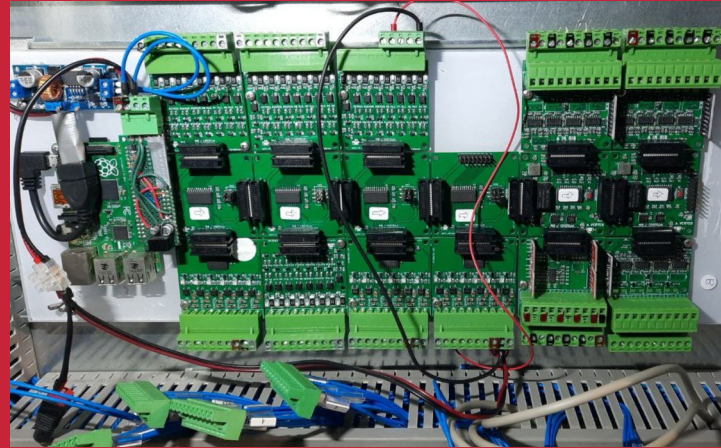


# IoT-Vertebrae

Bridging OT & IT



**Jordi Binefa**

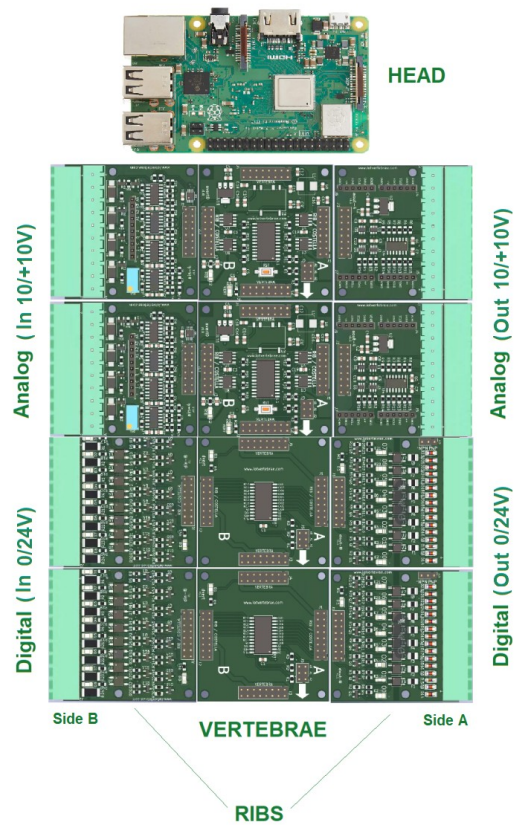
(Una part de la presentació feta per en Xavier Pi, Pau Quintero i Jordi Binefa)  
Diada de la Llibertat del Maquinari - 2023



