Wiring Diagram with all PCBs for whole Tonuino with an ESP32 Web-Radio in parallel.

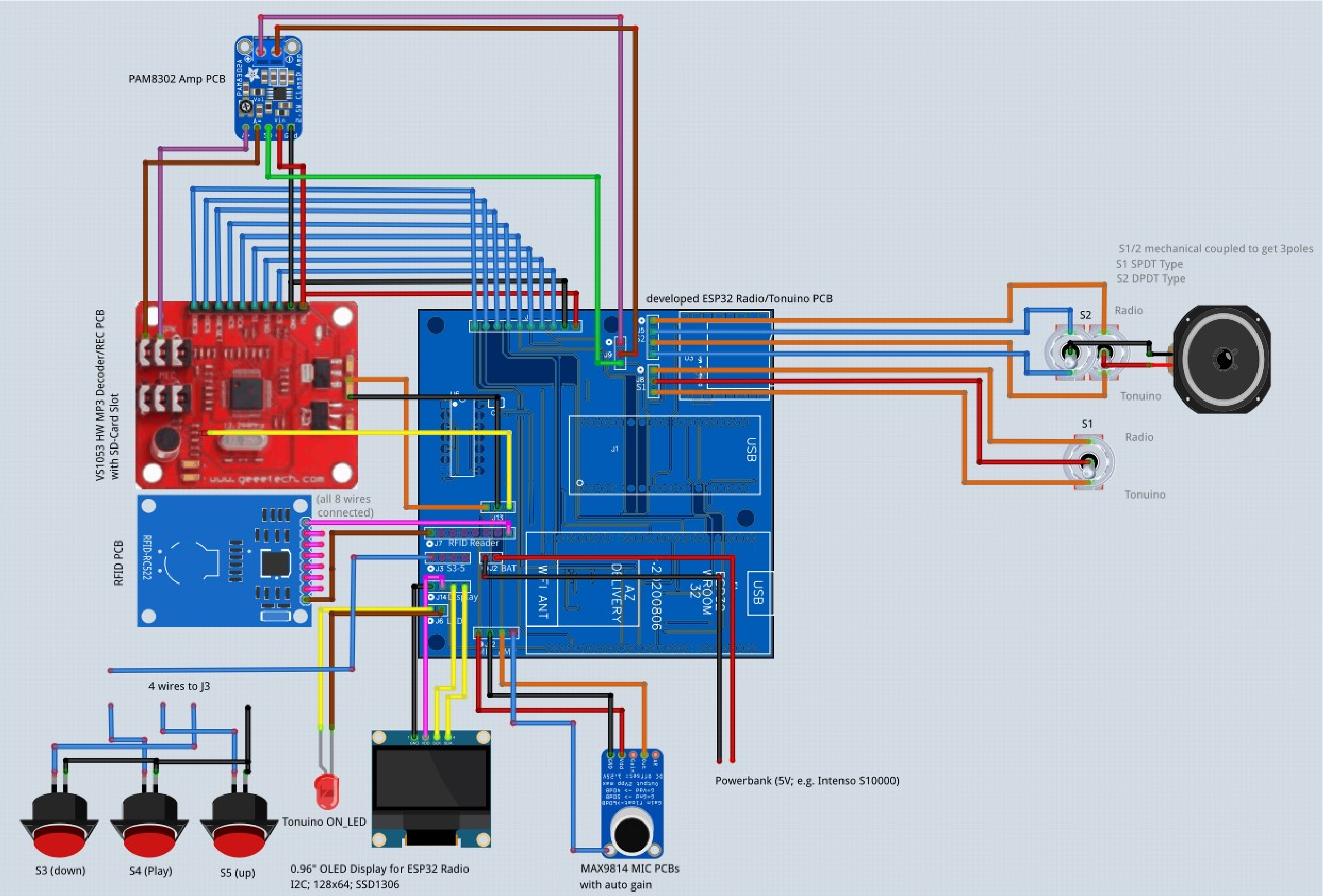


fig 1.1

TITLE:
overview

REV: 1.0

