Creating a simple S-Meter Sensor for uBITX

May 08, 2018

Creating a simple S-Meter Sensor for uBITX

Labels

There are various ways to attach S.Meter to uBITX. You can find things on the Internet that are far superior to what I have created.

1.Parts list

1N4148 * 1

LM386 * 1

Capacitor (1nF ~ 40nF) * 1

(Marked : 1nF : 102, 1.5nF : 152, 40nF:403)

I Used : 1.5nF (152)

Resistor (4.7k ~ 20k) * 1

I Used : 4.7K

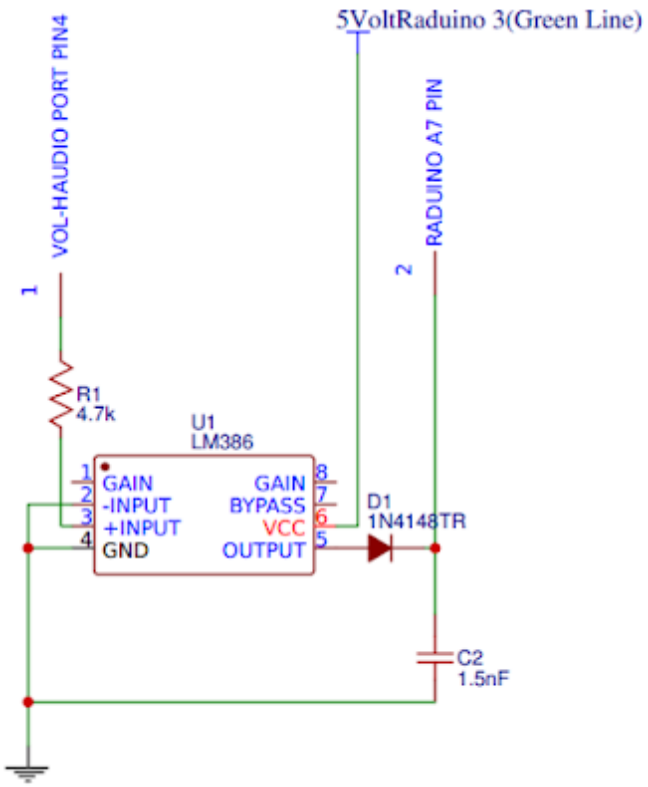
Capacitor 10uF * 1 : Option

(I did not use it to use minimum parts, but if you have an extra 10uF, please use it.)

Capacitor and Resistor have different display type of S.Meter depending on values.
The larger the capacity of the capacitor, the slower the S.Meter moves from High to Low. I used 1.5nF (152) because I need to move quickly for testing.

2.SChematic

It is the simplest model of the LM386.

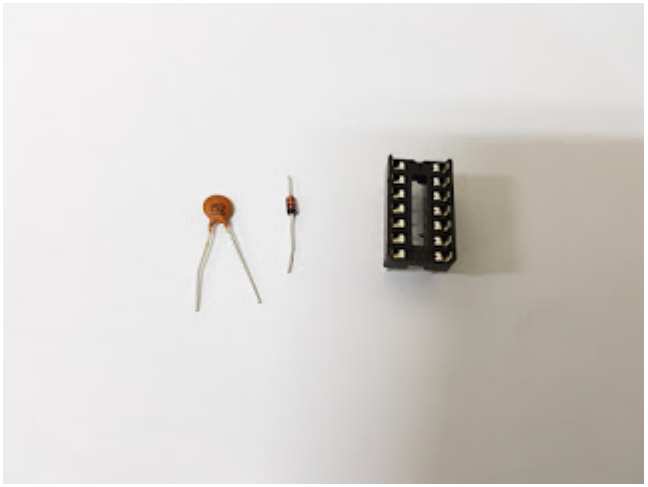


The reason for choosing the LM386 is because it is cheap and the operation is reliable.
You will be able to buy at an internet shopping mall for less than $ 0.2.

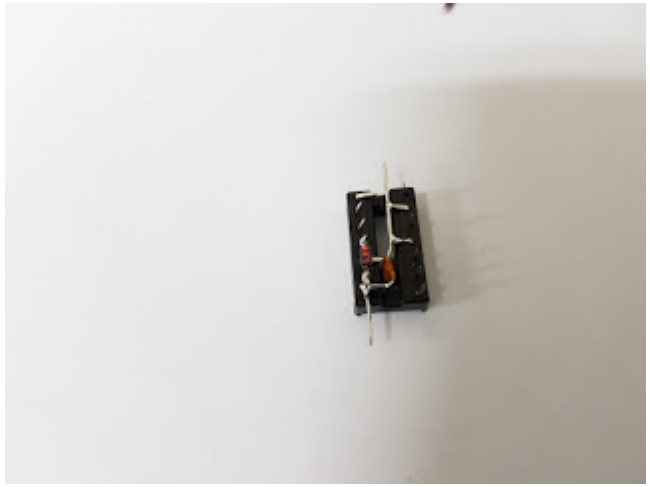
Maybe you can find some of them around

you. I was able to find some around after ordering the LM386 to Aliexpress.