<https://caliu.cat/post/dim2023>

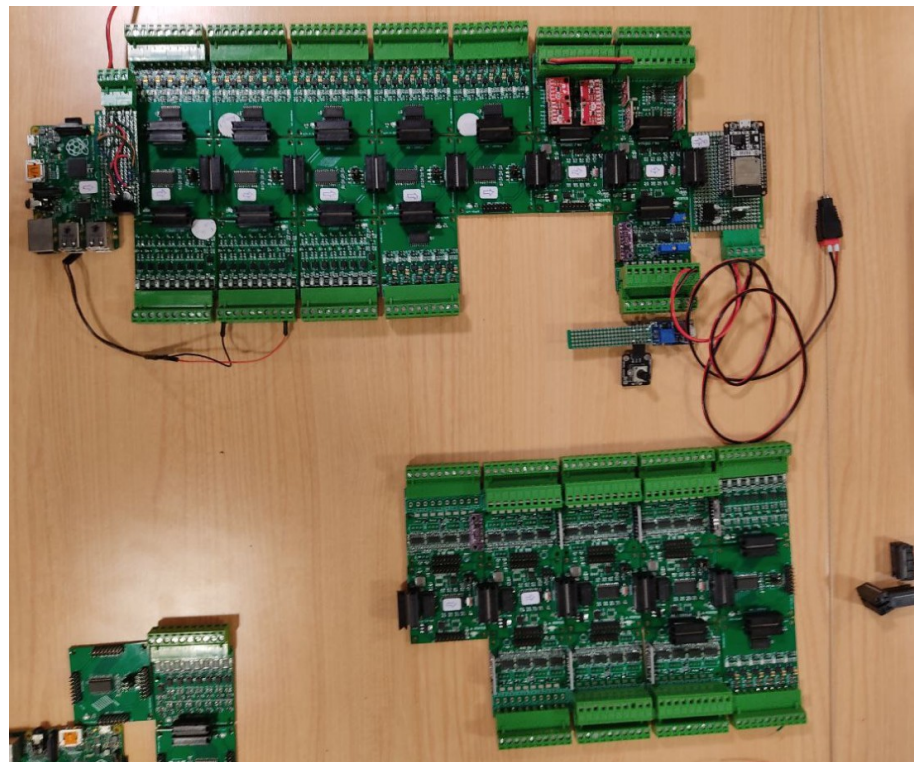


[www.iotvertebrae.com](http://www.iotvertebrae.com)



One body, up to 128 digital I/O and 64 analog I/O

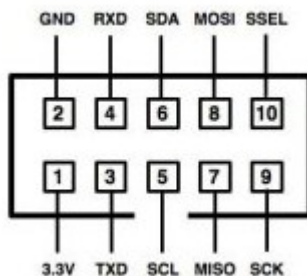
Dibuixat per en Xavier Pi



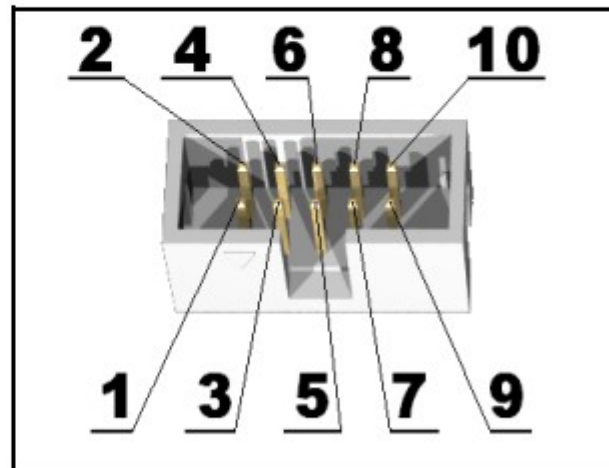
# UEXT d'OLIMEX



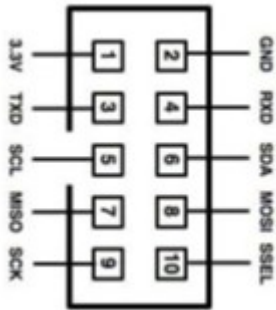
Connector pins description:



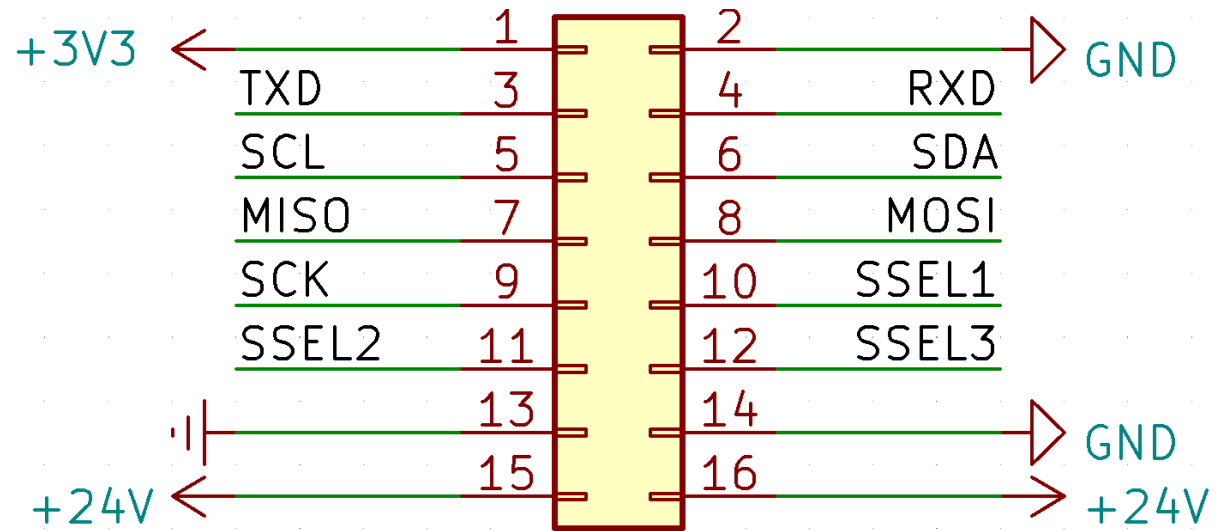
Pin #	Signal Name
1	3.3V
2	GND
3	TXD
4	RXD
5	SCL
6	SDA
7	MISO
8	MOSI
9	SCK
10	SSEL



