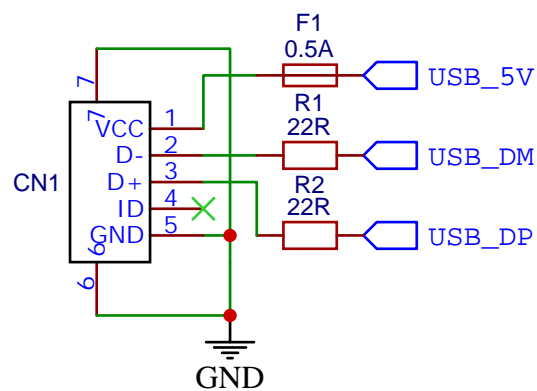


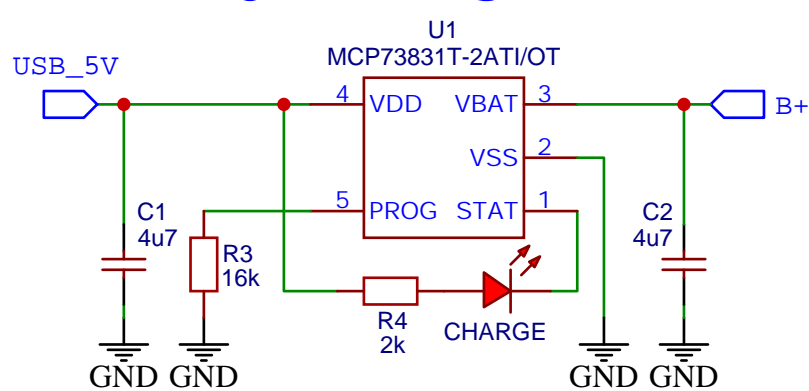
# USB

The diagram shows a USB connector (CN1) with pins 1 through 6. Pin 1 is VCC, pin 2 is D-, pin 3 is D+, pin 4 is ID, and pin 5 is GND. Pin 6 is also labeled GND. The ID pin (pin 4) is crossed out with a green X. The circuit includes a 5V regulator (F1, 0.5A) connected to the VCC pin (pin 1) and ground. Two 22R resistors (R1 and R2) are connected to the D- and D+ pins (pins 2 and 3) and ground. The output pins are labeled USB\_5V, USB\_DM, and USB\_DP. The ground is labeled GND.



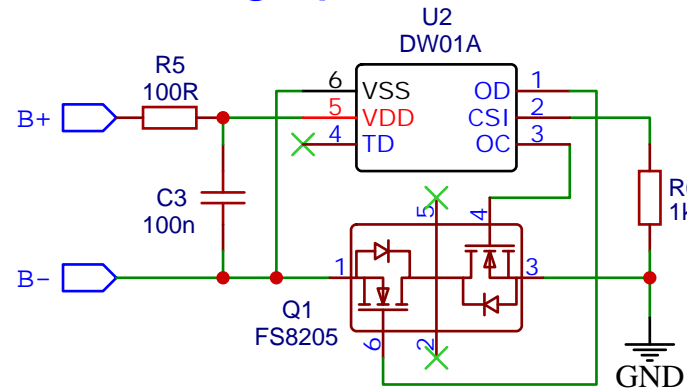
# Battery charger

The diagram illustrates a battery charger circuit. The central component is the MCP73831T-2AT/OT IC (U1). The circuit is powered by a USB\_5V source. The IC's VDD (pin 4) and VBAT (pin 3) pins are connected to the USB\_5V source. The VSS (pin 2) and STAT (pin 1) pins are connected to ground. The PROG (pin 5) pin is connected to ground through a 16k resistor (R3). The CHARGE pin (pin 6) is connected to ground through a 2k resistor (R4) and a diode. Two 4uF capacitors (C1 and C2) are connected to ground from the USB\_5V source and the VBAT pin, respectively.



