Kaiwa Vox: new Kraftor firmware and Kaiwa Designer

Kaiwa Vox gets a new Kraftor firmware and browser-based Designer for Japanese speech, MIDI phrase playback and voice shaping.

Console now has a talking head

Console adds a 3D talking head, animated by phoneme data sent from Kraftor over serial. Watch RoboVox bring it to life.

VAX firmware update: MIDI voices and live text output

The VAX firmware update brings full-range DECtalk voice selection and live text output to Kraftor, demonstrated with the new Teletype controller and Console.

Meet Teletype: hands-on MIDI control for Kraftor

Five keys, four knobs and four banks: meet Teletype, a compact MIDI controller for Kraftor and other instruments. Configure it in your browser, save your settings and play.

Use a USB keyboard for text entry

Use a standard USB keyboard to enter some text and have it spoken live on VAX (soon on Kaiwa and Emy).

The keyboard is connected to a USB gender changer (provided with the last edition of Emy) which also powers the keyboard.

The speech can be triggered by the Gate signal, pressing the rotary or by pressing **Enter** on the keyboard.
Basic editing is possible with the **backspace** character while the **Escape** key is erasing the current text.

There is also a gate out signal on the Busy/Aux jack that stays up while the keyboard is pressed (it is not needed for the speech but I thought it could be fun to use it)

The newer version of Emy’s PCB 1.0c allow powering the keyboard but If your PCB is 1.0b you will need to apply the following hack.

- Add a Schottky diode (like the BAT85) between the +5v via end the USB connector like shown here :



- Be careful not to overheat the via while soldering it.
  
- Do not use this port to power something else than a normal keyboard. The maximum current that can be provided is 300 ma.

Enjoy your new talking keyboard!

This works great with wireless keyboards too and allows triggering the speech from quite a distance.

How to add new vocabulary to Talko, the easy way

Previously, I had described here: how to do compress sound using a venerable Windows 3.1 tool: Qbox Pro. The process what quite long to set up and does not always produce good results.

Today I discovered BlueWizard from this post.

BlueWizard runs on Mac and allows to tweak the process in real time to optimize the output! The author has been kind enough to make some small tweaking just for the Arduino and Talko!

Simply open your file (which has to be recorded at 8 kHz with 16-bit depth), click on the 2 tick boxes:
– “include hex prefix (0x)” to allow direct pasting into the Arduino IDE
(if you are using it for Emy’s SD card do not tick this box)

- and “include explicit stop frame” to avoid the library

producing gibberish noise a the end of the sound

then copy the resulting the data from the “Byte Stream” windows.



Open the Arduino IDE and paste the data stream into your code before uploading it to Talko.

Let’s make a sound and process it:

say -v"alex" "We are charging our battery. And now we are full of energy. We are the robots." -r 100 -o roboter.wave

converting to 8 kHz with 16-bit depth using SoX

sox roboter.wave -r 8k -b16 roboter.wav

and the compressed version made with Talko :

the Arduino code:

```
// Talkie Adafruit library
// Copyright 2011 Peter Knight
// This code is released under GPLv2 license.

#include "talkie.h"

Talkie voice;

const uint8_t spROBOTS[] ={0xa6,0xd6,0x4a,0x67,0xd8,0xed,0xa8,0x9a,0x35,0x37,0xd5,0x8a,0x1c,0x72,0xbf,0x84,0xcd,0x2a,0x4a,0xca,0x42,0x50,0x77,0xed,0x6a,0x25,0xcb,0x1a,0xb3,0xa3,0xa3,0xa4,0x34,0x4b,0xb2,0xe9,0x0c,0x9b,0xd2,0xc4,0xd9,0xa7,0xca,0x6c,0x49,0x8a,0x26,0x9d,0xaa,0x28,0x2d,0xc9,0x96,0xad,0xbc,0xaa,0xb6,0x24,0x47,0xb5,0xd0,0x1c,0xd3,0x92,0x9c,0xcd,0x43,0x7c,0x68,0x4b,0x72,0xd6,0x2c,0xf6,0xa2,0x25,0xcd,0x9d,0xb3,0x4d,0xc6,0xa4,0xb4,0x4c,0x8a,0x32,0x19,0x9d,0x92,0xb2,0xc8,0xd2,0x79,0x92,0x89,0xeb,0x14,0x36,0xd3,0x26,0x04,0xd8,0x79,0x2c,0x01,0xbb,0x5e,0xb6,0x68,0x8e,0xed,0
```