# U2EXT (UEXT estès)

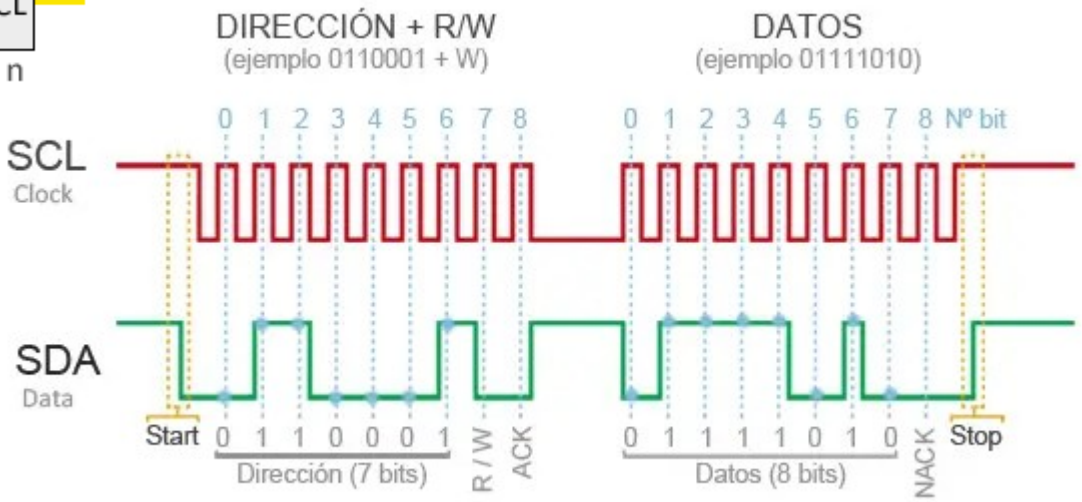
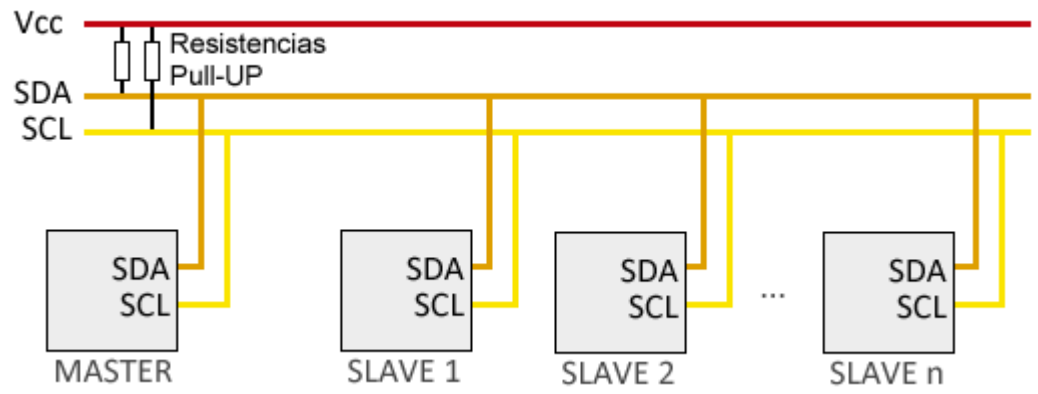


