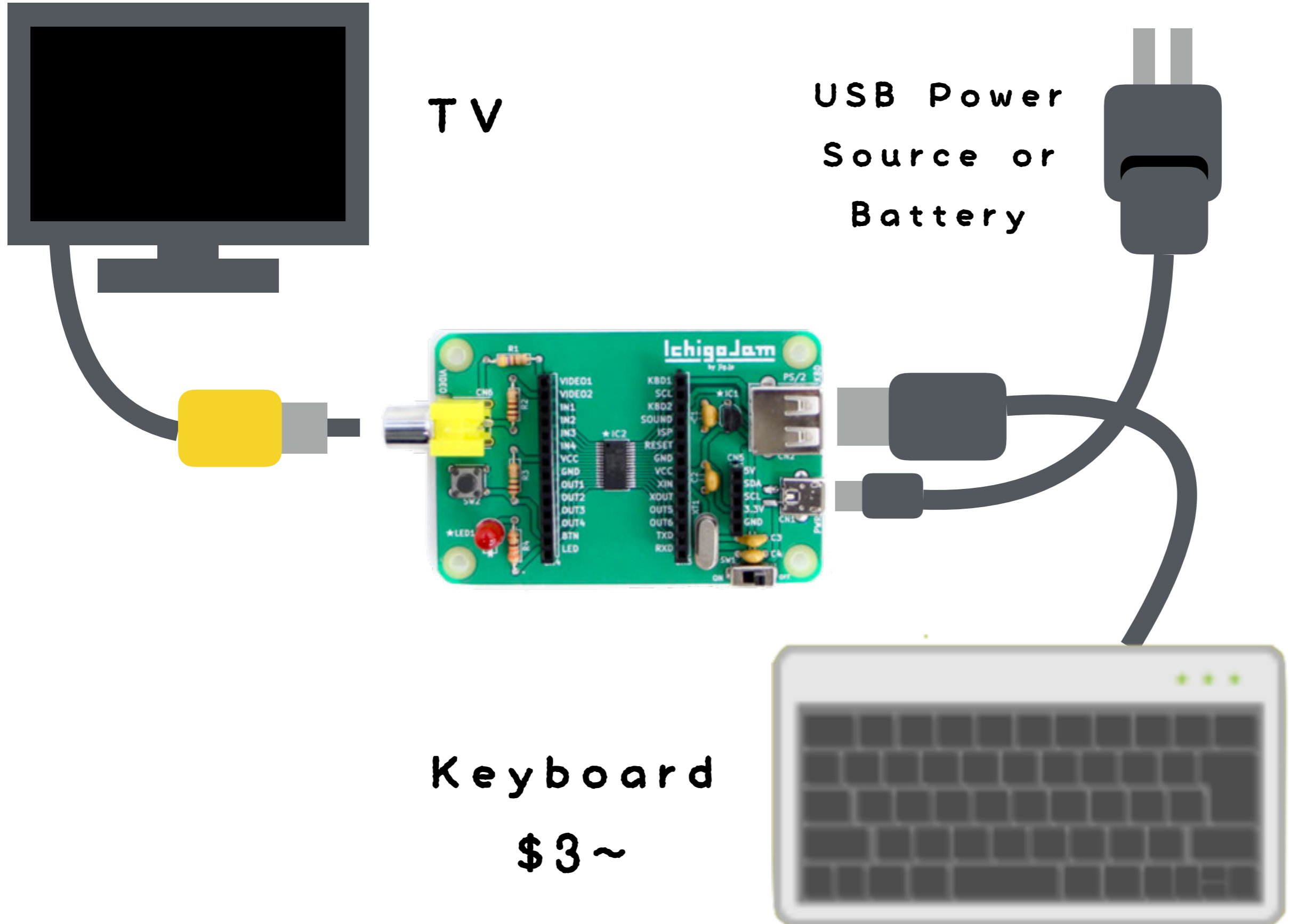


IchigoJam is OS
on Raspberry Pi official



Raspberry Pi founder, Mr. Eben Upton

How to start IchigoJam PC



TV

USB Power
Source or
Battery

Keyboard
\$3~



**IchigoJam programming club activity
All elementary & junior high school in Sabae**