x2e,0x8b,0xdd,0xea,0x51,0xd3,0xd3,0x35,0x4e,0xcb,0x73,0x74,0xf
3,0xd4,0x38,0xa3,0x4c,0xd9,0xdd,0xc3,0xed,0x96,0x2a,0x76,0xb5,
0x36,0x5d,0x9c,0xaa,0x38,0x4c,0xc7,0x75,0x52,0xaa,0xc3,0x14,0x
5b,0xb3,0x51,0xa1,0x0e,0xdd,0x64,0x92,0x4f,0x86,0x3a,0x54,0x89
,0x31,0x99,0x98,0xea,0x58,0x38,0x27,0x64,0x42,0xa8,0x73,0x81,0
x49,0x8b,0x91,0xa6,0x4e,0x19,0x36,0x22,0x4a,0x88,0x3a,0x25,0x9
8,0x0c,0x2b,0x69,0x9a,0xa4,0x49,0xbd,0xb2,0x56,0x69,0x46,0x55,
0x66,0xd5,0xb6,0xa5,0x19,0x95,0xd8,0x2c,0xda,0xb4,0xa6,0x5a,0x
52,0x8f,0xac,0x53,0x9a,0x62,0xd1,0xab,0x2a,0x72,0x68,0xb3,0xc1
,0xd8,0xcc,0xd0,0xae,0x8b,0x8a,0xe2,0xd2,0x4c,0xb9,0x4e,0x1b,0
xed,0x56,0xb7,0x62,0x3a,0x63,0xa4,0xdd,0xd3,0x4a,0xe8,0x8a,0xc
1,0x95,0x52,0x45,0xa9,0x2d,0x16,0x47,0xcb,0x94,0xb4,0xa6,0x65,
0x2a,0x8b,0x92,0xdb,0x9a,0x5a,0x25,0xd2,0x2a,0x6c,0xab,0x6b,0x
93,0x32,0x6f,0xab,0xa3,0xce,0xd5,0x32,0x2d,0xeb,0xb4,0x3a,0x55
,0xcb,0x32,0x7f,0x54,0xea,0xd8,0xac,0x5a,0xed,0x76,0xaa,0x63,0
xb7,0x18,0x93,0xcb,0xa1,0x8e,0x43,0x7d,0x54,0xae,0x84,0x3a,0x0
e,0x8e,0x15,0x99,0x93,0xea,0x58,0x38,0x43,0xbd,0x32,0xab,0x6d,
0xe2,0x0c,0xd7,0x21,0xa4,0x8a,0x5a,0xc2,0xc3,0x62,0x95,0xac,0x
24,0x71,0xf7,0xa8,0x55,0x8a,0xe4,0xb9,0xdd,0xcb,0x48,0x2b,0x72
,0xb0,0x68,0xcb,0x30,0x23,0xcf,0x49,0xa3,0x3c,0x43,0xb7,0x34,0
x17,0xad,0xb4,0x32,0xd3,0xd2,0xd2,0xa4,0xdd,0xdb,0x6c,0x4b,0x7
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0x16,0x1b,0x8b,0xb0,0x9a,0xca,0x50,0xbc,0x2c,0xdd,0x6a,0xa8,0x
93,0xd7,0x96,0xb2,0xb0,0xae,0x2d,0x51,0x92,0xd3,0x2b,0x87,0x3e
,0x17,0x0e,0x6d,0x19,0xeb,0x86,0x34,0xb1,0x35,0xb4,0xaa,0x19,0
xe2,0x80,0xd1,0xf4,0xaa,0x66,0x88,0x1d,0x46,0x23,0xa3,0xba,0x2
1,0x35,0x1c,0x89,0x8e,0x1a,0x86,0x92,0xa1,0x3c,0xb2,0x6c,0x18,
0xb3,0x61,0xad,0xb1,0xd8,0x61,0x2c,0x86,0xa4,0x26,0xa2,0x84,0x
a9,0x28,0xd2,0x9a,0x8c,0x1d,0xa6,0x66,0x88,0x63,0x2a,0x4e,0x98
,0xba,0x61,0xf2,0x99,0xd0,0xee,0x1f,0x0a,0xc5,0x2b,0xad,0x88,0
x7f,0x6a,0x50,0x6f,0xb5,0x03,0x00,0x00,0x00,0x00,0x00,0x00,0x0
0,0x00,0x00,0x00,0x00,0xee,0xad,0x49,0x32,0x2b,0xa3,0xb6,0xa2,
0x46,0x75,0xcf,0x2c,0xdd,0x8a,0xe2,0x34,0x33,0xd2,0x4c,0x2b,0x
