Computer Vision / L476 board

Control of computer vision bench / Dobot conveyor

Functions

- **Step Motor Control (x2)**
    - Step Motor Driver – TMC2100
- **RF data transmission**
    - *RN41/42 – Evaluation Board XV*
- Position sensor *SEN0239* (x3)
- Light control (x3 – R / G / B)

Based on Nucleo L476RG board

Computer Vision / L476 board

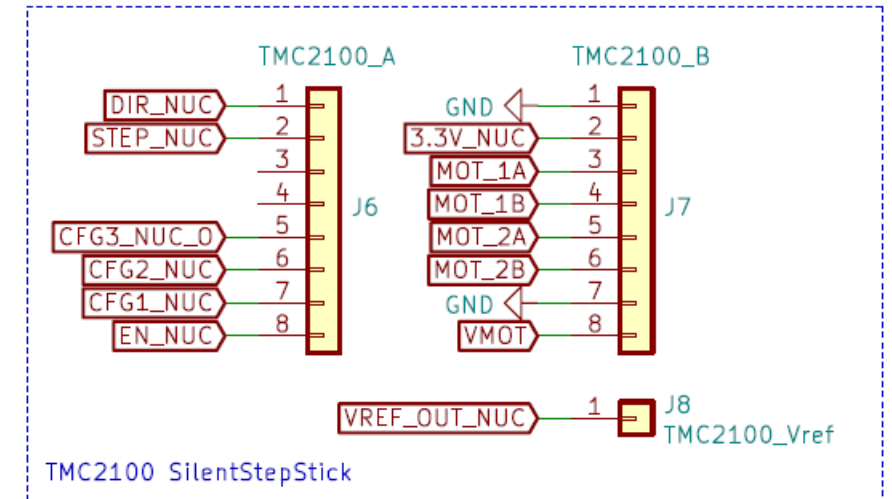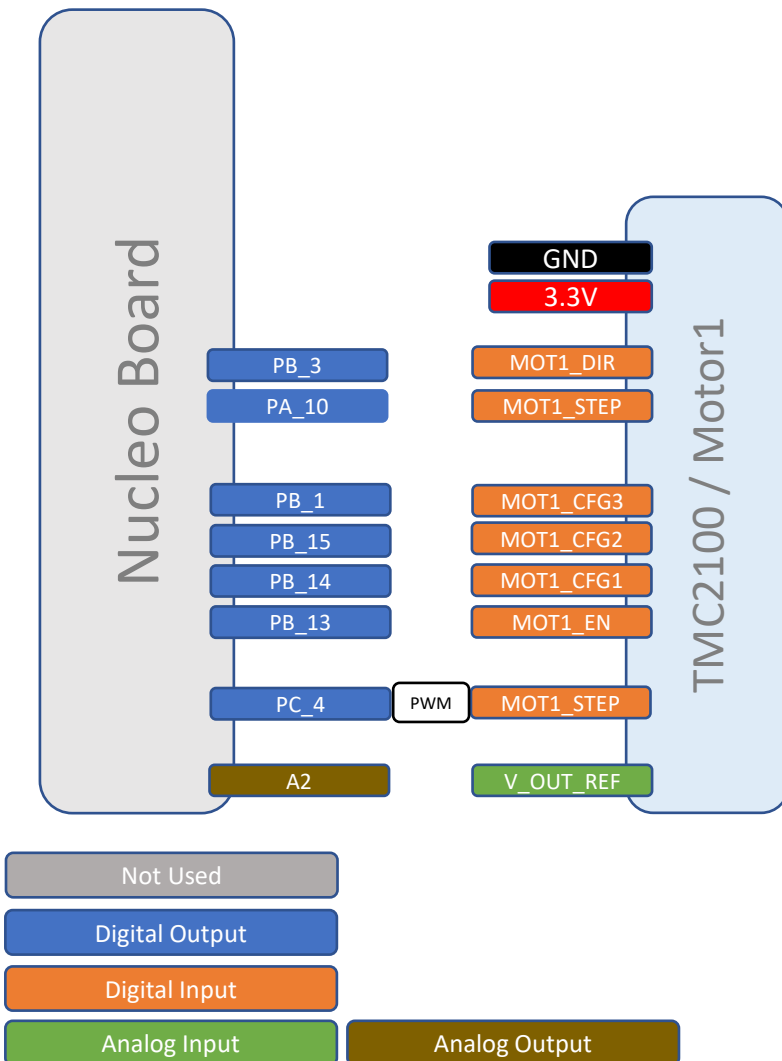## Control of computer vision bench / Dobot conveyor