Programming is
Chatting with Computer

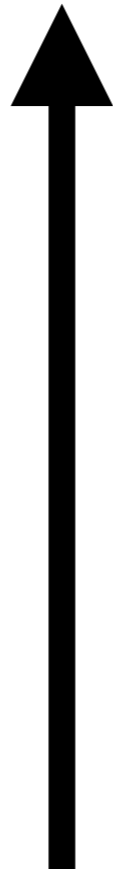


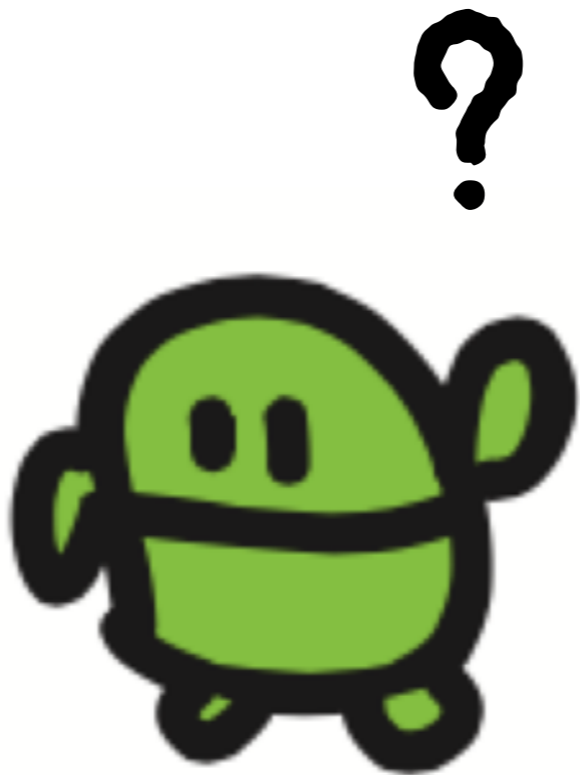
?



I don't
know ...

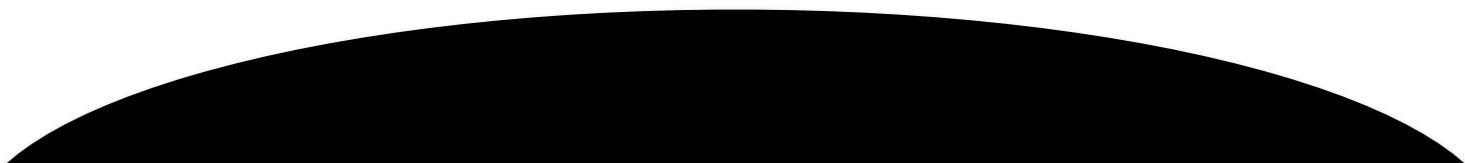
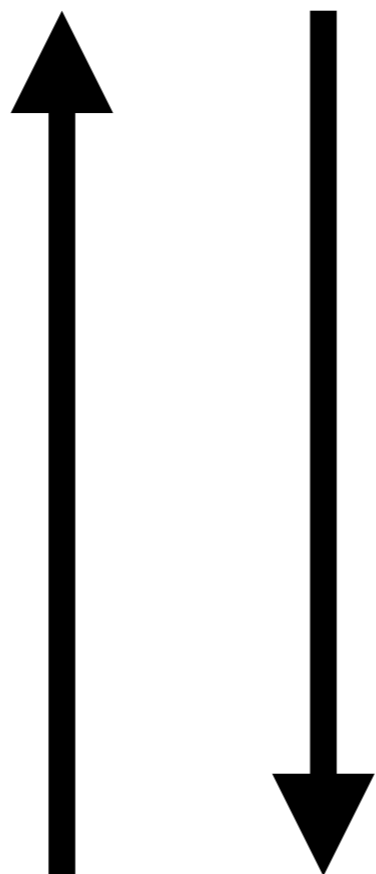
Hey,
light up the
LED!