EasyEDA

Company: Your Company

Sheet: 1/7

Date: 2020-09-02

Drawn By: uwetaz

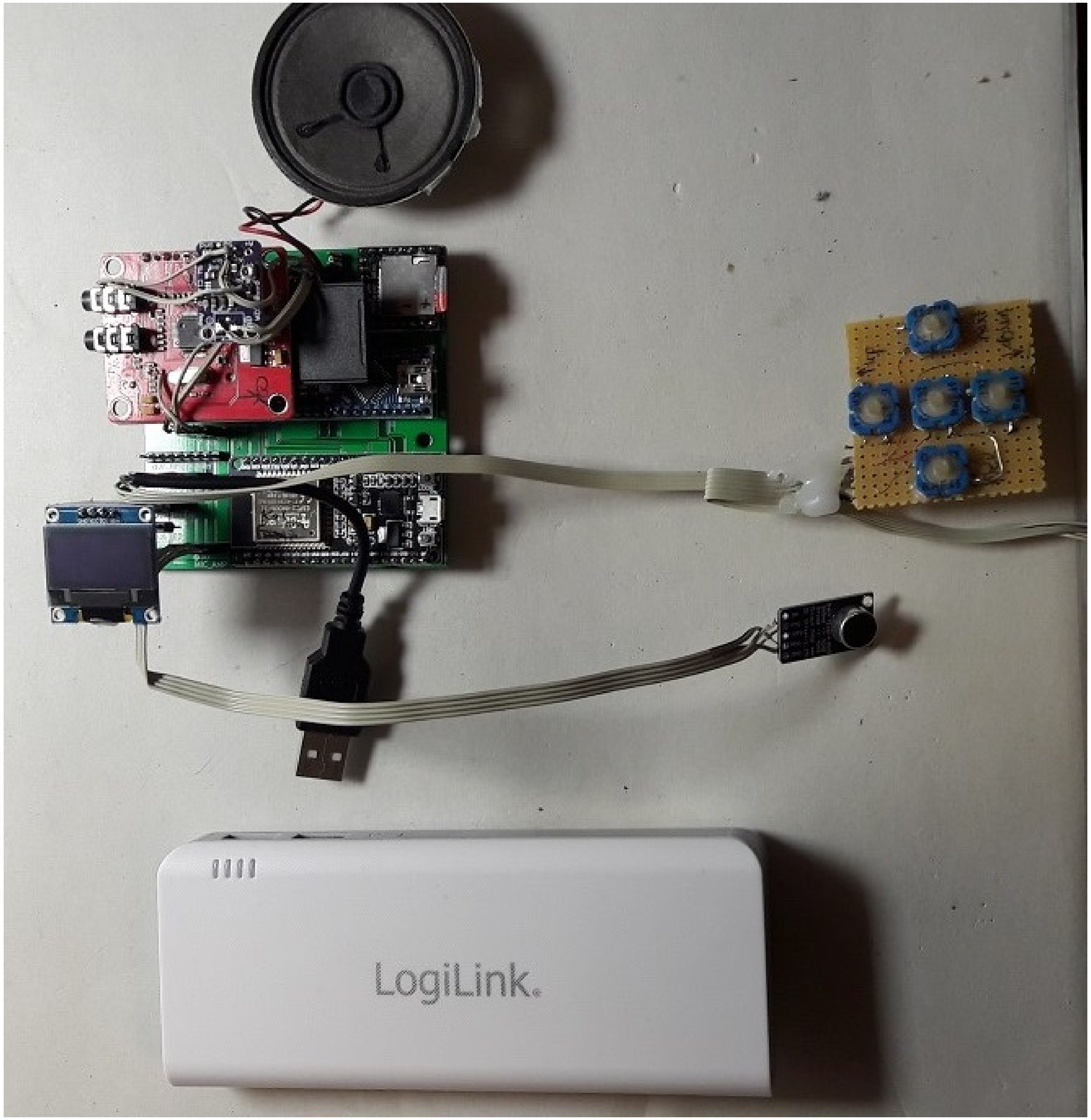
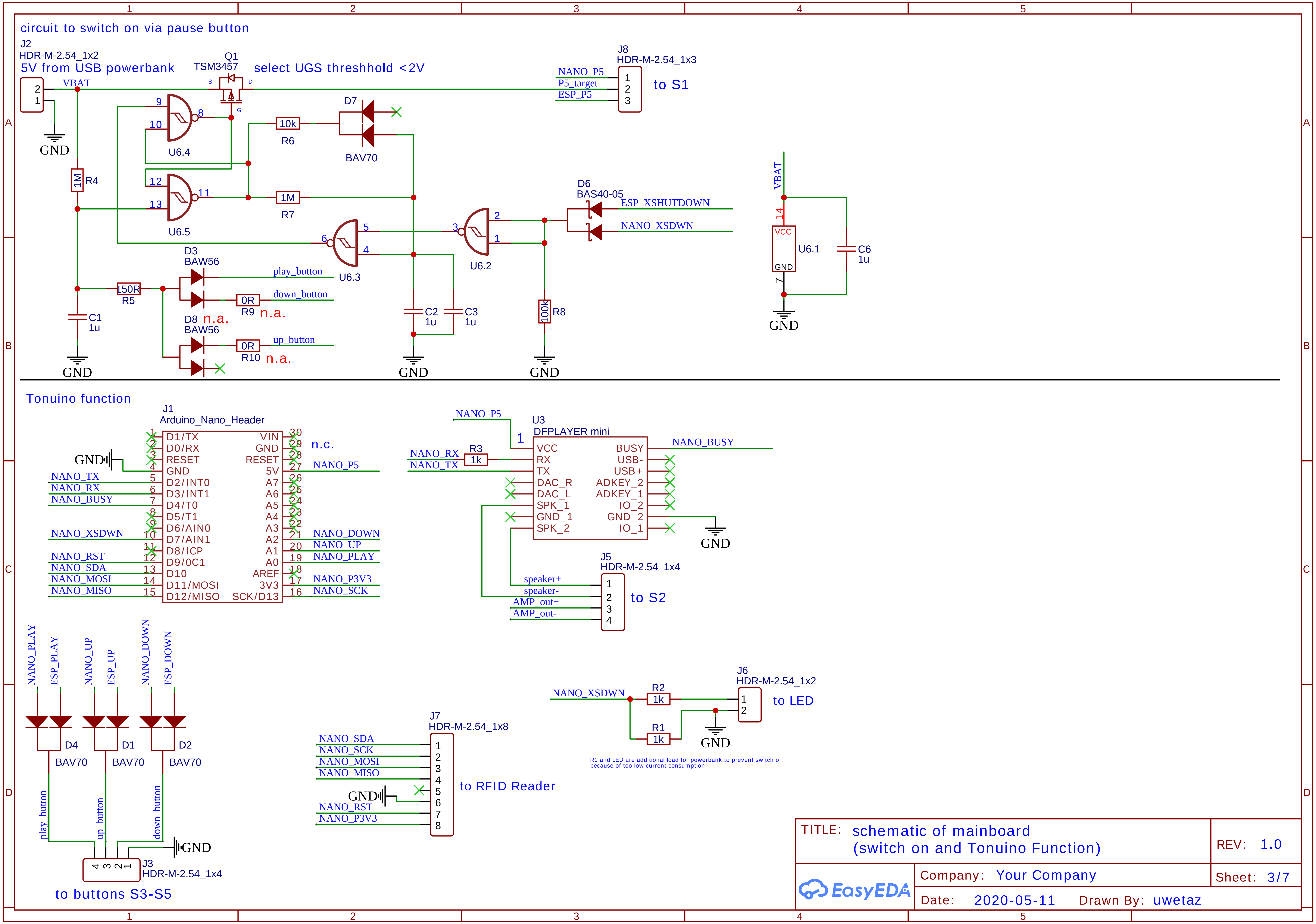