# Battery protection

The diagram illustrates a battery protection circuit. It features a DW01A (U2) and an FS8205 (Q1). The DW01A is configured with VSS (pin 6) to GND, VDD (pin 5) to the positive battery terminal (B+), and TD (pin 4) to the positive terminal through a 100R resistor (R5). The OD (pin 1) and CSI (pin 2) pins are connected to the positive terminal, while the OC (pin 3) pin is connected to the negative terminal (B-). The FS8205 is connected with its 1 pin to the positive terminal, 2 pin to GND, 3 pin to the positive terminal, 4 pin to the positive terminal, 5 pin to the positive terminal, and 6 pin to GND. A 100nF capacitor (C3) is connected between the positive and negative terminals. A 1k resistor (R1) is connected between the positive terminal and GND. The circuit is powered by a battery (B+ and B-).



# 3.3V Power

B+

SW1 PWR

AP7333-33SRG-7

U3

OUT

VIN

GND

C4 1u

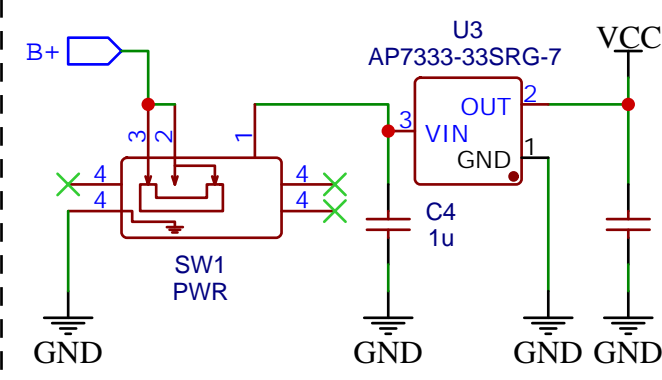
VCC

GND

GND

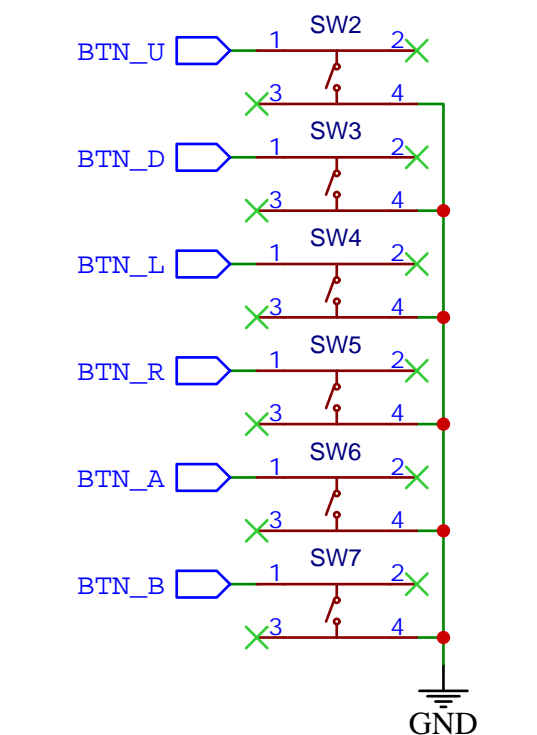
GND

GND



# Input

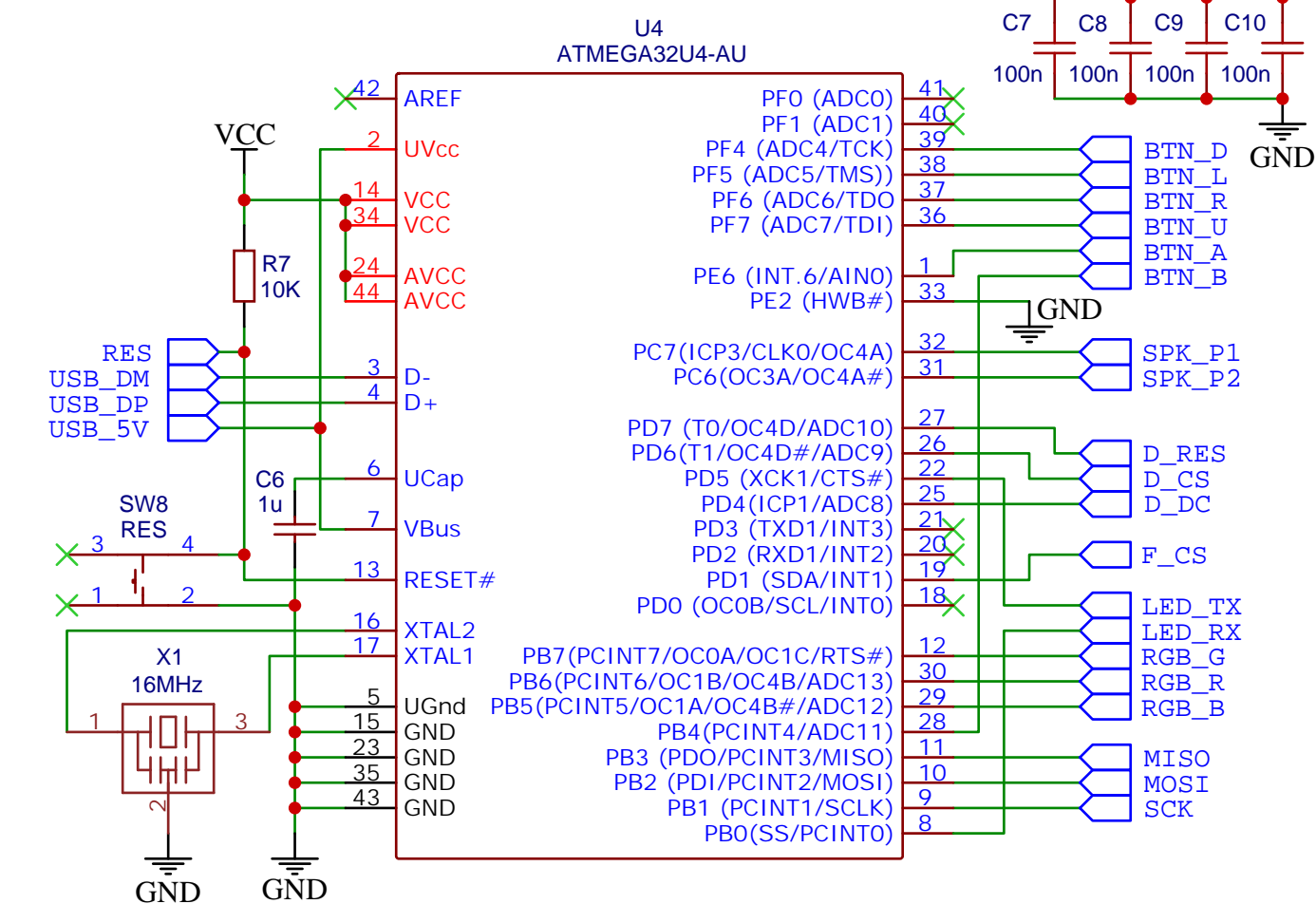
The diagram illustrates the input circuitry for a 68000 system. It features six push-buttons: BTN\_U, BTN\_D, BTN\_L, BTN\_R, BTN\_A, and BTN\_B. Each button is connected to a switch (SW2 through SW7). The switches are configured with terminals 1, 2, 3, and 4. Terminal 1 is connected to the button. Terminal 2 is connected to a common bus. Terminal 3 is connected to ground (GND). Terminal 4 is connected to the common bus. The common bus is connected to GND. The switches are labeled SW2, SW3, SW4, SW5, SW6, and SW7.



