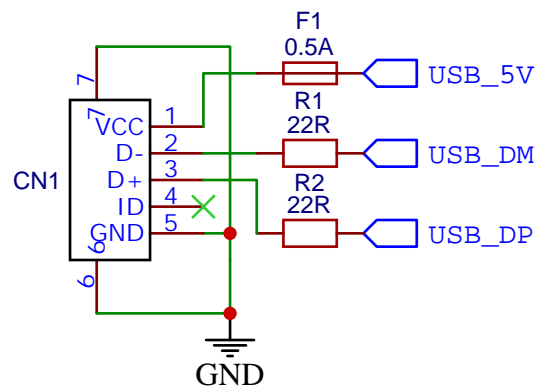
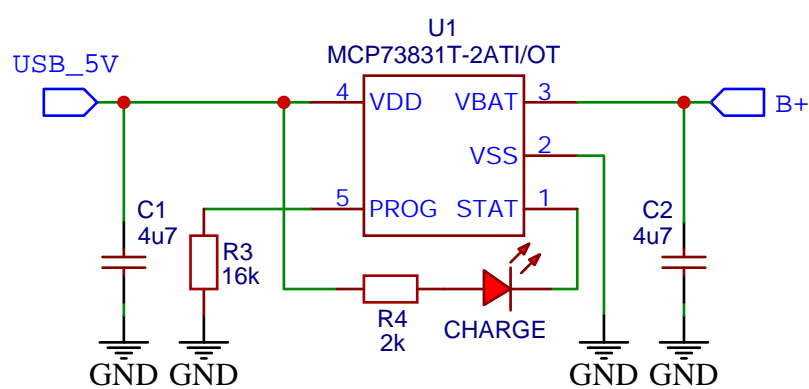


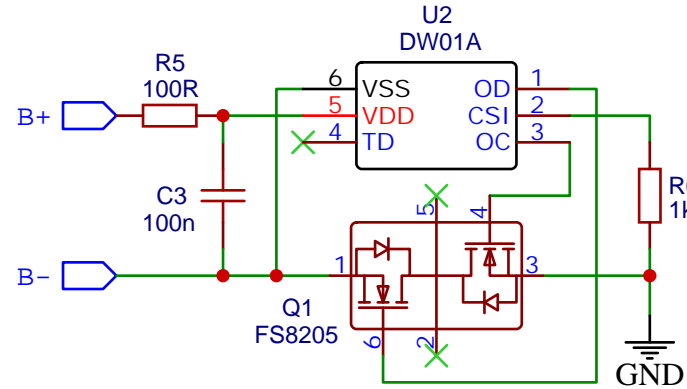
[illegible]

Battery charger

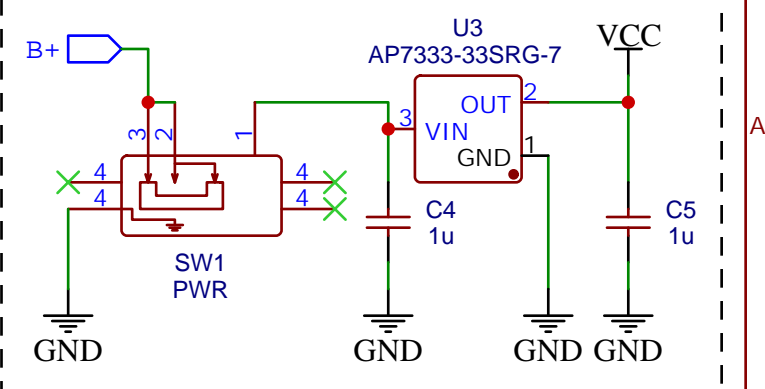
The diagram illustrates a battery charger circuit. A USB_5V source is connected to the VDD pin (pin 4) of the MCP73831T-2AT/OT IC. The VBAT pin (pin 3) is connected to the positive terminal of the battery being charged, labeled B+. The VSS pin (pin 2) is connected to ground. The PROG pin (pin 5) is connected to ground through a 16k resistor (R3). The STAT pin (pin 1) is connected to ground through a 2k resistor (R4) and a red LED labeled CHARGE. Two capacitors, C1 (4u7) and C2 (4u7), are connected in parallel with the USB_5V and B+ lines, respectively, to ground. The IC is labeled U1.



