MCU

+3.3V

NRST — 7 NRST   VBAT VDD VDD VDD VDDA   PA0 — 10
BOOT — 44 BOOT0   PA1 — 11
                                          PA2 — 12
RCC_OSC_IN — 5 PF0   PA3 — 13
RCC_OSC_OUT — 6 PF1   PA4 — 14 ADC1
                                          PA5 — 15 ADC2
                2 PC13   PA6 — 16 MUX1_B
                3 PC14   PA7 — 17 OMAMP2_VOUT
                4 PC15   PA8 — 29 MUX1_C
                                          PA9 — 30 MUX2_B
MUX1_A — 18 PB0   PA10 — 31 MUX2_A
OMAMP3_VOUT — 19 PB1   PA11 — 32 USB_D−
                20 PB2   PA12 — 33 USB_D+
                39 PB3   PA13 — 34 SWDIO
                40 PB4   PA14 — 37 SWCLK
                41 PB5   PA15 — 38 SCL
WC — 42 PB6
SDA — 43 PB7
                45 PB8
                46 PB9
                21 PB10
OMAMP4_VOUT — 22 PB11
                25 PB12
ADC3 — 26 PB13
ADC4 — 27 PB14
MUX2_C — 28 PB15

                23 VSS
                8 VSSA
                GND

MCU1
STM32F303CBTx

+3.3V
C1 100n C2 100n C3 100n C4 100n C5 10n
GND

RCC_OSC_IN   GND   RCC_OSC_OUT
R4 1k
C6 10p   Y1 16MHz   C7 10p
GND

USB

J1
USB_C_Receptacle_USB2.0 +5V

VBUS — A4
CC1 — A5   R1 5.1k   GND
CC2 — B5   R2 5.1k
D− — A7   USB_D−
D− — B7
D+ — A6   USB_D+
D+ — B6

SHIELD   SBU1 — A8
         SBU2 — B8

S1   A1 GND
GND

+3.3V
R3 1.5k
USB_D+

+5V
U1
SRV05−4
VP 5

IO1 — 1   IO3 — 4 USB_D−
IO2 — 3   IO4 — 6 USB_D+
GND 2

EEPROM

IC1
M24C64−RMN6TP   +3.3V   +3.3V +3.3V +3.3V

1 E0   VCC — 8
2 E1   WC — 7   WC
3 E2   SCL — 6 SCL
4 VSS   SDA — 5 SDA

100n C8   10k R5   10k R6
GND   SDA   SCL
GND

POWER

+5V   U2
         AMS1117−3.3   +3.3V
C9 10u   VI VO 2
    3 1 GND   C10 22u
         GND

+5V
D1 LED
470 R7
GND

DEBUG

NRST   BOOT   SW1 BOOT   +3.3V
C11 100n SW2 RESET
GND   1k R8
          GND

SWDIO — 1
+3.3V — 2   J2
SWCLK — 3   Conn_01x05_Socket
GND — 4
NRST — 5

Switches

File: hallsens.kicad_sch

H1 MountingHole   H2 MountingHole
H3 MountingHole   H4 MountingHole
H5 MountingHole   H6 MountingHole
H39 MountingHole   H40 MountingHole
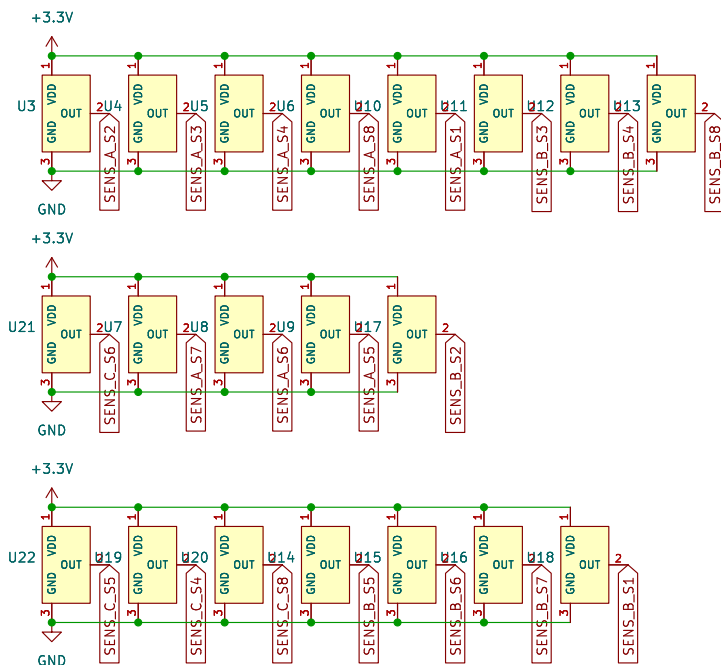
Sheet: /
File: ember.kicad_sch
Title:
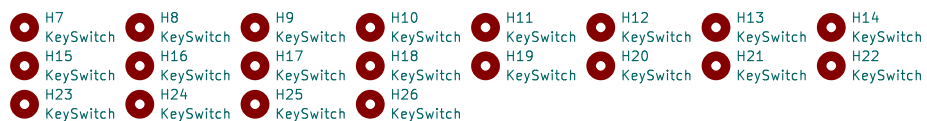Size: A4   Date: Rev:
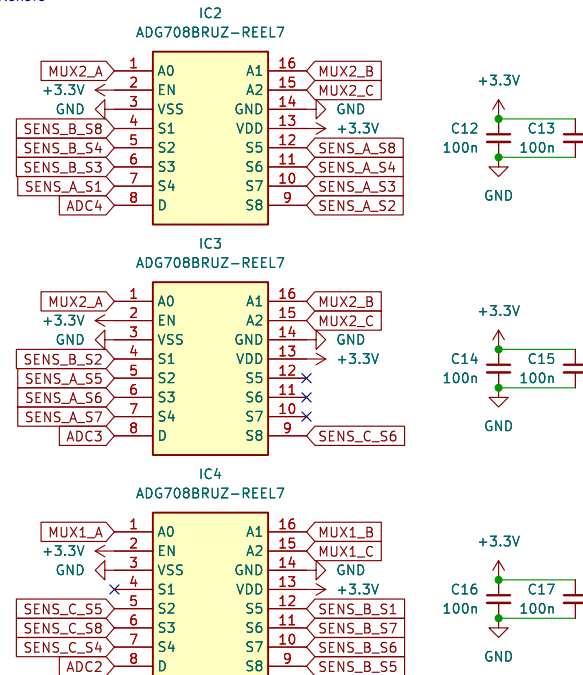KiCad E.D.A. 9.0.6   Id: 1/2