8a,0x93,0xb2,0x0e,0x29,0xad,0x2c,0x5e,0xd2,0xab,0x24,0x97,0x32
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a,0x5b,0x5b,0x0b,0x75,0xa2,0x2a,0x18,0xe3,0x3c,0x4c,0x89,0xa8,
0x40,0x8e,0x75,0x37,0x39,0xa9,0xf4,0x5a,0x2b,0xad,0xe8,0xb4,0x
3c,0x59,0x2b,0xcf,0xa0,0xd2,0xb2,0x9c,0x24,0x3d,0x53,0xca,0x48
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0x2c,0xb6,0x76,0xb7,0x1c,0x53,0xf2,0xd0,0x2a,0x4d,0xb3,0x4a,0x
2a,0x43,0xef,0x10,0xcb,0xc9,0xae,0xb4,0x7d,0x9c,0xd5,0xeb,0xa8
,0x5a,0x95,0x4d,0x62,0xab,0x6d,0x1a,0x95,0x37,0xc8,0xad,0x74,0
x68,0x54,0x4a,0x37,0xcf,0x2a,0xa1,0x75,0xd6,0x2a,0xa3,0xc2,0xa
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0x69,0x5b,0x24,0xb1,0xaa,0x29,0xad,0xed,0x99,0xd9,0xc2,0xa7,0x
b4,0xa6,0x7a,0x55,0x77,0x9d,0xd3,0x9a,0xe2,0xdd,0xc3,0x65,0x76
,0xab,0x73,0xc8,0x28,0xa7,0x45,0xad,0x4e,0x39,0xb3,0x9c,0x96,0
x94,0x2a,0xf5,0x88,0x50,0x9d,0xe2,0xaa,0xf8,0xb0,0x8a,0xbc,0x9
1,0xa9,0xe2,0xa1,0x68,0xd2,0xc6,0xae,0xce,0x2e,0xc3,0xcd,0x2c,
0xbb,0x75,0xf8,0x8e,0x0c,0xb3,0xad,0x80,0xe5,0xba,0x14,0x30,0x
43,0x87,0x02,0x56,0xac,0x48,0xe7,0x70,0x61,0x61,0x96,0x34,0xc5
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xe9,0xcb,0x18,0x5b,0x2c,0x4a,0x65,0x08,0x93,0x2c,0xf6,0x28,0x9
4,0xbe,0x8e,0x52,0xe4,0xa4,0x50,0xfa,0xb0,0x41,0x16,0x97,0x5c,
0x69,0xd2,0x39,0x5b,0x4e,0x09,0x65,0xf0,0x93,0x42,0x35,0x25,0x
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,0x99,0x5c,0x9a,0x59,0x47,0x29,0x65,0x92,0x63,0x62,0x55,0xb6,0
x54,0x99,0x8d,0xa9,0xc7,0x98,0x54,0x47,0x55,0xe6,0x16,0x93,0x5
d,0x9b,0x65,0xa8,0xa9,0x57,0x71,0x6d,0xd2,0xec,0x69,0x56,0xba,
0x35,0xc5,0xa9,0x85,0xe4,0xe8,0xd1,0x14,0x6f,0x9e,0x56,0xa3,0x
46,0x53,0xbd,0x79,0x6a,0x97,0x2e,0x75,0x4e,0x12,0x19,0x2d,0x26
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4,0x35,0xb9,0x60,0x45,0xe8,0x50,0xd7,0xe6,0x0a,0x99,0xa5,0x47,
0x5c,0x57,0x2a,0x78,0x94,0xce,0x12,0x43,0x0a,0x50,0x5e,0x51,0x
29,0x8c,0xa3,0xa6,0x10,0x6a,0xb2,0x04,0xcc,0xd1,0x5e,0x86,0x99
,0x94,0x59,0xbd,0x53,0x1a,0xab,0x61,0xf1,0xea,0x44,0x69,0xcc,0
