Sonic Range Finders

SRF1
5V 1
GP7 2
ECHO1 3
D_GND 4

SRF2
5V 1
GP9 2
ECHO2 3
D_GND 4

Encoders

ENC1
ENC1 1
D_GND 2
5V 3

ENC2
ENC2 1
D_GND 2
5V 3

IR sensors

IR1
3V3 1
D_GND 2
GP16 3
GP26 4

IR2
3V3 1
D_GND 2
GP17 3
GP27 4

I2C (oled)

I2C1
D_GND 1
5V 2
GP5 3
GP4 4

I2C2
D_GND 1
5V 2
GP11 3
GP10 4

Object detectors

IR Object Detector 1
3V3 1
D_GND 2
GP12 3

IR Object Detector 2
3V3 1
D_GND 2
GP13 3

spanningsverdelers
voor signaal terug

R5 4.7k   R4 10k   D_GND
ECHO1   GP6

R7 4.7k   R6 10k   D_GND
ECHO2   GP8

R9 4.7k   R8 10k   D_GND
ENC2   GP3

R10 4.7k   R11 10k   D_GND
ENC1   GP2

Servos

Servo1
D_GND 1
5V 2
GP14 3

Servo2
D_GND 1
5V 2
GP15 3

Servo3
D_GND 1
5V 2
GP12 3

Servo4
D_GND 1
5V 2
GP13 3

Keypad

GP28 1
3V3 2
D_GND 3

Conn_01x06_Female
Combined pins

3V3 1
2
GP22 3   J8
D_GND 4
5
D_GND 6

Raspberry pico

USB side

TX 20 GP0   VBUS 20 19
RX 19 GP1   VSYS 19 18
18 D_GND   D_GND 18
Encoder 1 17 GP2   EN 17 16
Encoder 2 16 GP3   3V3 16 15
Oled 1 SDA-0 15 GP4   AREF 15 14
Oled 1 SCL-0 14 GP5   GP28 14 Keypad
13 D_GND   D_GND 13
SRF 1 Echo 1 12 GP6   GP27 12 IR 2 (Ana) MC2-B 1B
SRF 1 Trig 1 11 GP7   GP26 11 IR 1 (Ana) MC2-A 1B
SRF 2 Echo 2 10 GP8   RUN 10
SRF 2 Trig 2 9 GP9   GP22 9 LED
8 D_GND   D_GND 8
Oled 2 SDA-1 7 GP10   GP21 7 MC1-B 1A
Oled 2 SCL-1 6 GP11   GP20 6 MC1-B 1B
Servo 3 5 GP12   GP19 5 MC1-A 1A
Servo 4 4 GP13   GP18 4 MC1-A 1B
3 D_GND   D_GND 3
Servo 1 2 GP14   GP17 2 IR 2 (Digi) MC2-B 1A
Servo 2 1 GP15   GP16 1 IR 1 (Digi) MC2-A 1A

IR Object Detector 1
IR Object Detector 2

VBUS 1   Q1 DMG2305UX   5V 3
VSYS

usb-uart

U2 CH340E

UART_V3
UART_VCC
V3 VCC
TXD 8 GP1
RXD 9 GP0
CTS 5
RTS 4
GND 3 D_GND

D+ UD+
D- UD-
TNOW

C1 0.1u
D_GND   3V3
UART_V3
UART_VCC

Usb power

SW2 SK12D07VG5
Gate_V
D_GND drain
330 R2   1 Q2 DMN2050L
R3 10k   USB_GND
GND
Gate_V
jumper on/off
2
1
USB_5V   5V

USB1 TYPE-C 6P(073)

USB_GND B12 GND
USB_5V B9 VBUS
A5 CC1
B5 CC2
A9 VBUS
R1 5k1
R12 5k1
USB_5V
USB_GND A12 GND
USB_GND   EH 7   USB_GND

use lightweight small switch
to mosfet for max 10A

USB2
U254-051T-4BH83-S1S

USB_5V 1 VBUS
2 D-
3 D+
4 ID
USB_GND 5 GND
EH 6 USB_GND

USB B micro for Embedded Software course

Motor controllers

MC1-A
GP18 1   A-1B 1
GP19 2   A-1A PWM 2
5V 3   5V 3
D_GND 4   D_GND 4

MC1-B
GP20 5   B-1B 1
GP21 6   B-1A PWM 2
MC1   5V 3
D_GND 4

MC2-A
GP26 1   A-1B 1
GP16 2   A-1A PWM 2
5V 3   5V 3
D_GND 4   D_GND 4

MC2-B
GP27 5   B-1B 1
GP17 6   B-1A PWM 2
MC2   5V 3
D_GND 4

Orange Pi Expansion pins

line out right
5V 4
3
#J32 2
D_GND 1

linoutr

not implemented

line out left
5V 4
3
2
D_GND 1

lineoutl

J11 Conn_01x13_Female
13
5V 12
D_GND 11
usb-d2- 10
usb-d2+ 9
D- 8
D+ 7
6
5
4
3
2
1

J5
Conn_01x06_Pin
pins for jst xh extension

usb from Orange Pi

H2 MountingHole_Pad
H3 MountingHole_Pad
MountingHole

D_GND
usb-d2- 2 D-
usb-d2+ 3 D+
GND
Shield
5V 1 VBUS

Power out

Orange Pi is not used in our Embedded Software course