HallSensors

+3.3V

U3 VDD OUT GND | 2U4 VDD OUT GND | 2U5 VDD OUT GND | 2U6 VDD OUT GND | U10 VDD OUT GND | U11 VDD OUT GND | U12 VDD OUT GND | U13 VDD OUT GND

SENS_A_S2 SENS_A_S3 SENS_A_S4 SENS_A_S8 SENS_A_S1 SENS_B_S3 SENS_B_S4 SENS_B_S8

GND

+3.3V

U21 VDD OUT GND | 2U7 VDD OUT GND | 2U8 VDD OUT GND | 2U9 VDD OUT GND | U17 VDD OUT GND

SENS_C_S6 SENS_A_S7 SENS_A_S6 SENS_A_S5 SENS_B_S2

GND

+3.3V

U22 VDD OUT GND | U19 VDD OUT GND | U20 VDD OUT GND | U14 VDD OUT GND | U15 VDD OUT GND | U16 VDD OUT GND | U18 VDD OUT GND

SENS_C_S5 SENS_C_S4 SENS_C_S8 SENS_B_S5 SENS_B_S6 SENS_B_S7 SENS_B_S1

GND

Analog Multiplexers

IC2
ADG708BRUZ-REEL7

1	A0	A1	16	MUX2_B
MUX2_A				
2	EN	A2	15	MUX2_C
+3.3V				
3	VSS	GND	14	GND
GND				
4	S1	VDD	13	+3.3V
SENS_B_S8				
5	S2	S5	12	SENS_A_S8
SENS_B_S4				
6	S3	S6	11	SENS_A_S4
SENS_B_S3				
7	S4	S7	10	SENS_A_S3
SENS_A_S1				
8	D	S8	9	SENS_A_S2
ADC4				

+3.3V
C12 100n C13 100n
GND

IC3
ADG708BRUZ-REEL7

1	A0	A1	16	MUX2_B
MUX2_A				
2	EN	A2	15	MUX2_C
+3.3V				
3	VSS	GND	14	GND
GND				
4	S1	VDD	13	+3.3V
SENS_B_S2				
5	S2	S5	12	
SENS_A_S5				
6	S3	S6	11	
SENS_A_S6				
7	S4	S7	10	
SENS_A_S7				
8	D	S8	9	SENS_C_S6
ADC3				

+3.3V
C14 100n C15 100n
GND

IC4
ADG708BRUZ-REEL7

1	A0	A1	16	MUX1_B
MUX1_A				
2	EN	A2	15	MUX1_C
+3.3V				
3	VSS	GND	14	GND
GND				
4	S1	VDD	13	+3.3V
5	S2	S5	12	SENS_B_S1
SENS_C_S5				
6	S3	S6	11	SENS_B_S7
SENS_C_S8				
7	S4	S7	10	SENS_B_S6
SENS_C_S4				
8	D	S8	9	SENS_B_S5
ADC2				

+3.3V
C16 100n C17 100n
GND

KeySwitches

H7 KeySwitch | H8 KeySwitch | H9 KeySwitch | H10 KeySwitch | H11 KeySwitch | H12 KeySwitch | H13 KeySwitch | H14 KeySwitch
H15 KeySwitch | H16 KeySwitch | H17 KeySwitch | H18 KeySwitch | H19 KeySwitch | H20 KeySwitch | H21 KeySwitch | H22 KeySwitch
H23 KeySwitch | H24 KeySwitch | H25 KeySwitch | H26 KeySwitch