**UEXT**

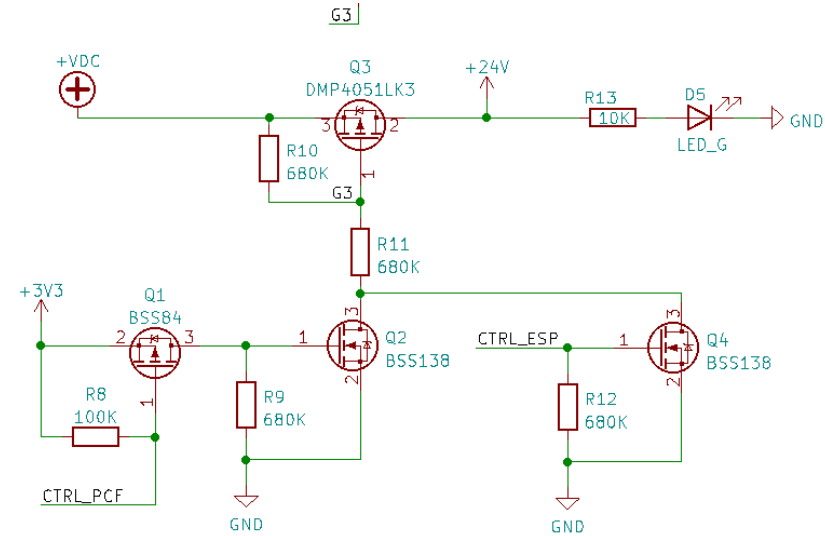
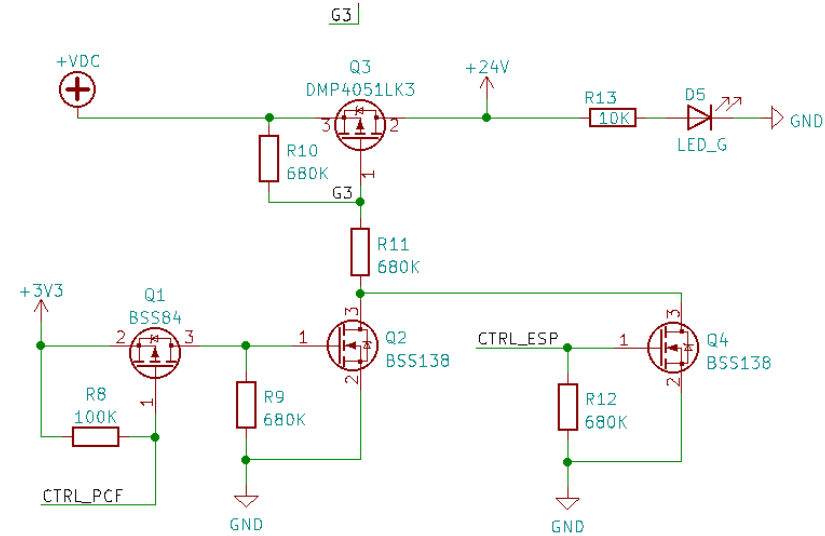
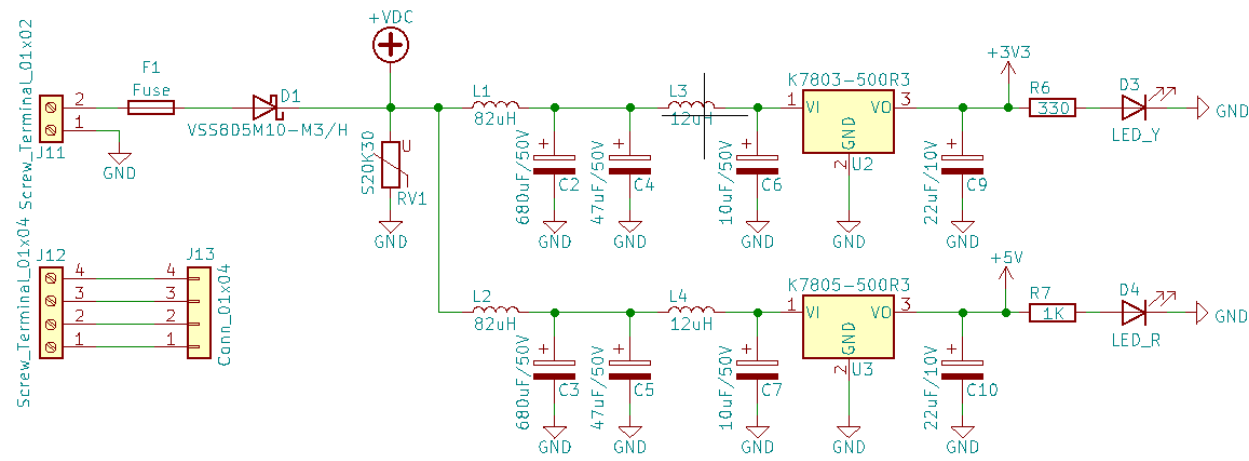