x86,0x2c,0x36,0x23,0xa7,0x31,0x5b,0xd6,0xb8,0x88,0x55,0xc6,0xe
6,0x58,0x64,0x72,0x4e,0x19,0xbb,0x67,0x91,0xca,0xc5,0x65,0x1c,
0x81,0x45,0x22,0xe6,0xa4,0xb1,0x7b,0x66,0xa9,0x9c,0x92,0xa6,0x
ae,0x59,0xac,0xb3,0x76,0x9a,0xba,0x66,0xf6,0x89,0xc8,0x61,0xee
,0x96,0xd8,0x27,0x42,0x9b,0xb9,0x19,0xe4,0x18,0xb7,0xa2,0xe6,0
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0x21,0x3a,0xc9,0xc3,0xa8,0x9e,0xf9,0xe8,0x06,0x8f,0x6c,0x3a,0x
51,0xcc,0x55,0x7a,0x74,0x68,0xad,0xd7,0x4c,0xaf,0x22,0xa9,0x2b
,0x06,0xb5,0x3b,0xca,0x86,0xae,0x1a,0xd4,0xea,0x2a,0x1c,0xba,0
xac,0x51,0xab,0xa3,0x4c,0xe9,0xb2,0x12,0xe9,0x72,0xdb,0xad,0xa
b,0x8e,0xa5,0x23,0xa2,0xb4,0xb6,0x04,0x89,0xd4,0x0a,0x9b,0xda,

```
0x54,0xa5,0x3c,0xd2,0x58,0x6a,0xe2,0xd0,0x72,0xf5,0xb2,0xa9,0x
49,0x5d,0xab,0x45,0xc7,0x86,0x26,0x0f,0xee,0x61,0x1b,0x1a,0x9a
,0x34,0xa4,0x8b,0x6d,0x68,0x68,0xd2,0xe0,0x4e,0xf6,0xa1,0xa9,0
xc9,0x8d,0xda,0xd5,0xcb,0xa6,0x36,0x25,0x8e,0xf0,0x8c,0x5c,0xd
a,0xec,0x55,0xd2,0x33,0xb6,0x69,0x83,0x51,0xa9,0x28,0xcb,0xa9,
0x09,0x26,0xad,0xbc,0x8b,0xa4,0x36,0x3a,0xf7,0xb2,0x2a,0x13,0x
ba,0x10,0xb9,0x3c,0xa3,0x96,0xe9,0x7c,0xa6,0x8a,0xb4,0x46,0xa6
,0x33,0x49,0x2d,0x4a,0x5c,0xbb,0xce,0x14,0x33,0x2d,0x63,0x1b,0
x1a,0xdf,0xc4,0x22,0xcc,0x6d,0xa8,0xfc,0xa4,0x8c,0xb0,0xd4,0xa
5,0x0c,0x39,0x5d,0xc2,0x6a,0xb5,0x3c,0xa4,0x76,0x35,0x9f,0x53,
0xb2,0x10,0x26,0x54,0xfd,0x61,0xc9,0x82,0xdb,0x54,0xd5,0x87,0x
29,0xf7,0x71,0x43,0xc4,0x6f,0x86,0xc2,0x87,0x75,0x72,0x9f,0xa8
,0x1a,0x95,0xdb,0xc4,0x7c,0x32,0x19,0x69,0x2a,0x13,0xf5,0x38,0
xa9,0x0b,0xa1,0xd2,0x45,0xa7,0xa4,0x3e,0x94,0x56,0x77,0x1f,0x1
3,0xc6,0xd0,0x4b,0xc3,0xb3,0x4c,0x1a,0x63,0x1d,0x09,0x8f,0x32,
0x65,0x4a,0xa9,0x23,0x38,0xcb,0xa6,0x39,0xa5,0xf6,0x10,0xaf,0x
92,0xe6,0xd4,0x32,0x4c,0xdb,0x4a,0x59,0x52,0xce,0x48,0xe9,0xb0
,0x69,0xc9,0xd9,0xcb,0x74,0xa4,0xb9,0x25,0x45,0x2d,0xf3,0x14,0
xa3,0xd6,0x62,0xc3,0x5d,0xdd,0x34,0x59,0xba,0x74,0xcf,0x08,0x4
b,0x08,0x58,0xa9,0xc3,0x30,0xc3,0x65,0x84,0x7b,0x1c,0x0,0x0,0x
0,0xf0,0xff,0xff};

void setup() {
}
void loop() {

     voice.say(spROBOTS);
}
```