Battery protection

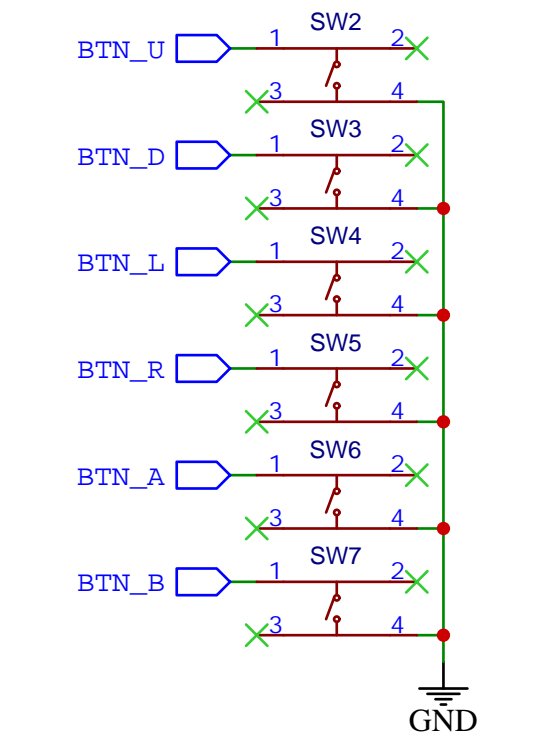


3.3V Power



Input

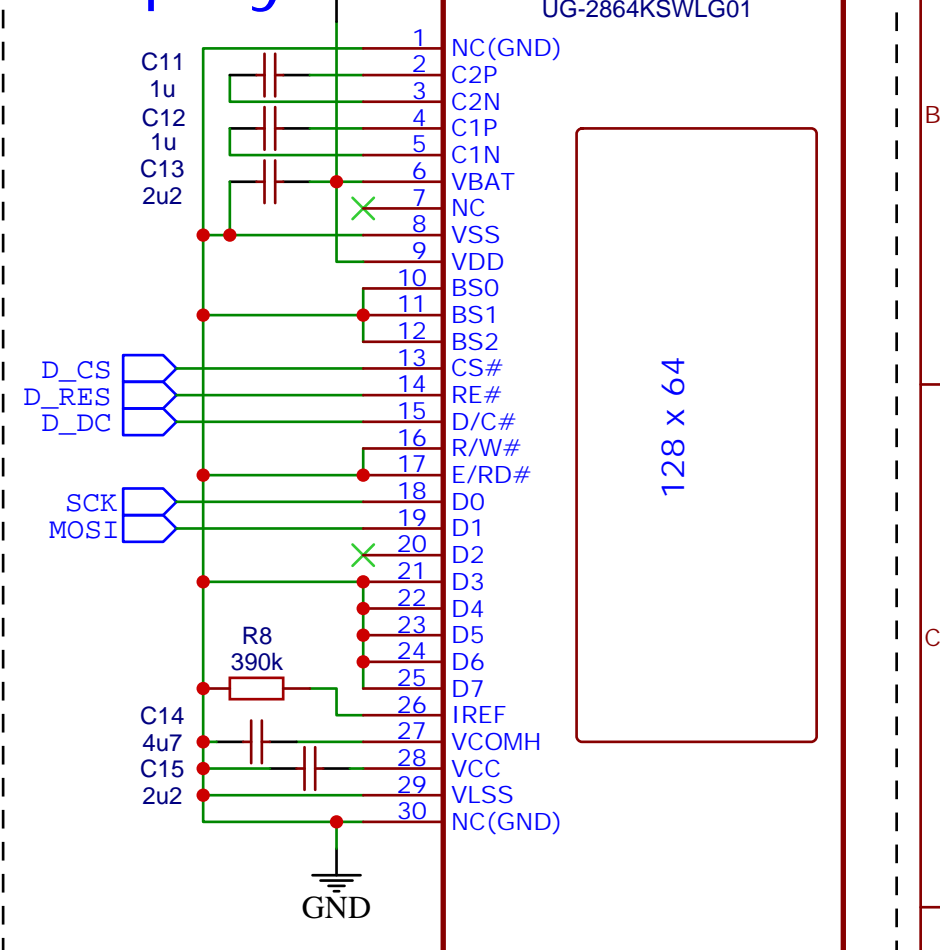
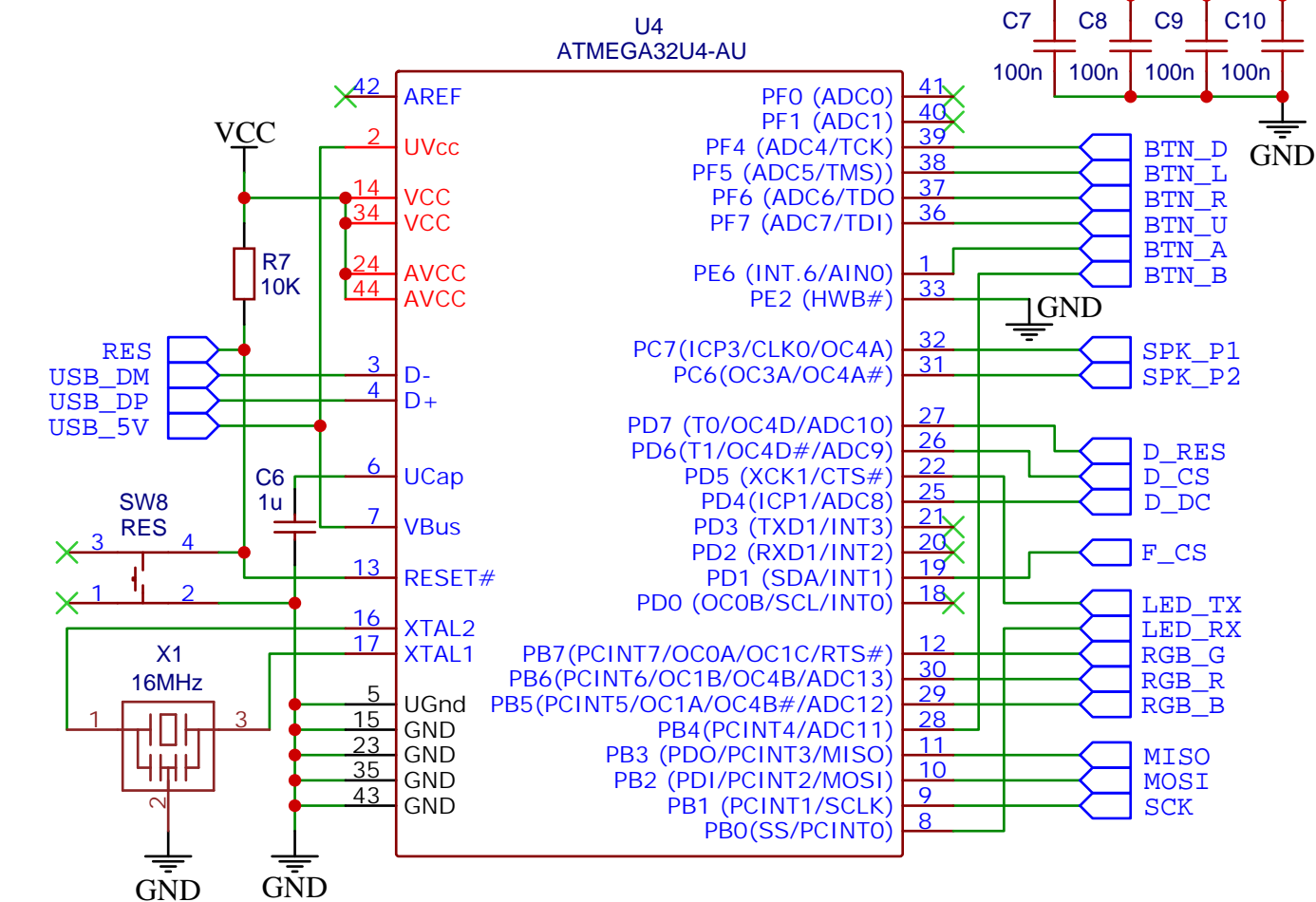
The diagram illustrates a 6-button input system. Each button (BTN_U, BTN_D, BTN_L, BTN_R, BTN_A, BTN_B) is connected to a switch (SW2-SW7). Each switch has three terminals: 1 (connected to the button), 2 (marked with a green X), and 3 (marked with a green X). Terminal 4 of each switch is connected to a common green line that leads to a GND symbol at the bottom.