**UEXT estès**

# Bus I2C

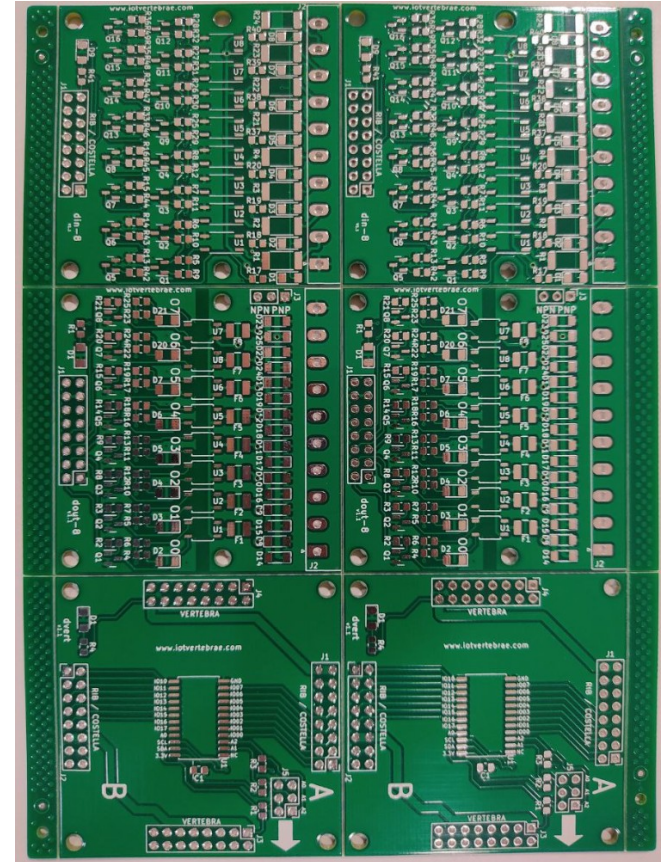
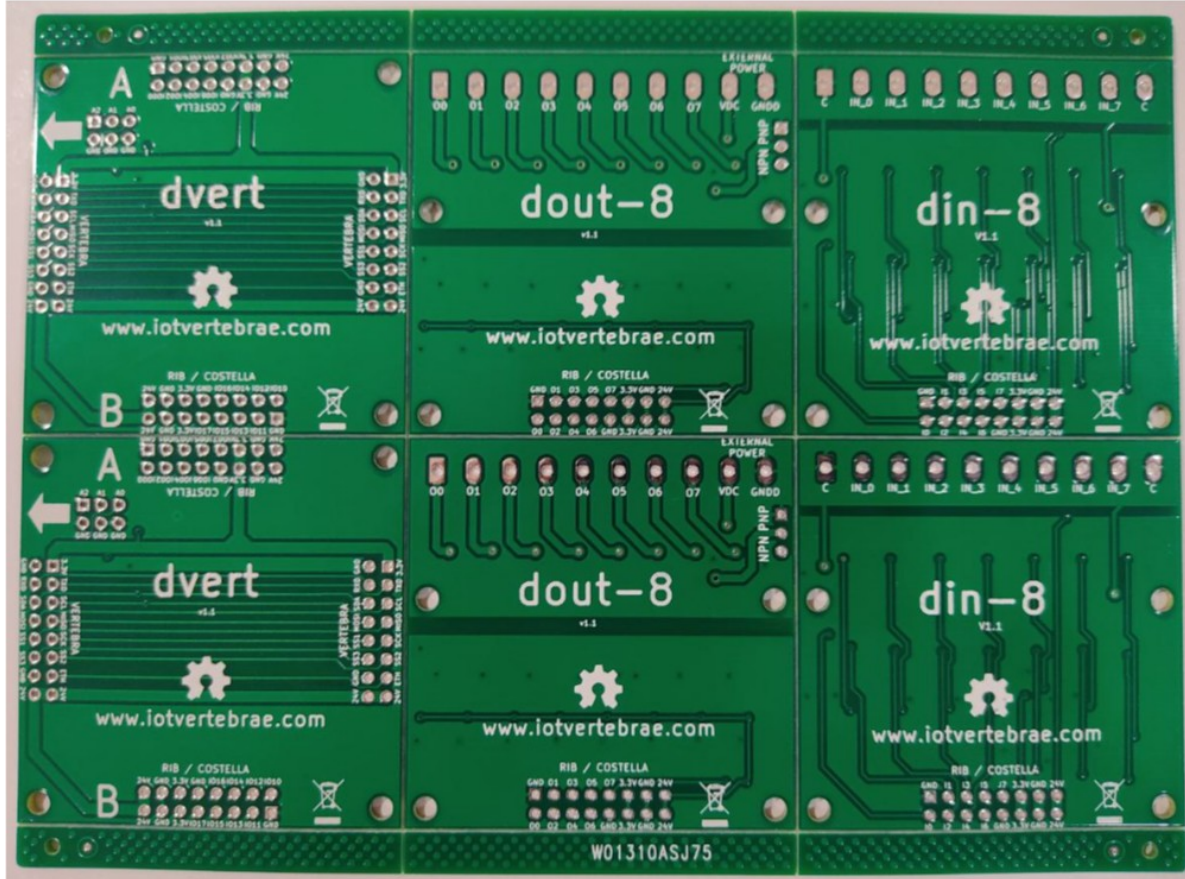