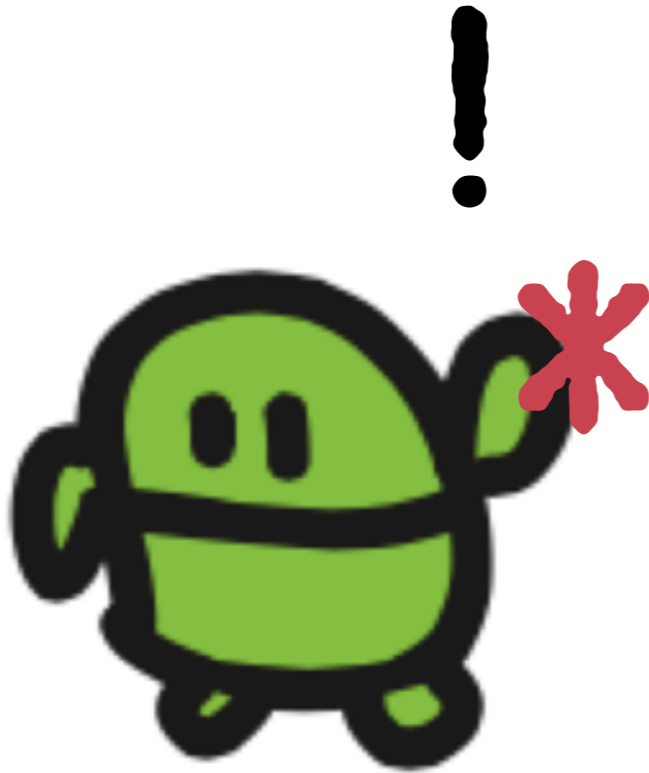




HI

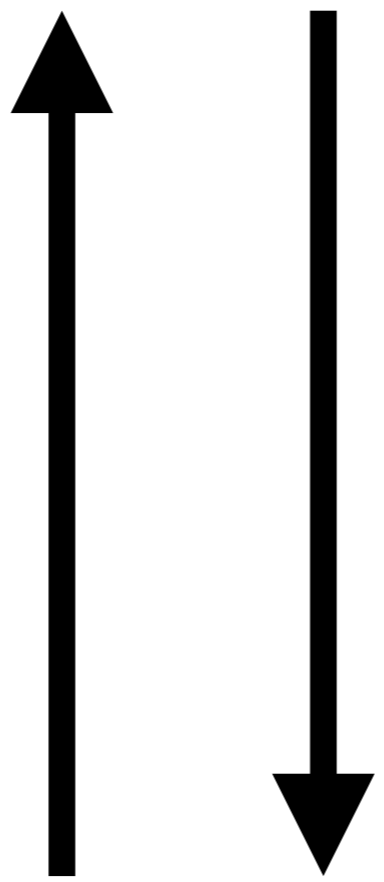
Syntax error





LED 1

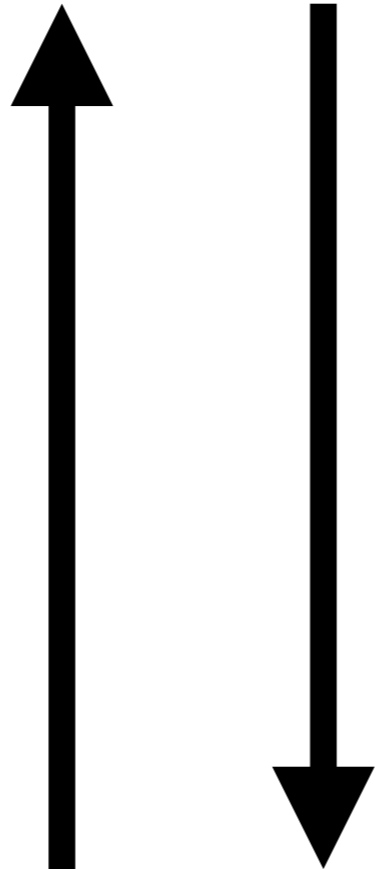
OK





LED 0

OK



Live coding!

I'll program a computer game!

Is it simple?



Teaching is the best way to learning.

Ishikawa KOSEN students can teach to kids

Learn How To Learn



IchigoJam print

simple text to self-learn programming

<https://ichigojam.github.io/print/>

Programming course

- [Light up / LED](#)
- [Make Sounds / BEEP](#)
- [Compose Music / PLAY](#)
- [Multiplication by loop / FOR/NEXT](#)

Ele-making course

- [Let's chat on a network!](#)

Application course

- [Number Quiz](#)

```
Number Quiz - IchigoJam
These are numbers in Kinyarwanda, the language of Rwanda.
10 LET [0], "ZERU", "RIMWE", "KABIRI", "GATATU", "KANE", "GATANU", "GATAN DATU", "KARINDWI", "UMUNANI", "ICY ENDA", "ICUMI"
RUN

How to show a number word.
?STR$( [1] )

Let your computer count down!
20 FOR I=10 TO 0 STEP -1
30 ?I, STR$( [I] ): WAIT 60
40 NEXT

Game 1: Answer the number game!
20 N=RND(11): ?STR$( [N] );
30 INPUT ". What's this?", M
40 IF N=M ? "Correct!" ELSE ? "Wrong. The answer is "; N
50 GOTO 20

Game 2: Type to answer the number game!
20 N=RND(11): ? "Type "; N
30 FOR I=0 TO LEN( [N] )-1
40 IF INKEY( ) != ASC( [N]+I ) CONT
50 ?STR$( [N]+I, 1 ); : NEXT I
60 GOTO 20

Let's try!
1. Add "GAMEOVER" to Game 1 if wrong
2. Add the score to Game 1
3. Show the time after 10 answers on Game 1
4. Add "GAMEOVER" to Game 2 if mistyping
5. Change the language
```

easy printings

We have to translate!