fig 2.1

The following 2 pages describe the mainboard (here green)
of ESP32 Radio/Tonuino PCB and mounting to complete system.
Btw. the button bread board here has only 3 buttons connected
and the RFID reader is not connected.
S1/S2 are done temporary with jumpers at mainboard here.

| | |
|---|---|
| TITLE: overview of assembled and connected PCBs | REV: 1.0 |
| Company: Your Company | Sheet: 2/7 |
| Date: 2021-01-15 Drawn By: uwetaz | |



TITLE: schematic of mainboard
(switch on and Tonuino Function)

REV: 1.0

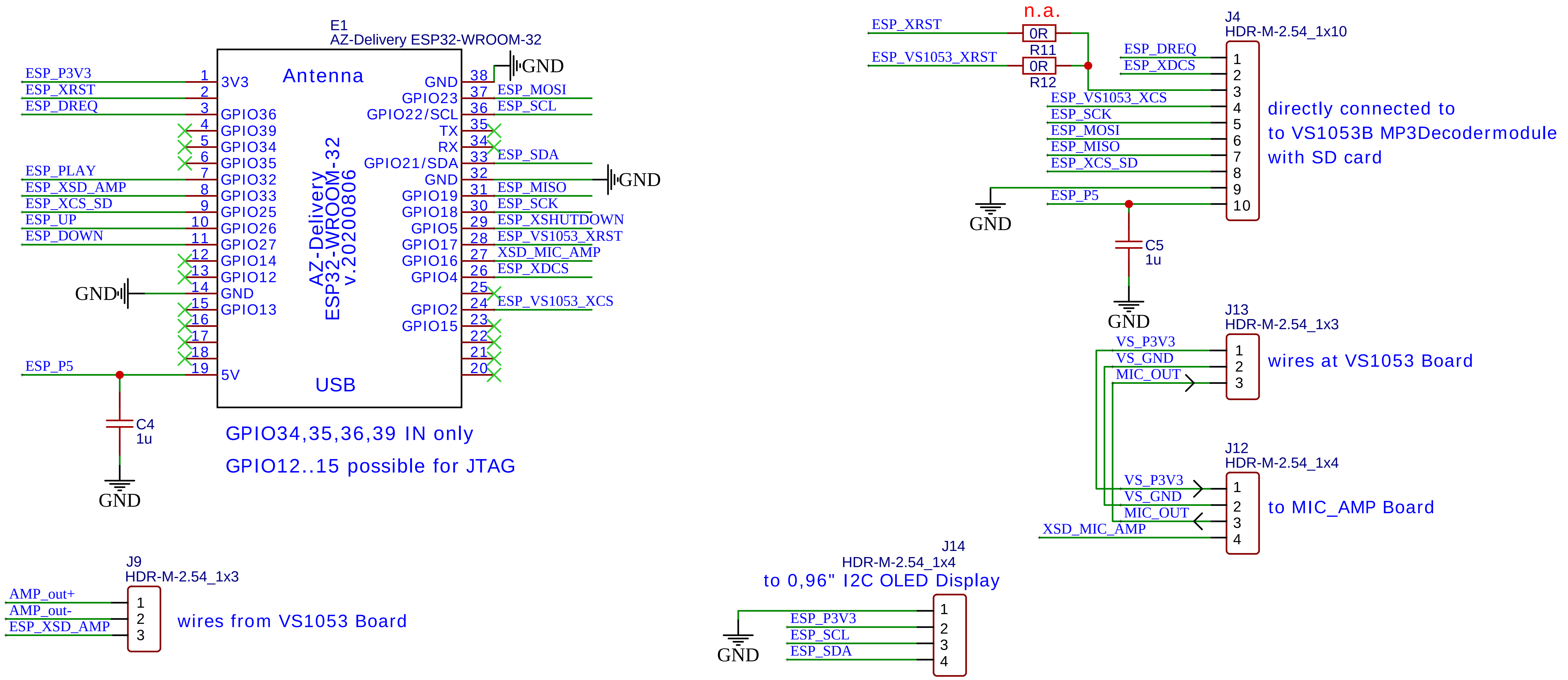
EasyEDA

Company: Your Company

Sheet: 3/7

Date: 2020-05-11

Drawn By: uwetaz



directly connected to
to VS1053B MP3Decodermodule
with SD card

wires at VS1053 Board

to MIC_AMP Board

GPIO34,35,36,39 IN only

GPIO12..15 possible for JTAG

wires from VS1053 Board

to 0,96" I2C OLED Display

the other four lines (GND, P5, IN+-)

to AMP Module are directly connected at VS1053 Board

TITLE: schematic of mainboard (Radio Function)

REV: 1.0

EasyEDA

Company: Your Company

Sheet: 4/7

Date: 2020-09-04

Drawn By: uwetaz

Modification on VS1053B PCB to connect Microphone Amp Board to line in (plus optional: desoldering MIC because of not used)

Desolder C14 at VS1053 PCB and solder one pad as on photo (cap is blue).