# Alimentació provinent del cap

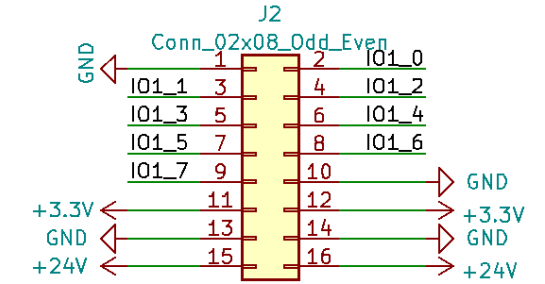
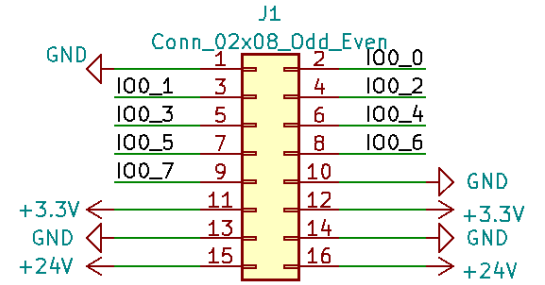
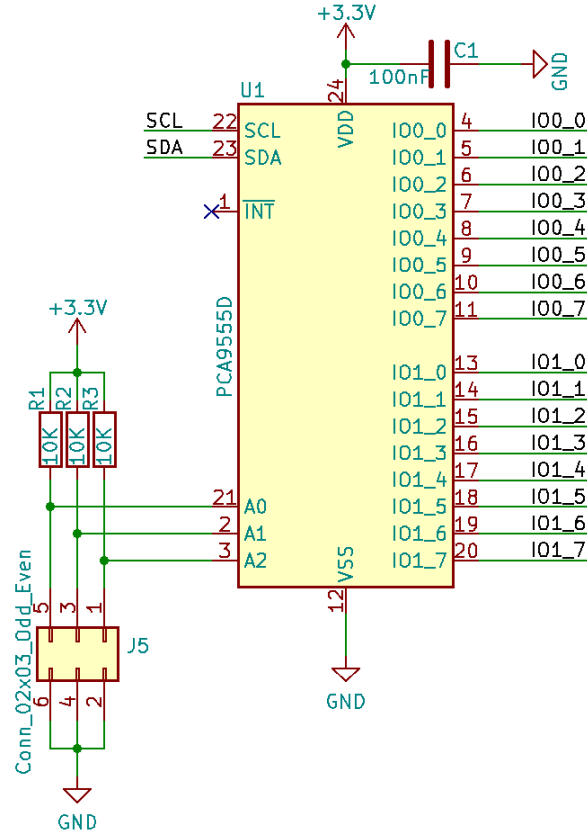
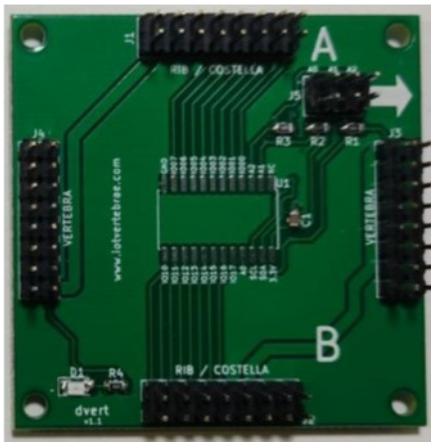




# Vèrtebres i costelles digitals

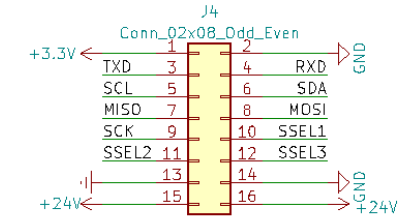