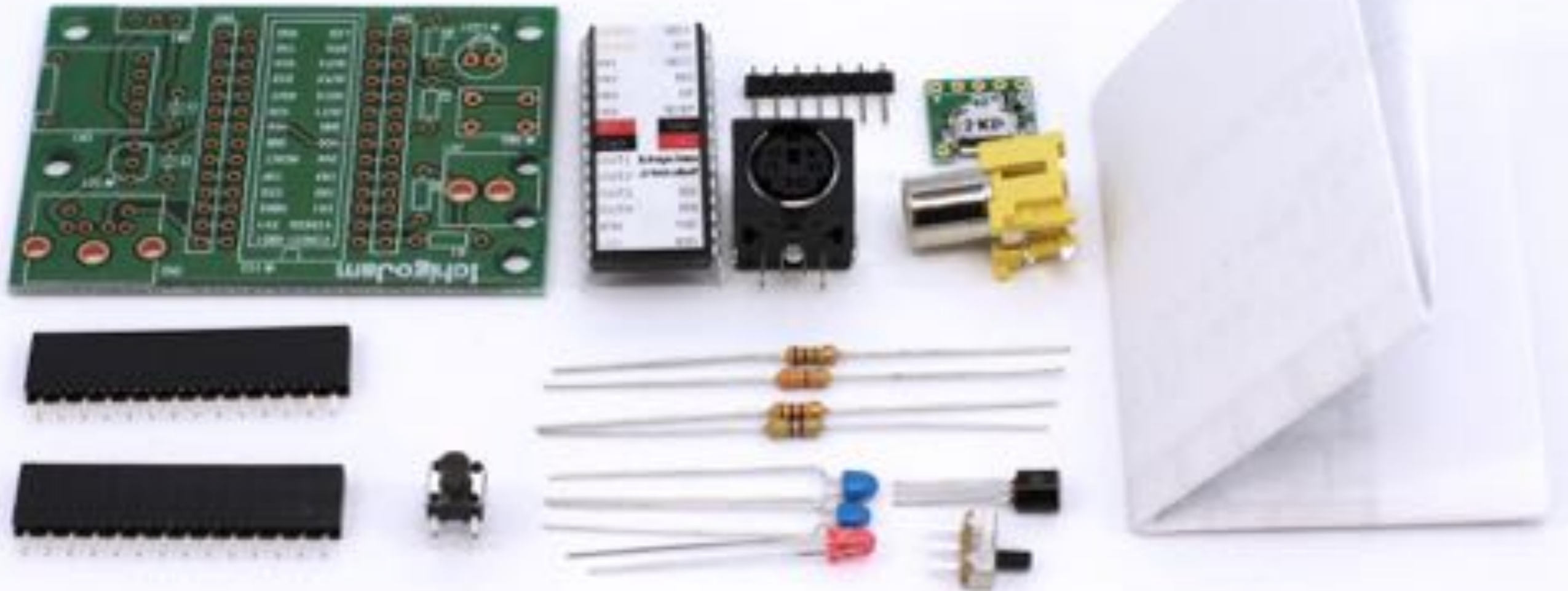
NUMBER IN NEPALI

० १ २ ३ ४ ५ ६ ७ ८ ९

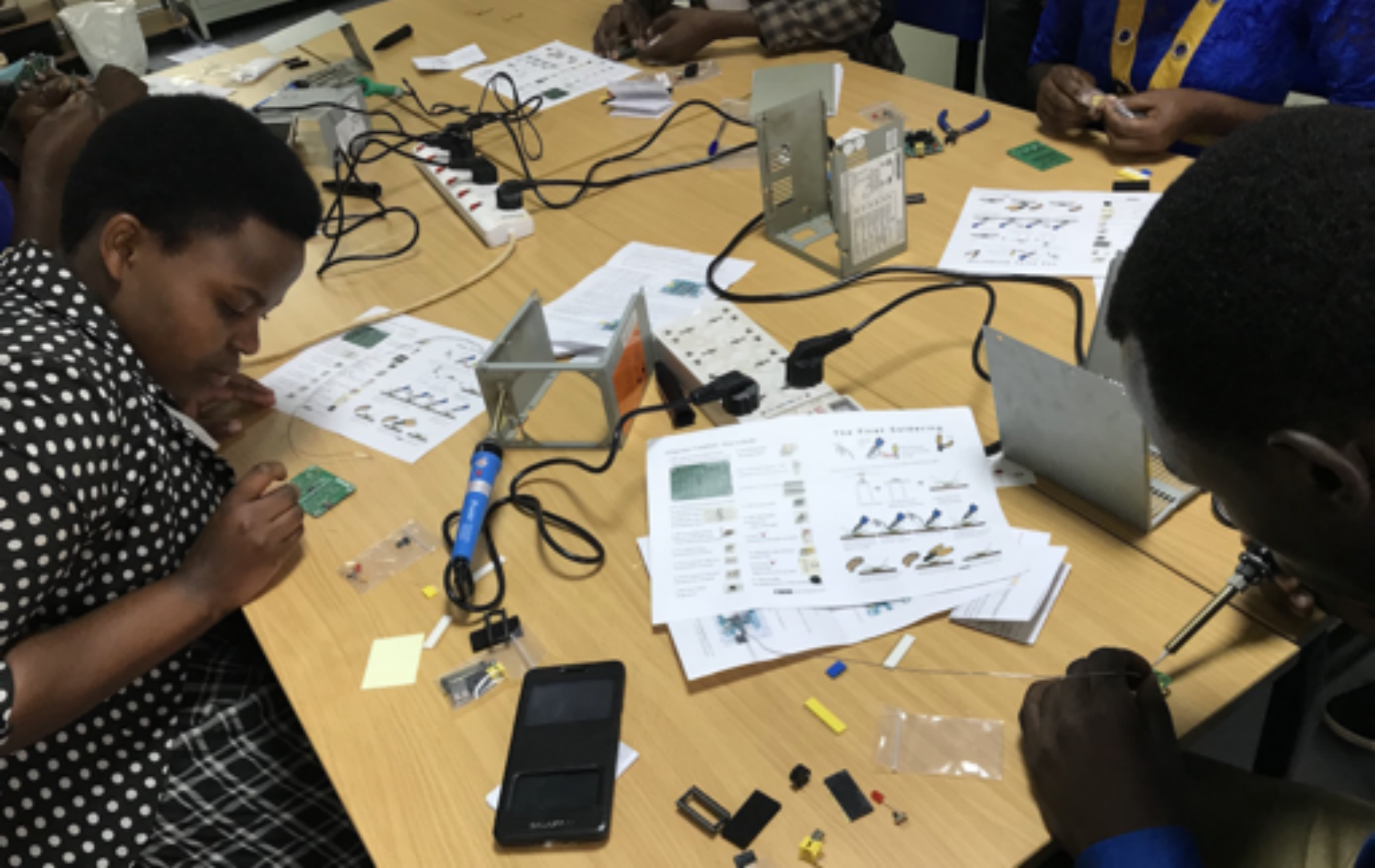
There are many online resources about IchigoJam.