For better understanding regarding the capacitor refer also fig 7.2.

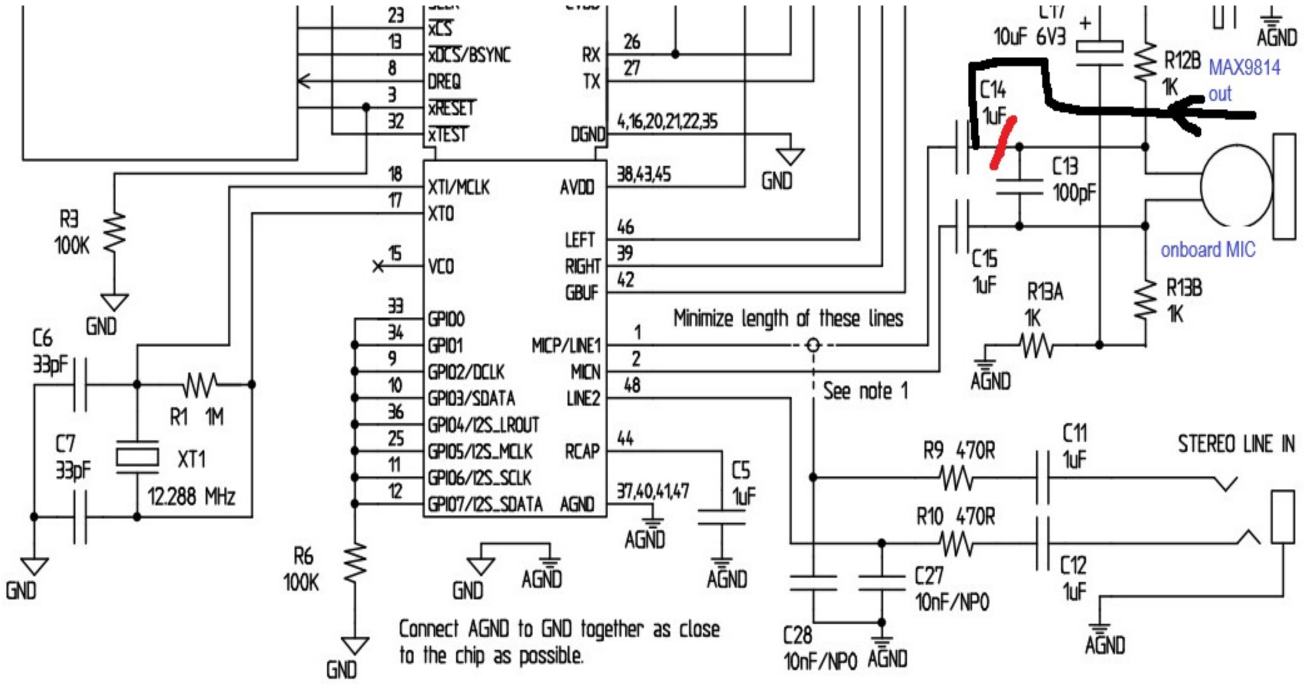


fig 5.1

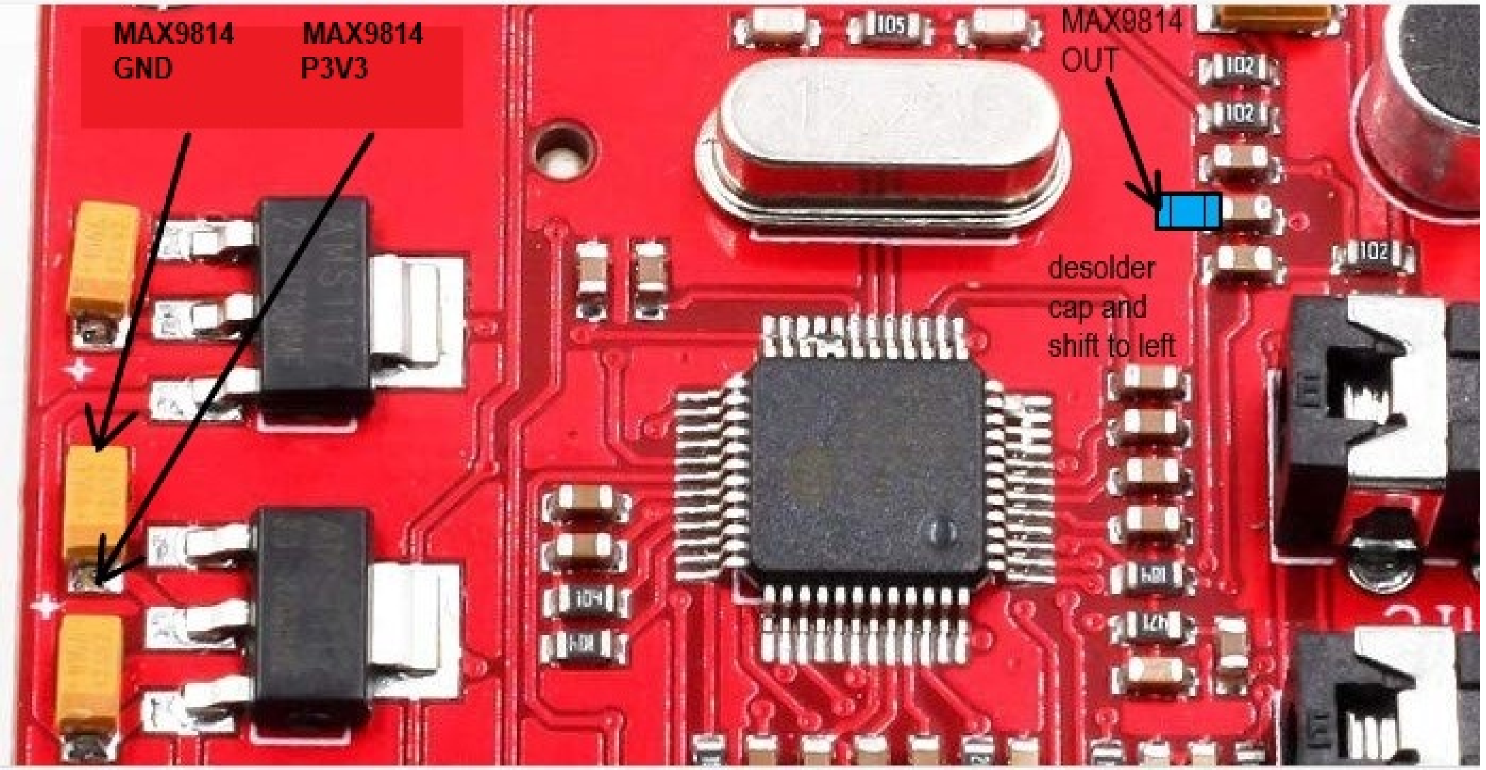


fig 5.2

optional Modifications on DFPlayer mini

The LED can be deactivated by desoldering the relevant resistor.

fig 5.3

optional Modification on DFPlayer mini to prevent noisy click at start

Link with the source of information:

http://work-now-dammit.blogspot.com/2016/08/dfplayer-mp3-module-power-onoff-clicks.html?m=1

