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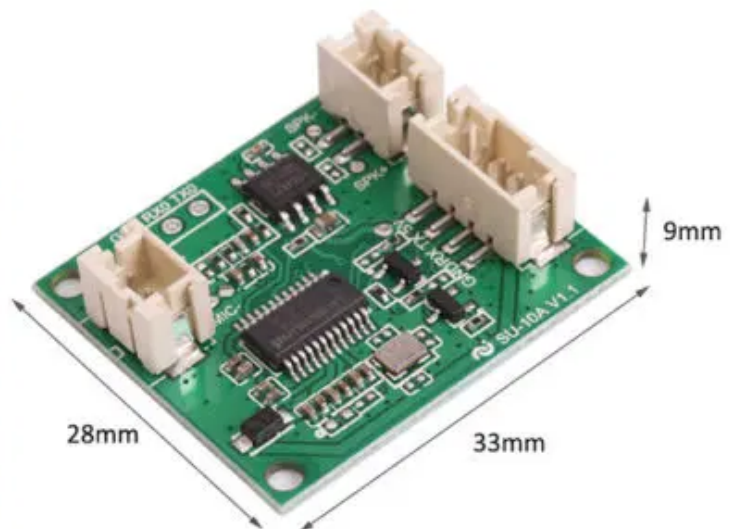
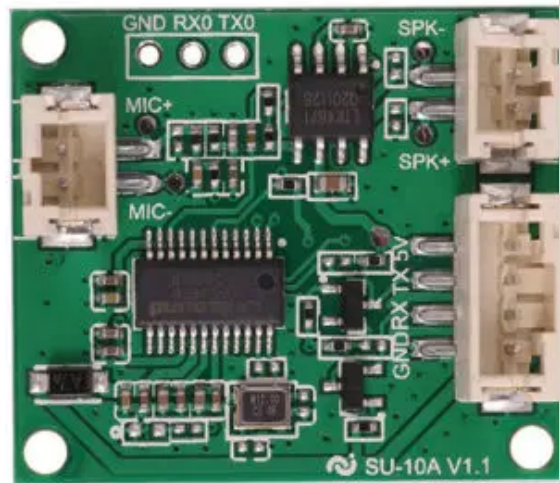
Reviews, tutorials and the latest news about embedded systems, IoT, open-source hardware, SBC's, microcontrollers, processors, and more

AUGUST 17, 2021 BY JEAN-LUC AUFRANC (CNXSOFT) - 8 COMMENTS

Offline speech recognition MCU module comes with speaker, microphone, and UART connectors

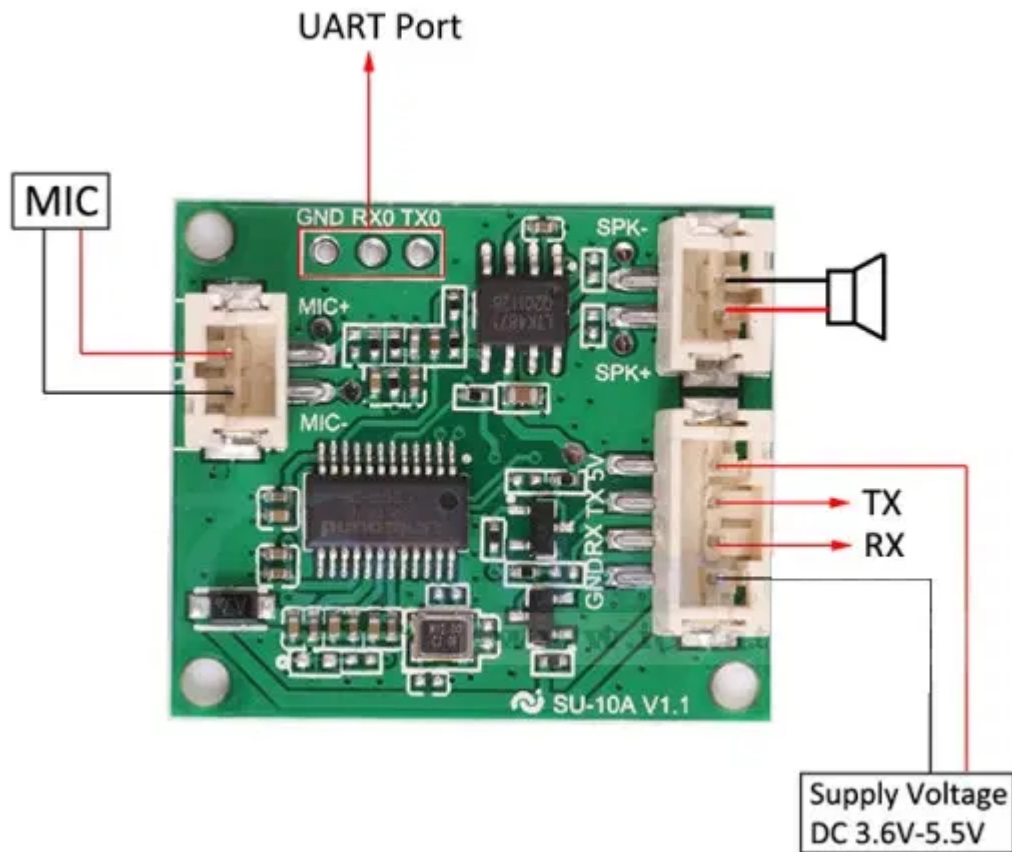
We found out about [Unisound US516P6 RISC microcontroller](#) inside an offline voice assistant module last May. The module offers offline speech recognition for just \$2 to \$4, with good performance, and excellent privacy since no cloud service nor Internet connection is needed.