<https://fukuno.jig.jp/2459>

lehigoJam



**Making Computer with
the soldering iron**



in Rwanda Tumba KOSEN (TCT)



MASAHARUの魂のプログラム

パクパクブラックホール

2016
Jan.
09

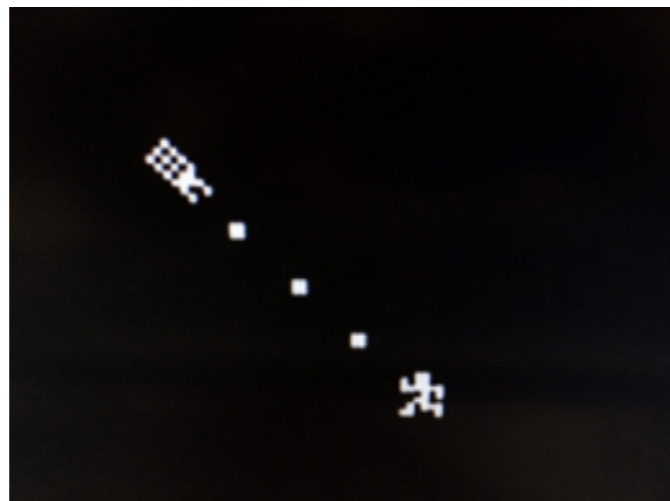
プログラム ☆☆☆



※音が小さいので、音量大でお聞きください。

ブラックホールが、いろいろなスプライトを吸い込むPan Cakeプログラムです。ゲーム性はありませんが、デモ画面などに使えます。

プログラム ver.IchigoJam 1.1.1
10 CLV:CLT:VIDEO 0:?PC VIDEO 1:?PC SPRITE START
06*:GSB1000:GSB1100:?PC SPRITE CREATE 02 54:?PC SPRITE
CREATE 03 55:?PC SPRITE MOVE 02 28 15:?PC SPRITE MOVE 03 99
99*:Q=0
20 IF40>AA=A+1



Kids Creator

Kids step up to Apple or PC as application development devices.



by 3D printer

iPhone/Android Apps

Make, Make,
Make!

PCN
子どもプロコン
2018

最優秀賞 (4作品)
優秀賞 (4作品)
20協賛賞

豪華な副賞も多数!

ソフトウェア
小学生の部
中学生の部

4部門で
作品募集!

ロボット
電子工作
小学生の部
中学生の部

10/1 (Mon.)
12/31 (Mon.)

詳しい応募方法は
裏面をチェック!

主催：プログラミングクラブネットワーク(PCN)
後援：文部科学省、総務省(※)