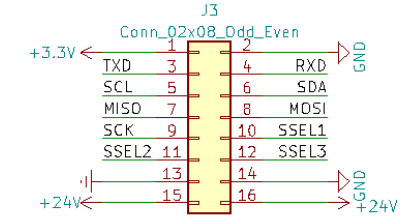
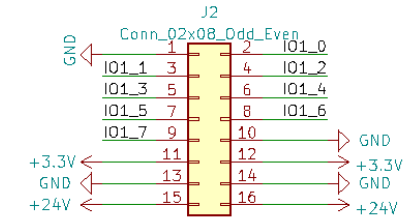
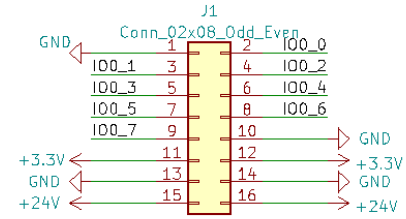
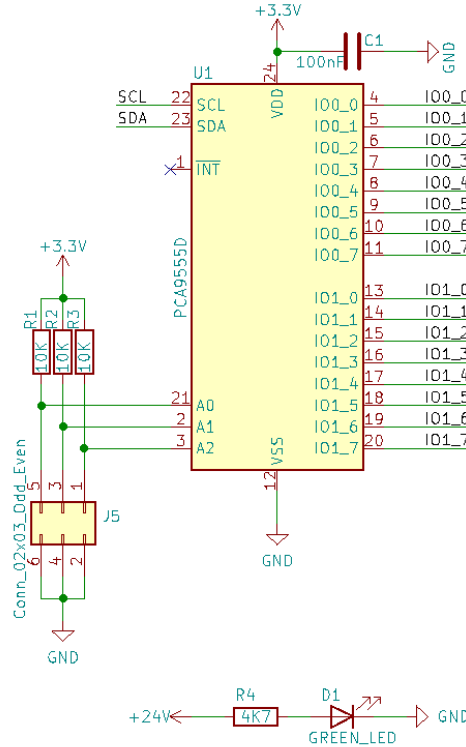
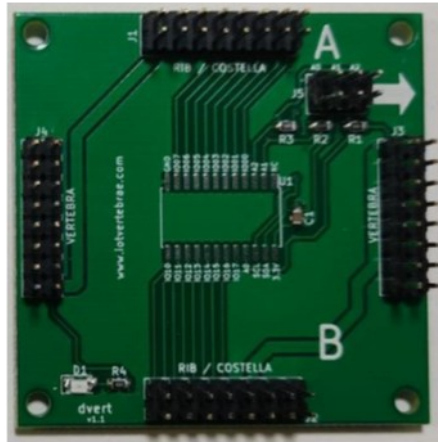