It is only to solder a Resistor at the bottom side to another place.

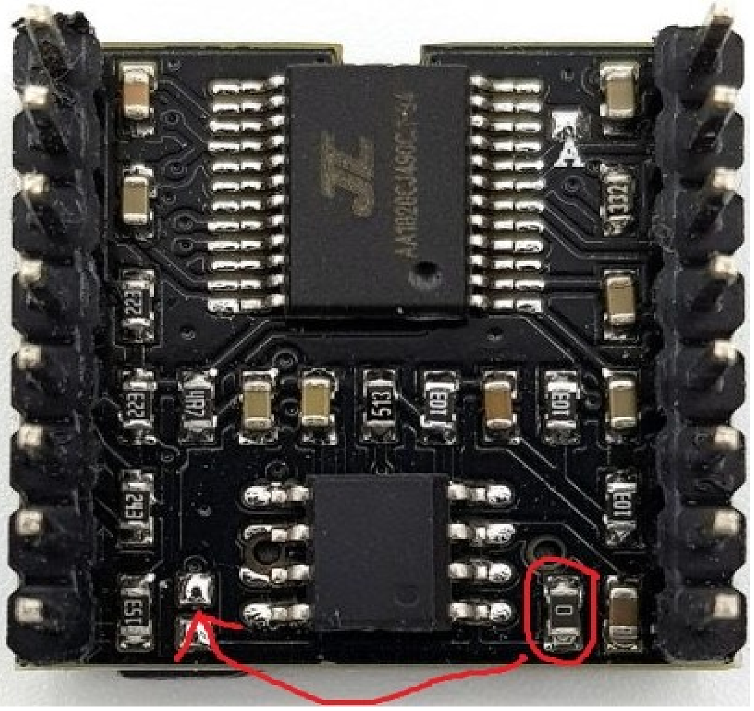


fig 5.4

TITLE: Modifikations 1/2
REV: 1.0
Company: Your Company
Sheet: 5/7
Date: 2020-08-31
Drawn By: uwetaz

Modifikations on PAM8302 Amplifier PCB:
1) Short the potentiometer to get symmetric input and eliminate noise by WLAN of ESP.
Or you connect A+ after the potentiometer as here.