PCN Competition for Kids

Prize: Windows Note PC



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

PCN子どもプロコン2018 協賛企業・団体

I-O DATA

NSD FORUM 8 aitendo SAKURA Internet

ZOZO Technologies PFU

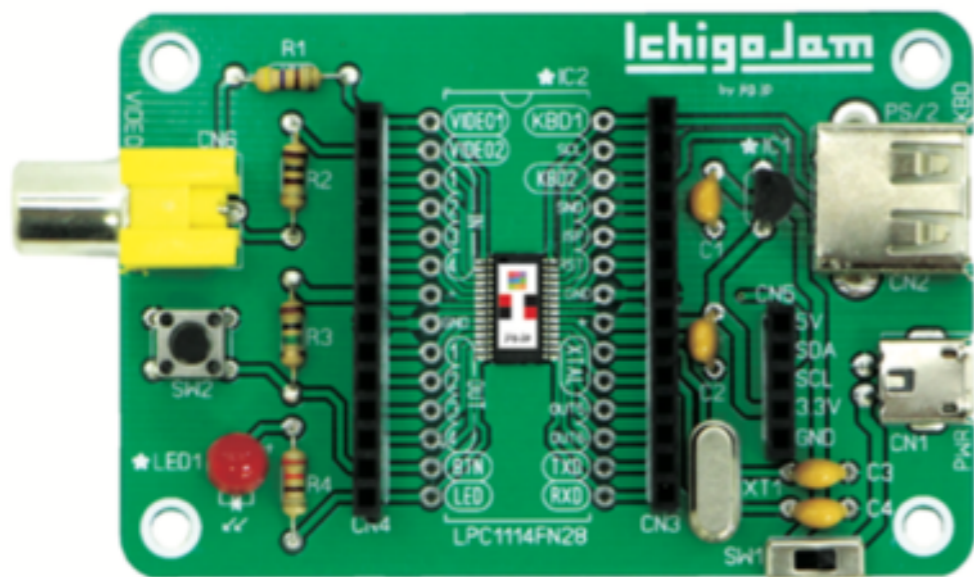
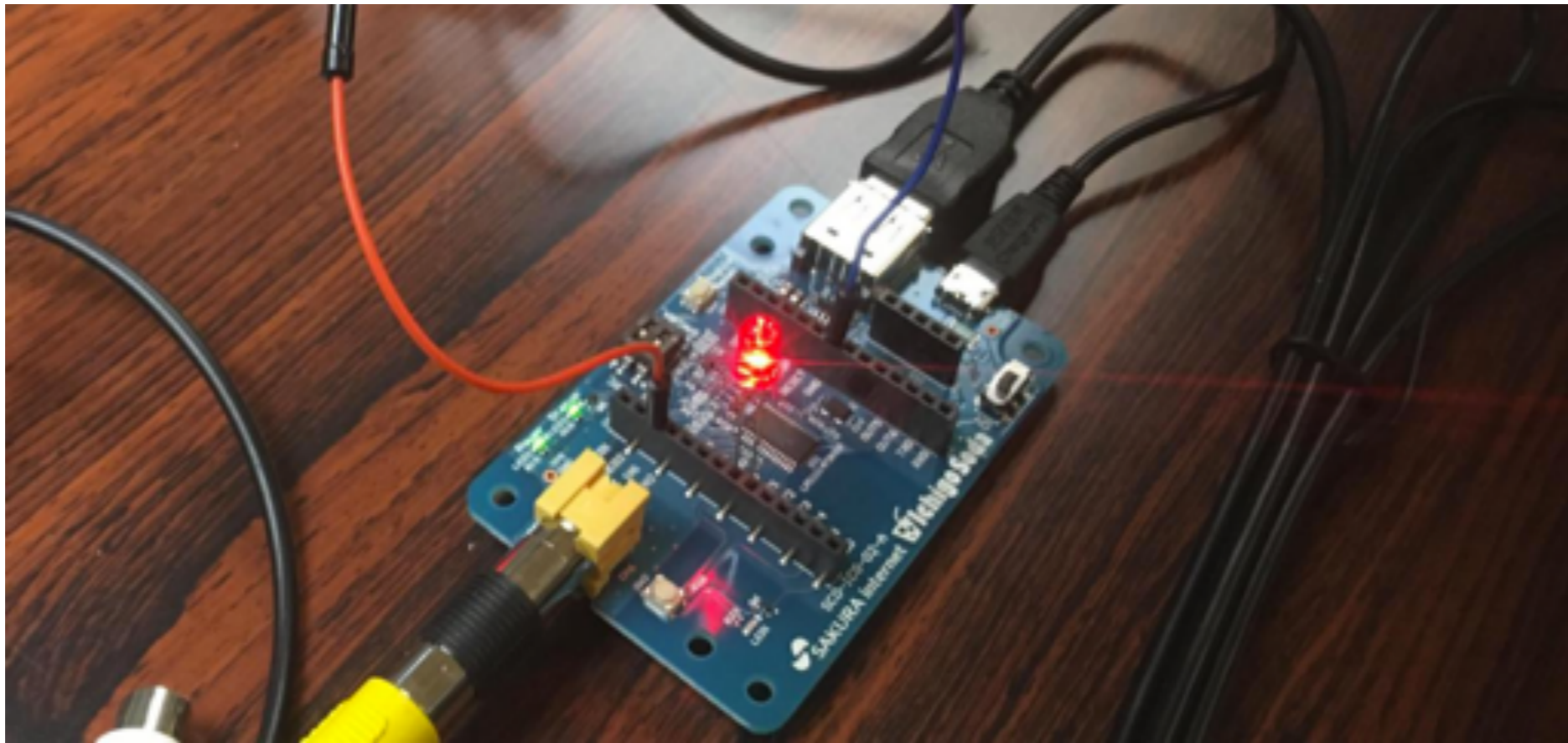
micro:bit Raspberry Pi IchigoJam

Try to solve

social problems with IoT



IchigoJam IoT ¥65/month (10k times)



IchigoJam

+



module of sakura.io

Cat's Health IoT



<http://fukuno.jig.jp/1518>

Animal Capture IoT



NHK
2015.12.7



IoT version available!

Senior Programming
Network started!