Microcontroller

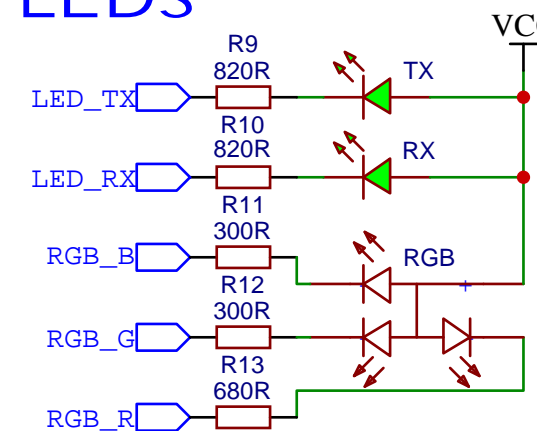
The diagram illustrates the pin configuration for an ATMEGA32U4-AU microcontroller (U4). The components and their connections are as follows:

- Capacitors:** C6 (1uF) is connected to VBus (pin 7) and GND. C7, C8, C9, and C10 (all 100nF) are connected to VCC (pins 2, 14, 34, 44) and GND.
- Resistor:** R7 (10K) is connected to VCC (pin 2) and GND.
- Crystal:** X1 (16MHz) is connected to XTAL1 (pin 17) and XTAL2 (pin 16), with one end to GND.
- Switch:** SW8 is connected to RESET# (pin 13) and GND.
- Other Connections:** AREF (pin 42) is connected to GND. D- (pin 3) and D+ (pin 4) are connected to USB_DM, USB_DP, and USB_5V. VCC (pins 2, 14, 34, 44) and AVCC (pins 24, 44) are connected to the main power supply. GND pins (5, 15, 23, 35, 43) are connected to ground.
- Microcontroller Pins:** The ATMEGA32U4-AU has pins 1 through 44. 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 peripheral components like buttons (BTN_D, BTN_L, BTN_R, BTN_U, BTN_A, BTN_B), speakers (SPK_P1, SPK_P2), LEDs (LED_TX, LED_RX), RGB LEDs (RGB_G, RGB_R, RGB_B), and serial communication pins (MISO, MOSI, SCK).



LEDs

The diagram shows a circuit for controlling five LEDs (TX, RX, and RGB) using a 74VHC04 inverter. The LEDs are connected to a 5V supply (VCC) through current-limiting resistors. The TX and RX LEDs are connected to the output of the inverter (pin 6) through resistors R9 (820R) and R10 (820R) respectively. The RGB LED is connected to the output of the inverter (pin 6) through resistor R12 (300R). The RGB LED's other pins are connected to the output of the inverter (pin 6) through resistors R11 (300R) and R13 (680R) respectively. The inverter is powered by a 5V supply (VCC) and its input (pin 1) is connected to ground (GND).



Sound

SPK_P1

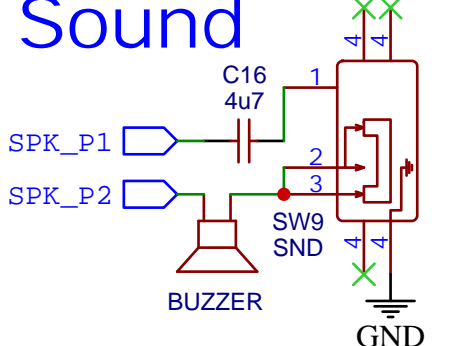
SPK_P2

BUZZER

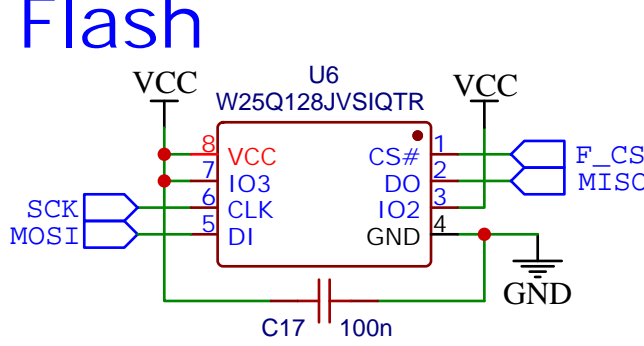
C16
4u7

SW9
SND

GND



The diagram shows the W25Q128JVSIQTR flash memory (U6) connected to the STM32F407VGT6. The flash's VCC pin is connected to a 3.3V supply through a 100nF capacitor (C17). The GND pin is connected to ground. The SPI interface is connected as follows: SCK to pin 5, MOSI to pin 6, MISO to pin 3, and CS# to pin 1. The flash's IO3 pin (pin 7) is connected to the 3.3V supply, and the IO2 pin (pin 2) is connected to the MISO line.



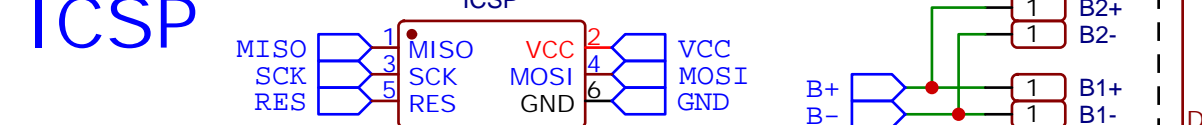
ICSP


MISO 1 MISO 2 VCC 3 VCC 4 MOSI 5 MOSI 6 GND 7 GND

SCK 3 SCK 4

RES 5 RES 6

B+ 1 B2+ 1 B2- 1 B1+ 1 B1- 1



TITLE: Home Made Arduboy FX		REV: 1.1
	Company: Olexandrenko	Sheet: 1/1
	Date: 2023-02-13 Drawn By: Yevgeniy	