2) desolder 10k Pullup at XSD Signal (here not done yet)

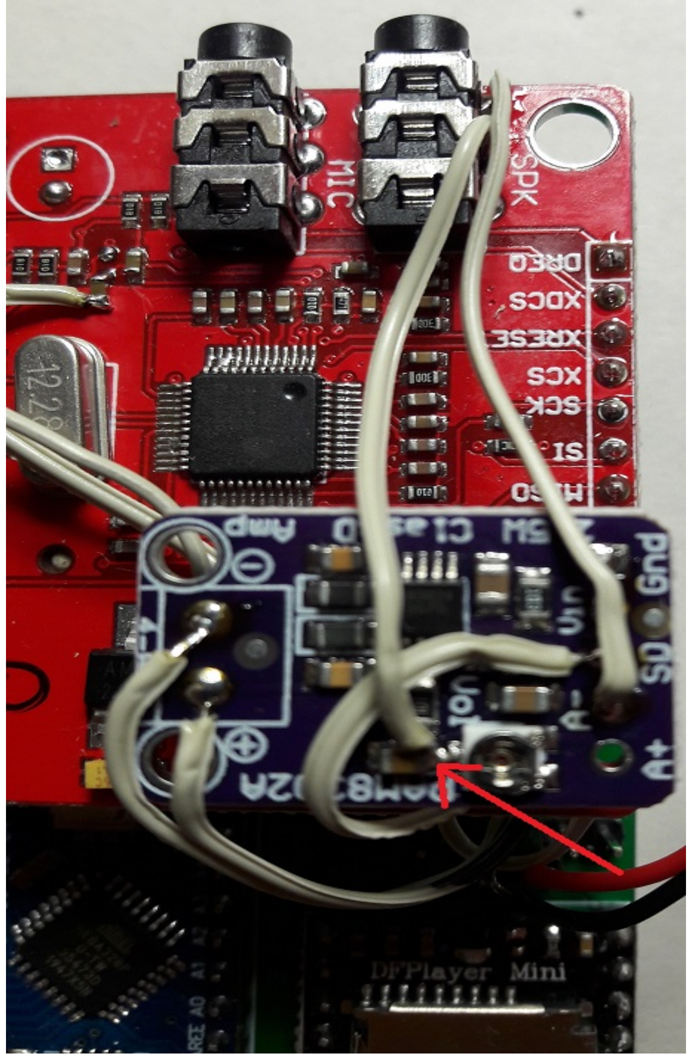


fig 6.1

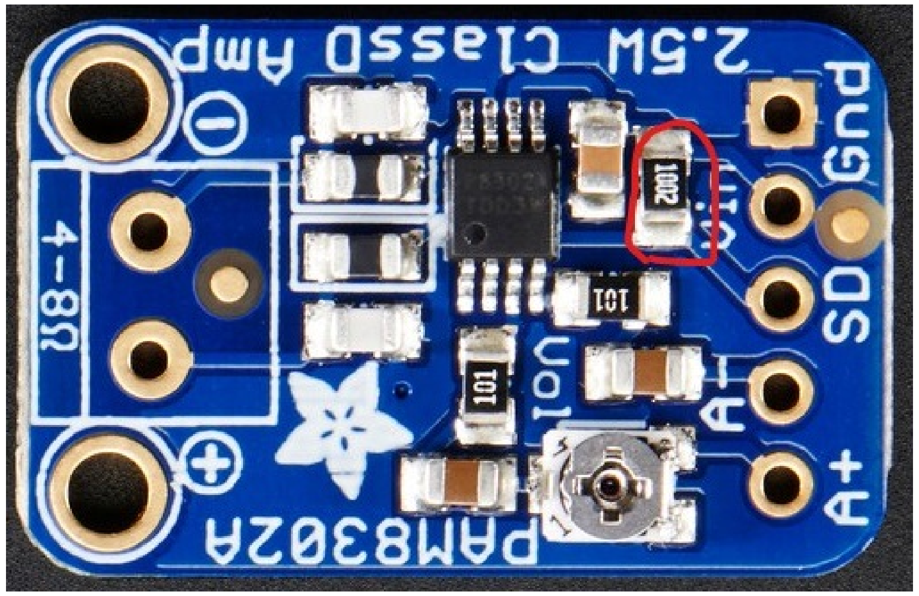


fig 6.2

optional Modification on MAX9814 Microphon Amp Board
for a shutdown function (to spare 3mA at 3.3V):

- cut Net on Pin 2 at PCB
- make a 47k Pullup to Pin2 and route to a good contact place
- this spares 3mA on 3,3V Side if not recording
- 1uF is connected at V+ and GND (at top side here)