Bus Location IoT

バスロケの常識が変わるかも

ダイヤ編成支援システム「その筋屋」との出会い。
GTFS-JP、GTFS-Realtime 標準対応。スジ画面でバスロケ情報可視化。

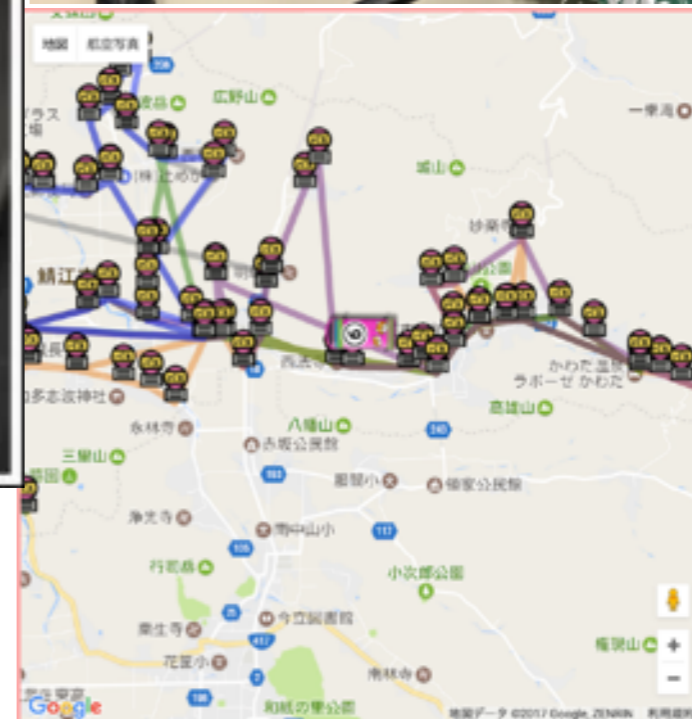
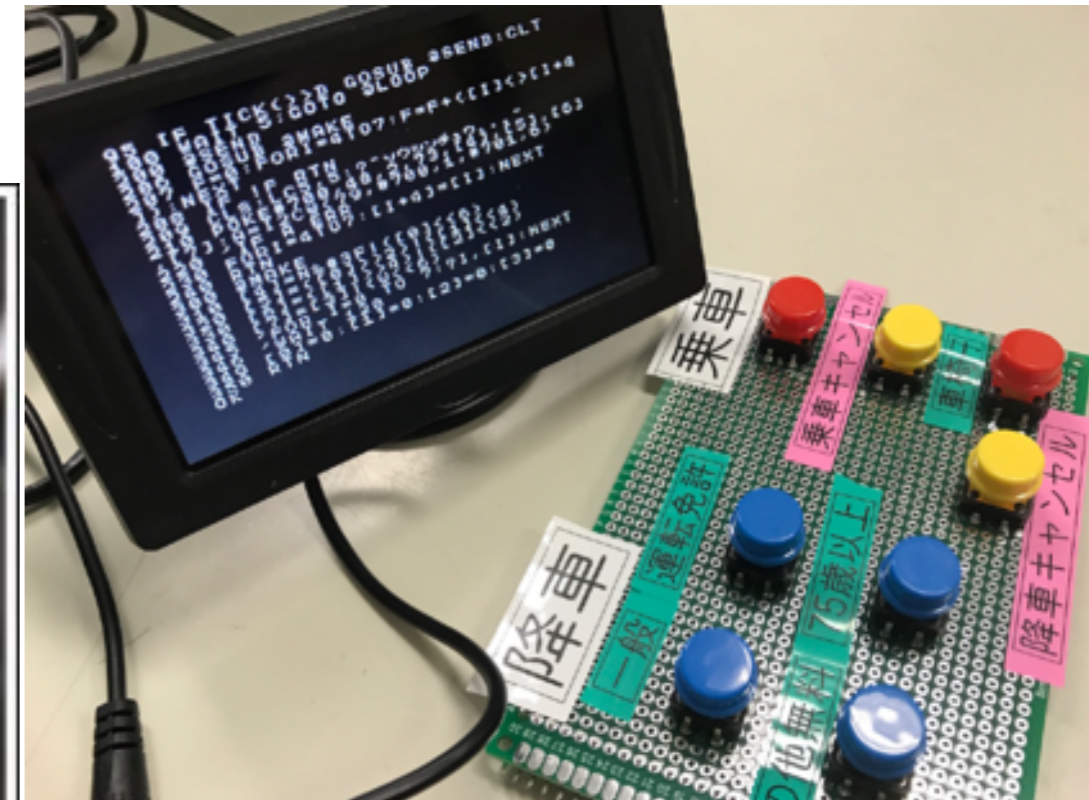
GPS

※みちびき対応
2,100円 (税込)

sakura.io (LTE通信)
8,000円 (税抜)

IchigoSoda
IchigoJam for sakura.io
5,000円 (税抜)

IchigoJam



JR鯖江駅

便番号: 1
バス番号: 6
運行中
遅れ: なし
速度: 37km/h
方向: 273度
乗客数: 7人
車椅子利用: なし

最新情報更新: 2017.05.10 07:29:00

<http://github.com/codeforfukui/busmonitor/>

Facebook group 「IchigoJam-FAN」

Twitter #IchigoJam

2500 members may help you.



Facebook group page for IchigoJam-FAN. The page displays the group name, a search bar, and a navigation menu on the left. The main content area shows a photograph of an IchigoJam microcomputer board with various cables connected. Below the photo are buttons for '参加済み', 'お知らせ', 'シェア', and 'その他'. A QR code is overlaid on the bottom right of the screenshot.



I taught a basic of IoT with IchigoJam in Tribhuvan University in Nepal.