# Microcontroller

The diagram shows the ATMEGA32U4-AU microcontroller (U4) connected to various components. The microcontroller is a 40-pin device with pins 1-20 on the left and 21-40 on the right. The components and their connections are as follows:

- Power Supply:** VCC (pin 2) and AVCC (pin 44) are connected to a common VCC line. UVcc (pin 42) is connected to VCC. A 10K resistor (R7) is connected between VCC and AVCC. A 1uF capacitor (C6) is connected between VCC and GND. A 16MHz crystal (X1) is connected between pins 16 (XTAL2) and 17 (XTAL1), with its other ends to GND.
- Reset:** RESET# (pin 13) is connected to a common reset line.
- USB:** USB\_DM (pin 3), USB\_DP (pin 4), and USB\_5V (pin 5) are connected to a common USB line. A 10K resistor (RES) is connected between USB\_DM and USB\_DP.
- Buttons:** Buttons are connected to pins 39 (BTN\_D), 38 (BTN\_L), 37 (BTN\_R), 36 (BTN\_U), 1 (BTN\_A), and 33 (BTN\_B).
- Speaker:** SPK\_P1 (pin 32) and SPK\_P2 (pin 31) are connected to a common speaker line.
- LEDs:** LEDs are connected to pins 27 (LED\_TX), 26 (LED\_RX), 30 (RGB\_G), 29 (RGB\_R), and 28 (RGB\_B).
- Other Pins:** Pins 41, 40, 39, 38, 37, 36, 1, 33, 32, 31, 27, 26, 22, 25, 21, 20, 19, 18, 12, 30, 29, 28, 11, 10, 9, and 8 are connected to various other components or are left unconnected.