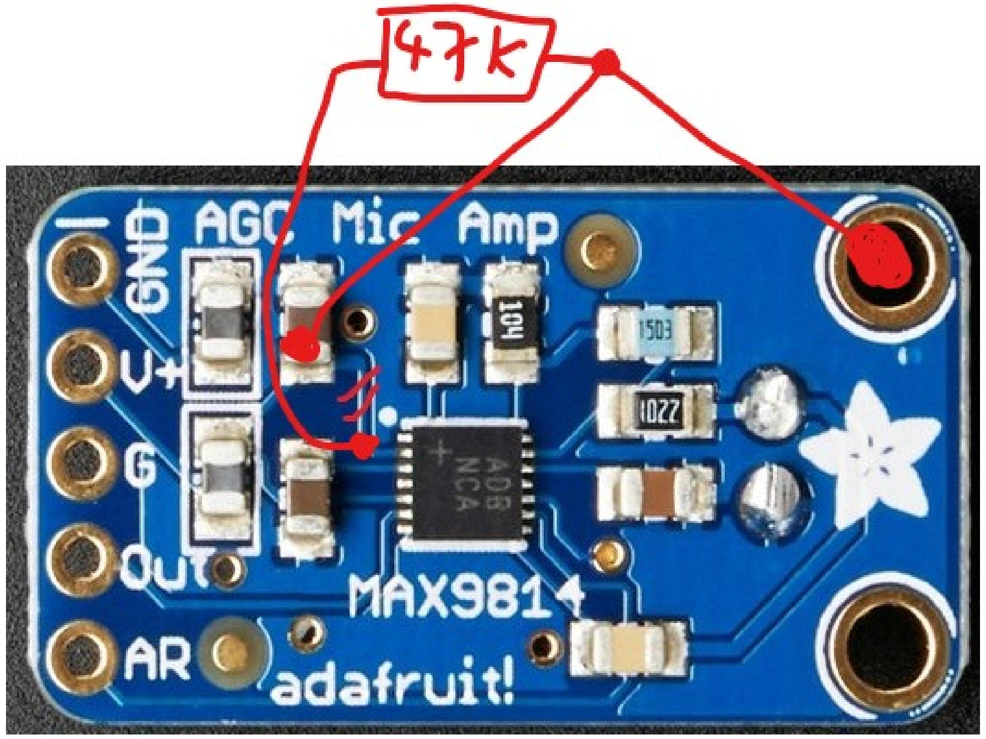


fig 6.3

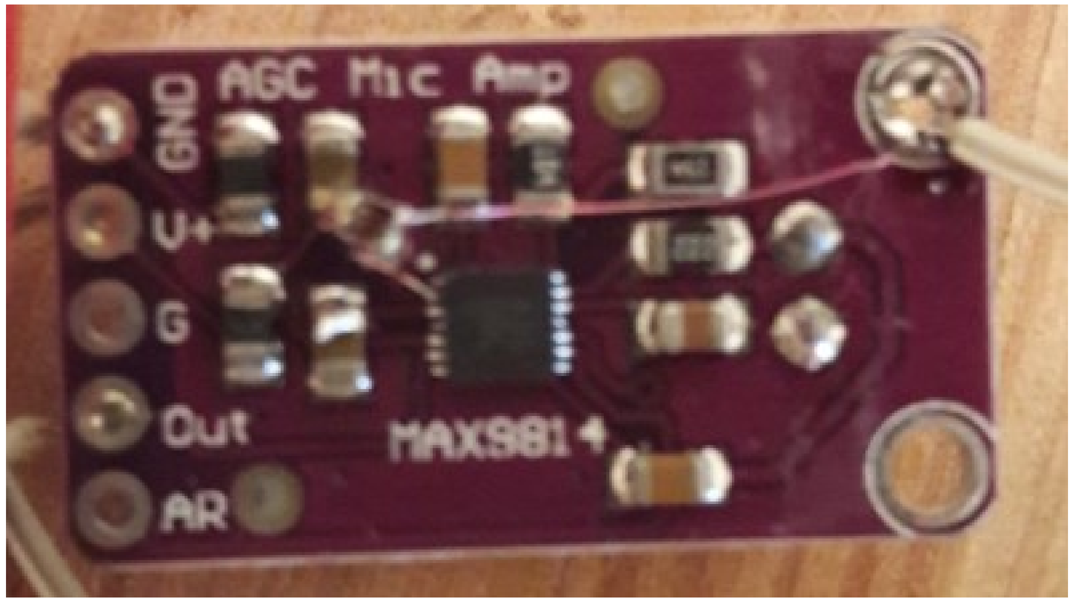


fig 6.4

TITLE: Modifikations 2/2
REV: 1.0
Company: Your Company
Sheet: 6/7
Date: 2020-09-02
Drawn By: uwetaz

1) It is helpfull to test VS1053 PCB and Display after flashing
the ESP32 board and temporary wiring as here shown.
You have only connect earphones to SPK output.

2) modify the bought PCBs (Nano, DF-Player, RFID Reader, ESP-Board, VS1053 PCB, PAM8302 PCB and MAX9814 PCB) according page 5/6
At Arduino Nano, RFID PCB and ESP32 Dev Board only the LED resistors can optional be desoldered to reduce current consuption (here not shown).

3) Assemble the PCB (SMDs first, then the rest)

4) Assemble Arduino Nano, DF-Player, ESP Board and all other THT stuff.