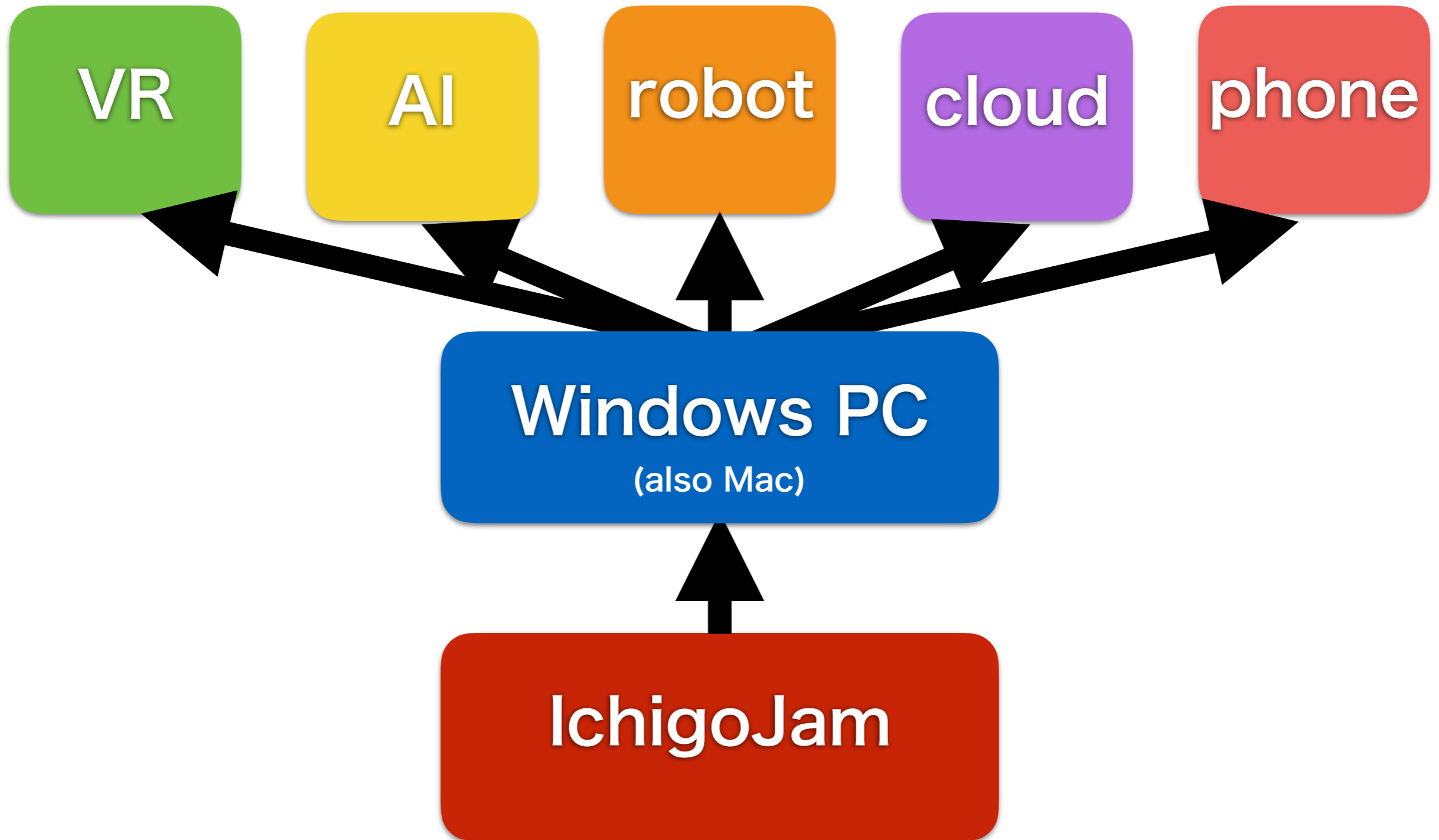


Mr. Subarna Shakya Ph.D joined our PCN Kathmandu!!



I met a BASIC and electronics master in Kathmandu!
We can buy keyboard for IchigoJam about \$3!

IchigoJam is basic of computer science



Process to bring up Kids IT creators

- 1. 2 hour curriculum to start programming.**
- 2. IchigoJam at school for break time free to use.**
- 3. Hold a programming and robot competition.**
- 4. Create Nepal and Japan communities with Kids.**



Let's start from kid's big smiles!

福野泰介の一日一創 - create every day

IchigoJam opendata IoT megane Maker jig.jp Sabae KidsIT gourmet KOSEN profile english [RSS]

Let's create a bridge between Nepal x Japan!

2019/06/08 #nepal #KidsIT #IchigoJam

Let's collaborate Nepal x Japan!



ネパールの子どもたちにプログラミングを！ by PCN & KidsVenture

東日本大震災で復興支援してくれたネパールの方々に、今度は日本からできること。現地の子どもたちに支援を続ける福島県いわき市の島村さんプロジェクトに、PCN&KidsVentureメンバーで合流。ネパールの子どもたちに「プログラミング」を届けてきました。



プログラミングに触れて目をキラキラさせるのは世界中どこの子供でも同じ。あまり触ることがなかったと話してくれたキーボード。ひとつひとつ打つたび



ネパールの学校から素敵な証明書が到着！

Thank you very much!

SHREE MADAN AASHRIT ADARSHA BASIC SCHOOL



facebook.com/taisuke.fukuno

fukuno@jig.jp

IchigoJam

PCN

<https://fukuno.jig.jp>