**Display**

**U5**  
UG-2864KSWLG01

**128 x 64**

**128 x 64**

VCC

GND

C11 1u

C12 1u

C13 2u2

D\_CS

D\_RES

D\_DC

SCK

MOSI

R8 390k

C14 4u7

C15 2u2

1 NC(GND)

2 C2P

3 C2N

4 C1P

5 C1N

6 VBAT

7 NC

8 VSS

9 VDD

10 BS0

11 BS1

12 BS2

13 CS#

14 RE#

15 D/C#

16 R/W#

17 E/RD#

18 D0

19 D1

20 D2

21 D3

22 D4

23 D5

24 D6

25 D7

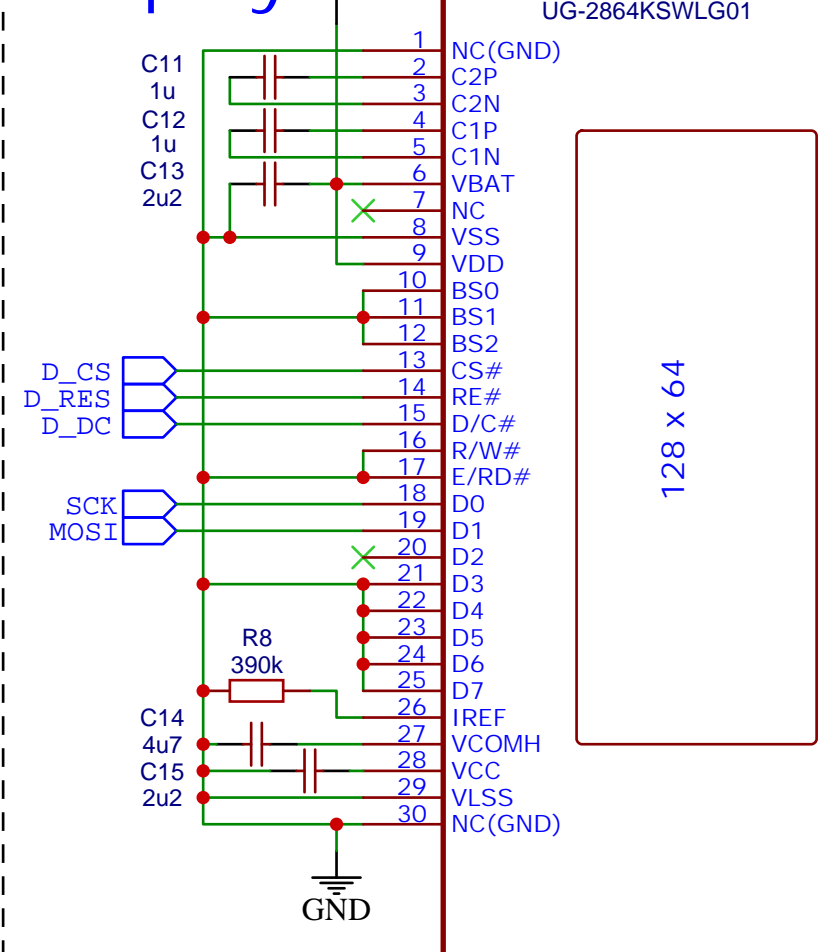
26 IREF

27 VCOMH

28 VCC

29 VLSS

30 NC(GND)



# LEDs

The diagram shows a circuit for driving LEDs. It features five input signals on the left: LED\_TX, LED\_RX, RGB\_B, RGB\_G, and RGB\_R. Each signal is connected to a resistor (R9, R10, R11, R12, R13) and then to an LED. The LEDs are labeled TX, RX, and RGB. The TX and RX LEDs are connected to a common ground (GND) on the right. The RGB LEDs are connected to a common ground (GND) on the right. The circuit is powered by a VCC supply on the right.

LED\_TX

LED\_RX

RGB\_B

RGB\_G

RGB\_R

R9 820R

R10 820R

R11 300R

R12 300R

R13 680R

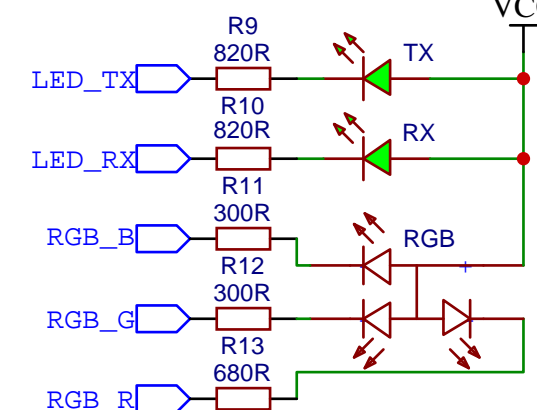
TX

RX

RGB

VCC

GND



# Sound

SPK\_P1

SPK\_P2

BUZZER

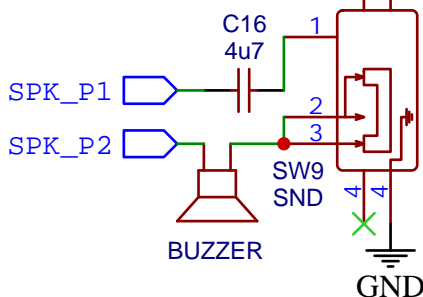
C16  
4u7

SW9  
SND

4 4

4 4

GND



# Flash

W25Q128JVSIQTR

VCC

U6

VCC

F\_CS

MISO

SCK

MOSI

CS#

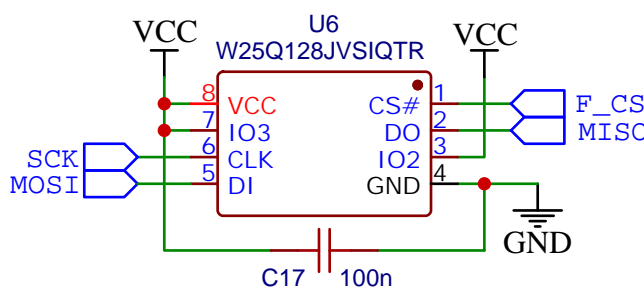
DO

IO2

GND

C17

100n



TITLE: Home Made Arduboy FX		REV: 1.0
	Company: Olexandrenko	Sheet: 1/1
	Date: 2023-02-13      Drawn By: Yevgeniy	