Morpho Gauche / Nucléo

Left outer	Left inner	Right inner	Right outer
TX	PC_10	PC_11	RX
	PC_12	PD_2	GPIO2_STATUS
		E5V	
		GND	
	PA_13		
	PA_14	3.3V	
	PA_15	5V	
	GND	GND	
RESET_N	PB_7	GND	
	PC_13	Vin	
CAPT 1	PC_14		
CAPT 2	PC_15	PA_0	
CAPT 3	PH_0	PA_1	
ECLAIR 3	PH_1	A2	V_OUT_REF
		PB_0	
ECLAIR 2	PC_2	PC_1	
ECLAIR 1	PC_3	PC_0	

Morpho Droit / Nucléo

Left outer	Left inner	Right inner	Right outer
POUSS. 3	PC_9	PC_8	POUSS. 2
	PB_8	PC_6	POUSS. 1
	PB_9	PC_5	
	AVDD	U5V	
	GND		
nRF24 / SCK	PA_5 / SCK	PA_12	
nRF24 / MISO	PA_6 / MISO	PA_11	LED 1
nRF24 / MOSI	PA_7 / MOSI	PB_12	
	D10 / CS	PB_11	LED 2
nRF24 / CSN	PC_7	GND	
nRF24 / IRQ	PA_9	PB_2	
nRF24 / CE	PA_8	PB_1	MOT1_CFG3
MOT2_EN	PB_10	PB_15	MOT1_CFG2
MOT2_STEP	PB_4	PB_14	MOT1_CFG1
MOT2_DIR	PB_5	PB_13	MOT1_EN
MOT1_DIR	PB_3	AGND	
MOT1_STEP	PA_10	PC_4	MOT1_STEP*
	D1		
	D0		

Legend:
- Not Used
- Digital Output
- Digital Input
- Analog Input
- Analog Output

* Must be set as input

TMC2100 – Step Motor Driver

Step Motor Driver / Motor 1 / TMC2100

MBED6 Library : https://github.com/IOGS-LEnsE-embedded/MBED6_SupOpLibraries/tree/main/TMC2100

Nucleo Board

PB_3	MOT1_DIR
PA_10	MOT1_STEP
PB_1	MOT1_CFG3
PB_15	MOT1_CFG2
PB_14	MOT1_CFG1
PB_13	MOT1_EN
PC_4 — PWM	MOT1_STEP
A2	V_OUT_REF

GND
3.3V

TMC2100 / Motor1

Legend:
- Not Used
- Digital Output
- Digital Input
- Analog Input
- Analog Output

TMC2100_A
TMC2100_B

DIR_NUC	1
STEP_NUC	2
	3
	4
CFG3_NUC_O	5
CFG2_NUC	6
CFG1_NUC	7
EN_NUC	8

J6

GND	1
3.3V_NUC	2
MOT_1A	3
MOT_1B	4
MOT_2A	5
MOT_2B	6
GND	7
VMOT	8

J7

VREF_OUT_NUC — 1 J8
TMC2100_Vref

TMC2100 SilentStepStick

nRF24 – RF transmission

nrF24L01 module for RF data transmission

MBED6 Library : https://github.com/IOGS-LEnsE-embedded/MBED6_SupOpLibraries/tree/main/nRF24

Nucleo Board

| PA_9 |
| PA_8 |
| PC_7 |
| PA_6 / MISO |
| PA_7 / MOSI |
| PA_5/ SCK |

SPI

nRF24L01 / RF

| GND |
| 3.3V |
| IRQ |
| CE |
| CSN |
| MISO |
| MOSI |
| CLK |

| Not Used |
| Digital Output |
| Digital Input |
| Analog Input | Analog Output |

Brochage NRF24L01+

~ Vue de dessus ~   ~ Vue de dessous ~

GND VCC
CE   CSN
SCK MOSI
MISO IRQ

VCC GND
CSN CE
MOSI SCK
IRQ MISO