5) mounting and wiring of VS1053 PCB and then PAM8302 PCB

6) wiring/connecting the other peripherials acording page 2

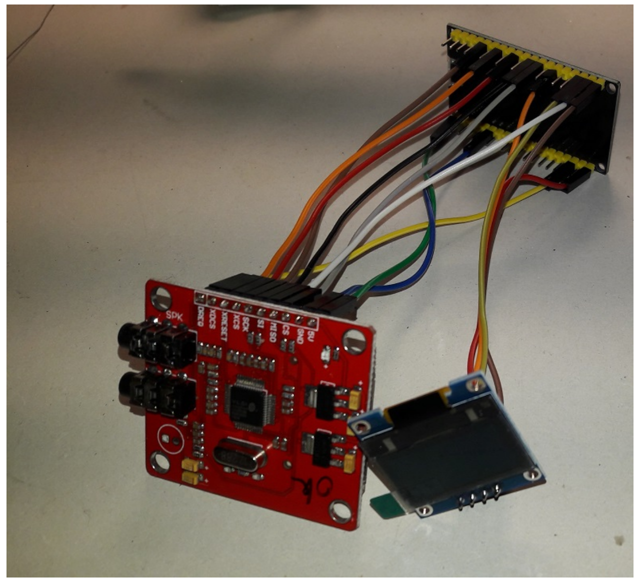


fig 7.1 temporary wiring of ESP32 Part

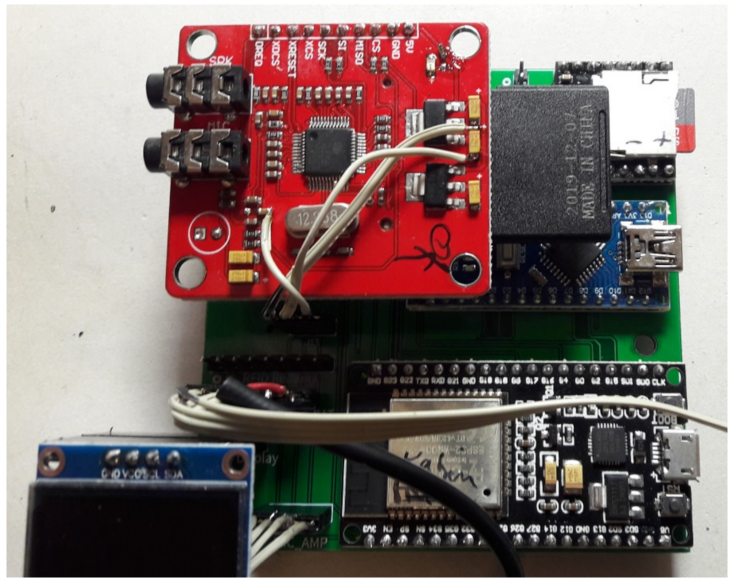


fig 7.2 wiring of VS1053 PCB to J13

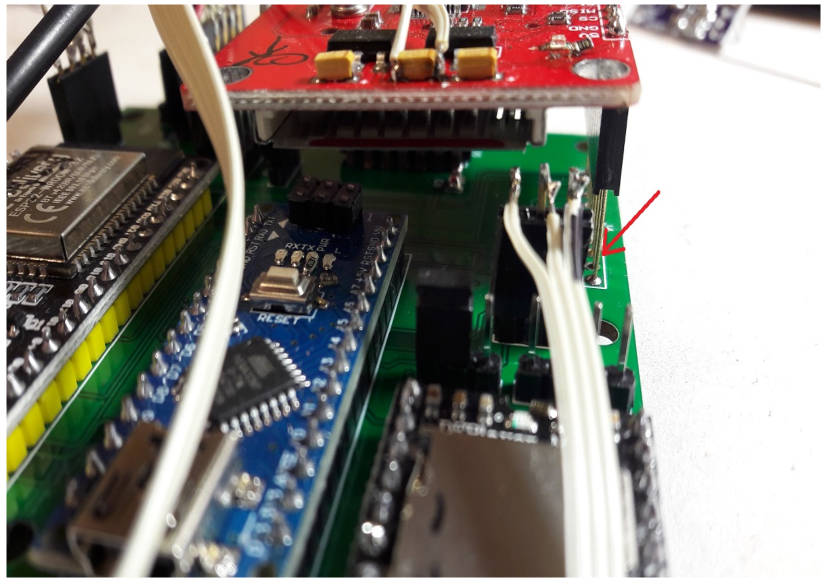


fig 7.3
using 2,54mil 10 pin female header J4 with long pins for right position of VS1053 PCB
if the SD card holder of VS1053 PCB colidate with the arduino Nano IPS header you can cut off them as here shown.

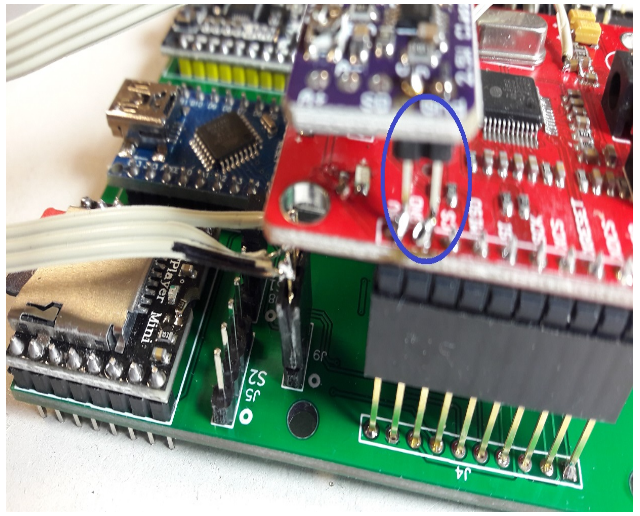


fig 7.4 mounting of PAM8302 PCB
with 2pin header at VS1053 PCB

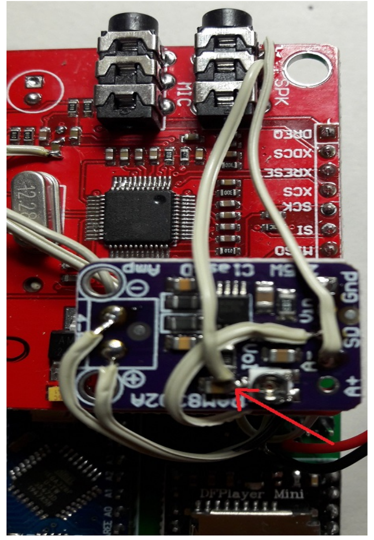


fig 7.5 wiring of PAM8302 to J9
and VS1053 audio out

TITLE: assembly hints
REV: 1.0
Company: Your Company
Sheet: 7/7
Date: 2021-01-15
Drawn By: uwetaz