New Talko firmware : VCO mode can play semi-tones

The [rev 2 of Talko's firmware](#) can now play notes over 2 octaves.

It may seem obvious to have a 1V/octave CV to note in a VCO mode but this was quite challenging to achieve. (I may explain the process in another post as it could be also applied for another of my speech synths)

Connections

Quite easy: just feed a pitch signal into the Pitch entry. Tune the synth up and down with the Bend pot and trigger the note with the Gate.
Set it to Bank 16 and play with the Sound pot to choose among the 26 vowels sounds.

(*) Please note that the Microbrute’s gate out can’t trigger Talko directly (it’s a Microbrute know impedance issue): use a gate buffer in between.

Sounds

The VCO sound very much like an organ and it’s quite fun to pass the audio through a guitar pedal like the Zoom 505:

#Talko new firmware : the VCO mode can now play semi-tones ! #arturia keyboard driving #talko pitch cv in . I apologize for my poor keyboard skill (^_^)

Une publication partagée par Jean-Luc Deladrière (@polaxis) le 24 Févr. 2017 à 14h04 PST

The Microbrute can also send notes via its sequencer: this allows instant fun for the poor keyboard player like me!

#talko in VCO mode with the #arturia #microbrute as sequencer

Une publication partagée par Jean-Luc Deladrière (@polaxis) le 24 Févr. 2017 à 13h26 PST

Firmware

The code is available here: Talko 1.2 rev2
Right click to save it as a .hex file and use Easy uploader to install it into Talko.

User Manual

The manual has been updated to reflect this revision : https://www.polaxis.be/wp-content/uploads/2016/05/Talko-Manual-1_2.pdf

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3 new sounds banks for Talko

Talko’s code has been updated with 3 new sounds banks :

Bank 15 : French Vowels Male (5)

View this post on Instagram

Bank 16 : English voiced allophones (72)

Bank 17 : VCO friendly voiced allophones (25)

This bank is a selection of allophones from bank 16 that produces nice looping sounds in VCO mode (great for mouth drumming for example)

The new code is available here
and can be uploaded with Easy uploader as described on the downloads page.

The updated manual is to be found here.

Have fun !

Talko 1.2 now available

Talko 1.2 are now in stock, both as kits and as assembled modules.

What's new in version 1.2

- Rotary encoder for smoother Bank change
- Encoder's button can be pressed to simulate the gate signal going HIGH and make the module speak.
- Mode selection via a 3 positions switch : Speech – Repeat – VCO
- Growling mode in VCO (turn the Bend pot fully CCW)

My first patches

Beyond having it to speak and bending it in (the obvious) Speech mode, I would recommend testing the Repeat mode by feeding some rhythmic pattern into the Gate entry and particularly playing with the Gate length.

Another fun one is to set it to Bank 0, VCO mode, turn the Bend pot fully CCW for growling mode and then play with the Sound, Pitch and Speed pots.

Try also to press the rotary button while the Sound entry is being sequenced in VCO mode to hold notes on and manually alter the sequence.
Do you have a nice patch to recommend ?
Thanks in advance for sharing

Talko 1.2 is coming soon

Talko is an open source Arduino based LPC speech synthesizer. It’s firmware can be updated via the onboard USB port, using the standard Arduino IDE.

In **Speech** mode, the speech starts with a gate signal and complete before waiting for a new gate signal. The speech has the priority.

In **Repeat** mode, the speech starts and stops with the gate signal going high or low. The gate has the priority and the speech repeats while the gate is high. This mode is very useful to create crazy rhythms.

In **VCO** mode, the LPC engine loops while the gate is high, producing steady notes.

The VCO mode can also produce sounds using white noise instead of tones, making strange throat like sounds.

The sound synthesis can be is driven via CV signals or knobs to choose sounds and alter pitch, speed & bending.

flyer1.2.pdf