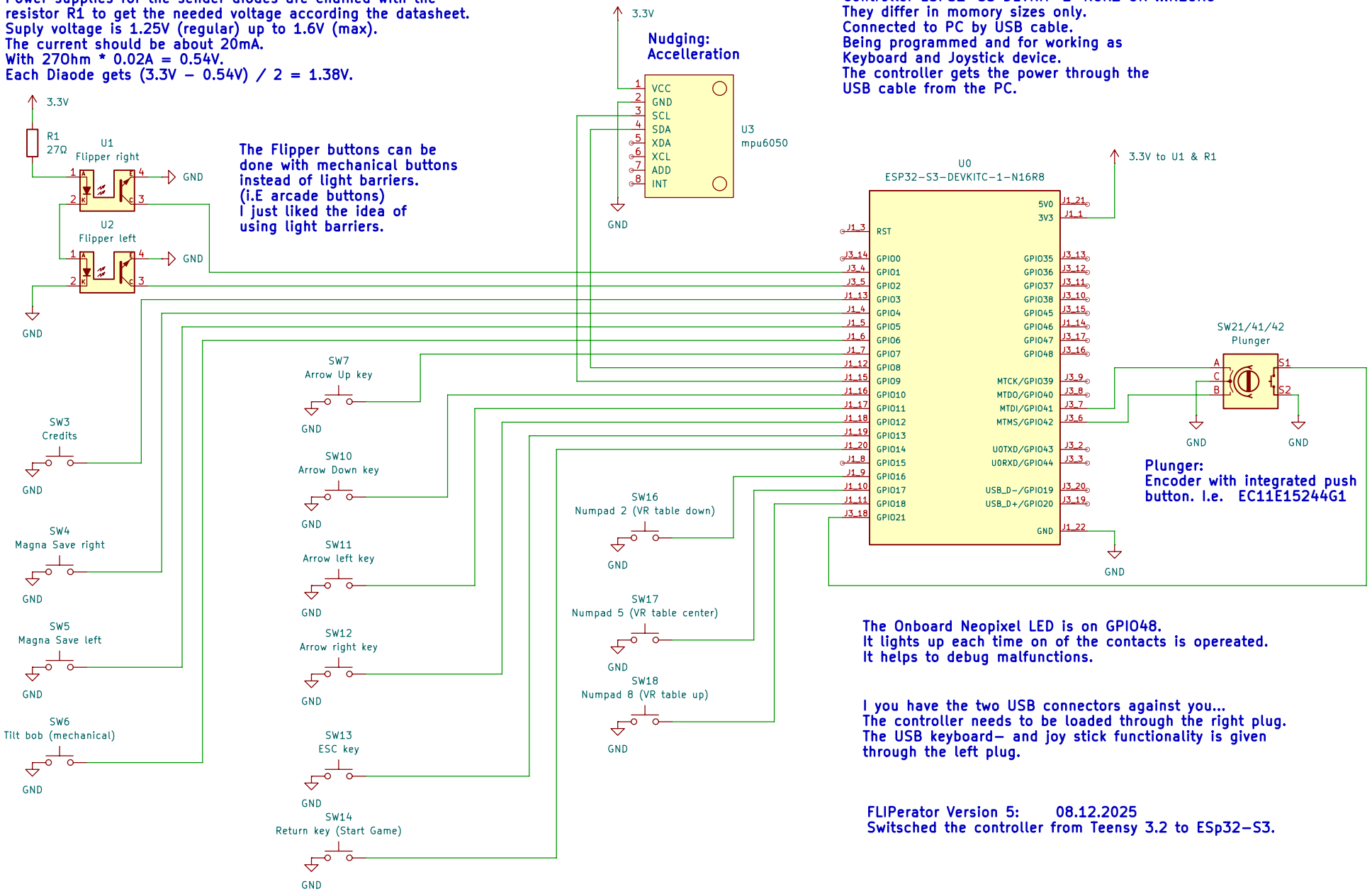
Light barrier TCST2103
Power supplies for the sender diodes are chained with the resistor R1 to get the needed voltage according the datasheet.
Suply voltage is 1.25V (regular) up to 1.6V (max).
The current should be about 20mA.
With 270hm * 0.02A = 0.54V.
Each Diaode gets (3.3V – 0.54V) / 2 = 1.38V.
3.3V
R1
27Ω
U1
Flipper right
GND
U2
Flipper left
GND
GND
The Flipper buttons can be done with mechanical buttons instead of light barriers.
(i.E arcade buttons)
I just liked the idea of using light barriers.
3.3V
Nudging:
Accelleration
VCC
GND
SCL
SDA
XDA
XCL
ADD
INT
U3
mpu6050
GND
Controller ESP32–S3 DEVKIT–1–N8R2 OR ...N16R8
They differ in momory sizes only.
Connected to PC by USB cable.
Being programmed and for working as
Keyboard and Joystick device.
The controller gets the power through the
USB cable from the PC.
U0
ESP32–S3–DEVKITC–1–N16R8
3.3V to U1 & R1
5V0
3V3
RST
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
GPIO13
GPIO14
GPIO15
GPIO16
GPIO17
GPIO18
GPIO21
GPIO35
GPIO36
GPIO37
GPIO38
GPIO45
GPIO46
GPIO47
GPIO48
MTCK/GPIO39
MTDO/GPIO40
MTDI/GPIO41
MTMS/GPIO42
U0TXD/GPIO43
U0RXD/GPIO44
USB_D–/GPIO19
USB_D+/GPIO20
GND
GND
SW21/41/42
Plunger
A
C
B
S1
S2
GND
GND
Plunger:
Encoder with integrated push button. I.e. EC11E15244G1
SW3
Credits
GND
SW4
Magna Save right
GND
SW5
Magna Save left
GND
SW6
Tilt bob (mechanical)
GND
SW7
Arrow Up key
GND
SW10
Arrow Down key
GND
SW11
Arrow left key
GND
SW12
Arrow right key
GND
SW13
ESC key
GND
SW14
Return key (Start Game)
GND
SW16
Numpad 2 (VR table down)
GND
SW17
Numpad 5 (VR table center)
GND
SW18
Numpad 8 (VR table up)
GND
The Onboard Neopixel LED is on GPIO48.
It lights up each time on of the contacts is opereated.
It helps to debug malfunctions.
I you have the two USB connectors against you...
The controller needs to be loaded through the right plug.
The USB keyboard– and joy stick functionality is given through the left plug.
FLIPerator Version 5: 08.12.2025
Switsched the controller from Teensy 3.2 to ESp32–S3.