I did not use a PCB because it was a simple circuit.
It is decided to attach directly to IC socket.

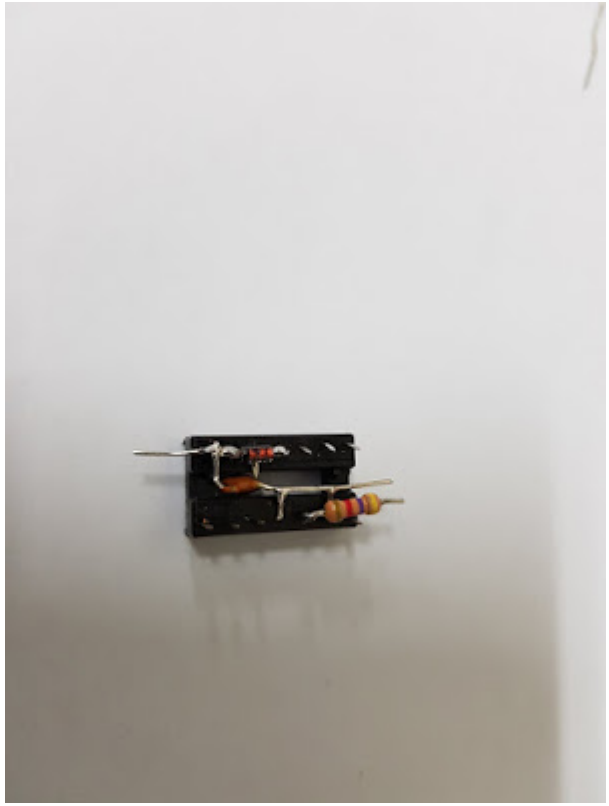


Minimal operation is possible by attaching only two parts like this.

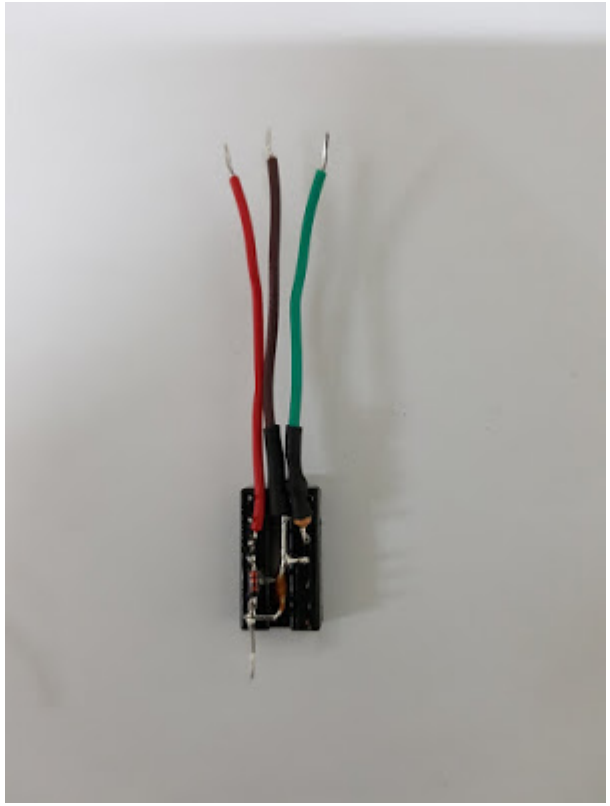


Finally, one resistor is added. S.Meter sensor make is over.

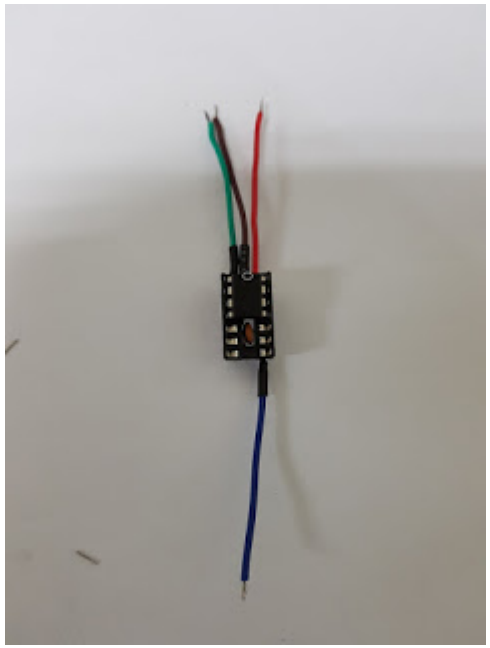
Is it too simple?



This is my final project. (bottom side)



I installed the LM386. (top side)



Now you can mount it in uBITX.

There are several places to connect GND to 5Volt.

Pin 3 (Green Line) is 5 volts at the Raduino connector.

Pin 4 (Yellow Line) is GND at the Raduino connector.

Pin 1 (Purple Line) is A7 at the Raduino

connector.