That module requires some soldering, but if you'd prefer something easier to connect the "SU-10A" offline speech recognition MCU module comes with connectors for a speaker, a microphone, as well as UART connectivity to a host MCU if needed.

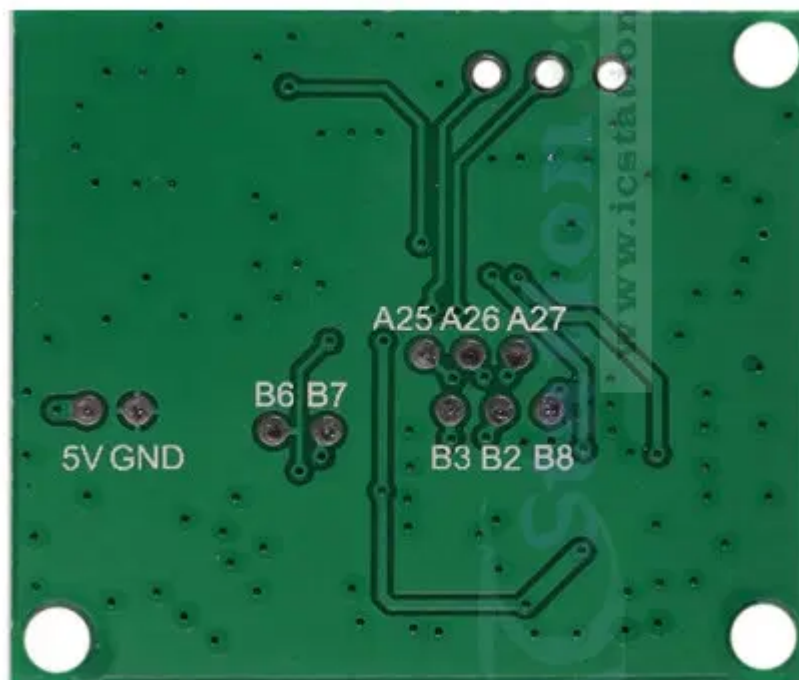


“SU-10A” module specifications:

- MCU – Unisound US516P6 RISC microcontroller @ 240 MHz with FPU, DSP instruction, FFT accelerator, 242KB SRAM, 2MB flash
- Audio
 - Built-in 3W mono Class AB power amplifier.
 - 2mm pitch connector for speaker (4 Ohms up to 2.9W, 8 Ohms up to 1.8W)
 - 2mm pitch connector for electret microphone
- Debugging/programming – UART port for serial console (5V or 3.3V supported)
- Host interface – 2mm pitch 4-pin connector for UART (Tx/Rx) to host MCU
- Power Supply – 3.6 to 5.5V / 200mA via 4-pin “Host Interface” connector
- Average power consumption – 60mA @ 5 V
- Dimensions – 33 x 28 x 9 mm
- Temperature Range – 20°C – 85°C
- Humidity – 5% – 95% RH



Sadly the module does not expose any of the GPIO from the Unisound microcontroller, at least not through headers or connectors, and eight GPIOs appear to be available under the board.



The module is suitable for smart appliances, toys, lights, and devices that require voice control without a network connection. I found the module ICStation where it is [sold for \\$5.03](#).

But as usual, ICStation is just awful when it comes to documentation and resources for their board, as there isn't just any. As we mentioned in our previous [article about US516P6 MCU](#), programming is done through Blockly visual programming IDE and should require a hardware programmer. I'll probably understand how it all works next month, as Wireless Tag/AI Thinker plans to send me a US516P6 module together with some ESP32-C3 boards. Here's a short demo in the meantime.

US516P6 offline voice module demo



Jean-Luc Aufranc (CNXSoft)

Jean-Luc started CNX Software in 2010 as a part-time endeavor, before quitting his job as a software engineering manager, and starting to write daily news, and reviews full time later in 2011.



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ARTIFICIAL INTELLIGENCE, AUDIO, MODULE, SMART SPEAKER

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8 COMMENTS



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dgp ⌚ 9 months ago

If they would release a firmware with common English words and a simple gpio + UART interface, instructions to flash it, and some rough documentation these would be awesome.

You could easily add cheapo Alexa functionality to Arduino and esp32 projects.

↪ Reply

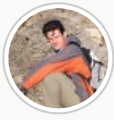


cygeus ⌚ 9 months ago

On Ali for about 5 USD

<https://fave.co/2XuIVFP>

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evadim ⌚ 9 months ago

Which languages are supported?

Only English?

↪ Reply



dgp ⌚ 9 months ago

| ↻ *evadim*

As far as I can tell they have a training system that takes speech samples and turns it into firmware. So I think you could train it for other languages. I've only seen Chinese and English firmwares so far though.

↪ Reply



jay ⌚ 9 months ago

| ↻ *dgp*

I want one for Japanese

↪ Reply



David Willmore ⌚ 9 months ago

"GPIOsOs" Mmmm, the breakfast of engineers!

↪ Reply



werw ⌚ 9 months ago

When mycroft will working, need only 4 button , screen and this device

↪ Reply



Citrullin ⌚ 8 months ago

Bought a couple of them. Worth the risk. Just a couple of bucks. Would like to have offline speech recognition.

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