Pin 4 (Yellow Line) is VOL_HIGH at the Audio connector (on uBITX Main board)

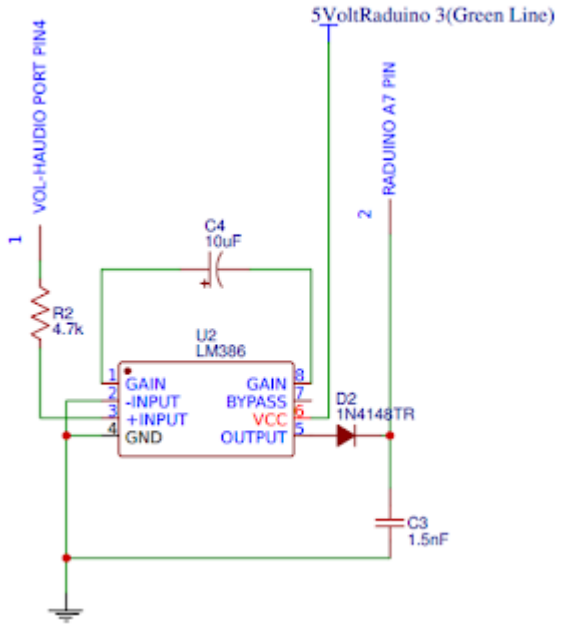
It is better to refer to below.
http://www.hfsignals.com/index.php/ubitx-wire-up/

After all connections are completed, set the following.
http://www.hamskey.com/2018/05/setting-smeter-to-ubitx-with-cec.html

3.Option

It is the simplest model of the LM386.

The following is recommended for the LM386 circuit with a 10uF capacitor added.



4.Conclusion

There are many ways to create S.Meter sensors. Posting here is just an example I used.

In uBITX, the voice signal is more than 0Volt, so the number of parts is reduced.
You can add your own parts to this circuit.
Note that the Arduino should have enough current to use the ADC.

LABEL: CIRCUIT, UBITX

Comments

Philip Lock · May 9, 2018 at 1:39 AM

Where can I download uBitx manager V1.05, and firmware V1.074

73 Philip G7JUR

Ian Lee · May 9, 2018 at 9:24 AM

I'm working on a deployment right now.

REPLY

Paolo · May 9, 2018 at 7:45 AM

Very good job Ian!
Thank you!

Paolo IW6BET

Ian Lee · May 9, 2018 at 9:30 AM

Paolo

Thank you for your attention.

Ian KD8CEC

REPLY

Philip Lock · May 9, 2018 at 7:59 AM

Hi Ian.
S-Meter now calibrated from S4 to S9+20 in 10dB steps.
Using my own AGC circuit, ADC values 0 at S4 thought to 98 at S9+10. S9 being 73dBM.
Great work, thank you.

73 Philip G7JUR.

Ian Lee · May 9, 2018 at 9:29 AM

Philip
Great!!!

Thank you for test.
I have not installed the AGC yet, but I am going to install the ND6T AGC.

Ian KD8CEC

REPLY

Unknown · May 11, 2018 at 5:57 AM

This comment has been removed by the author.

Bubsung Lee · May 11, 2018 at 6:25 AM

Hi~ KD8CEC

Very simple

Thank you

Keydalee DS2BXI 73..

REPLY

Howart · May 11, 2018 at 3:36 PM

This comment has been removed by the author.

REPLY

Gregory Keys · May 13, 2018 at 8:06 PM

My S Meter is done and working. Used an LM386 module from http://lctech-inc.com
Greg KG4GEK

Ian Lee · May 15, 2018 at 7:49 AM

Thanks for good information.
if using lm386 module, perhap we very simple added S-Meter to uBITX.
this is very easy way.

Ian KD8CEC

Gregory Keys · May 15, 2018 at 8:58 PM

Here is what I used. I ordered it on amazon, 5 pieces. Giving a couple to friends that are building.
https://www.facebook.com/photo.php?fbid=2097616616918698&set=gm.2115139528761905&type=3&theater&ifg=1

Gregory Keys · May 15, 2018 at 9:01 PM

https://www.amazon.com/5V-12V-Amplifier-Module-Arduino-EK1236/dp/B01FDD3FYQ/ref=sr_1_4?ie=UTF8&qid=1526443209&sr=8-4&keywords=lm386+audio+amplifier+module

REPLY

Alex · June 15, 2018 at 1:36 PM

Where do you guys get parts from for these little projects?

REPLY

Juddie Burgess · July 1, 2018 at 8:30 PM

Thank you so much for sharing these modifications. I saw you latest blog on making an S-Meter and you had mentioned using the LM386 and I was hoping you would share that information. Didn't know you had done one. I plan on making one here as soon as I get my enclosure completed. Again thanks for all the great things are doing with the uBitx!!

REPLY

Adrian Sofian · October 2, 2018 at 2:36 AM

i want to use arduino to measure the swr but in tx mode the bargraph gets locked please help

REPLY

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