# Vèrtebra digital

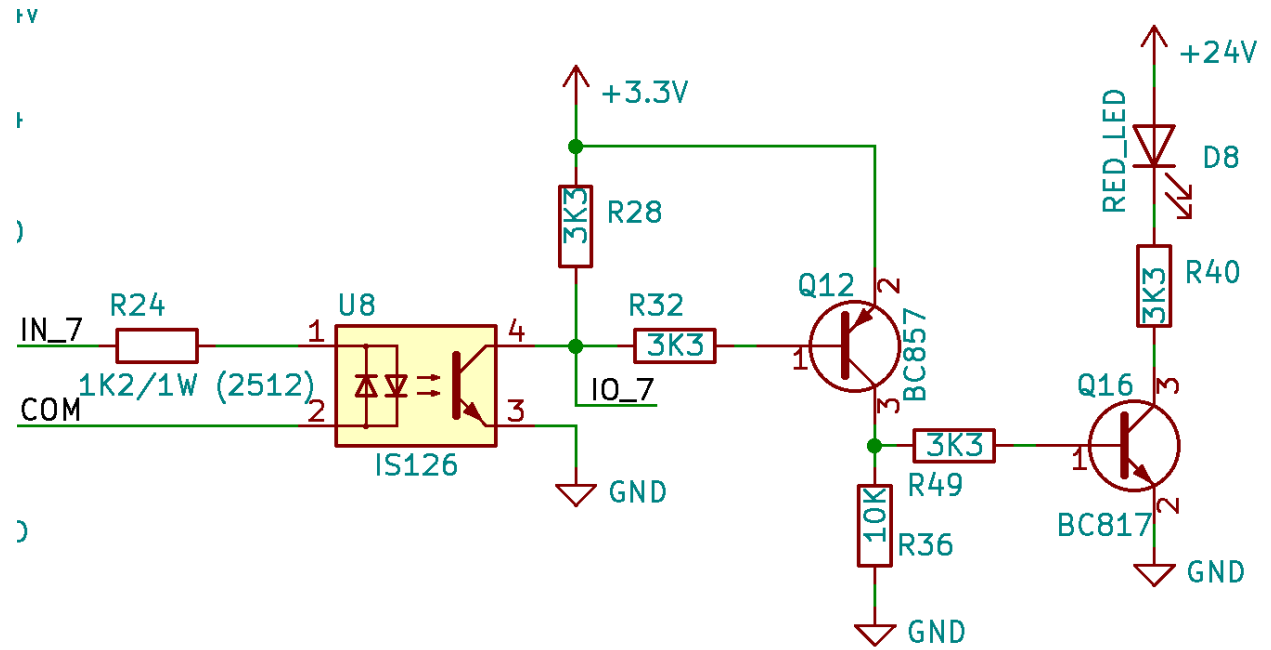




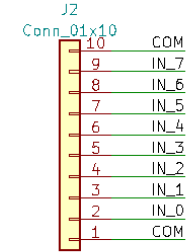
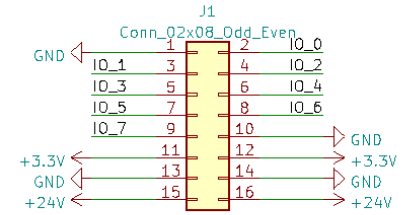
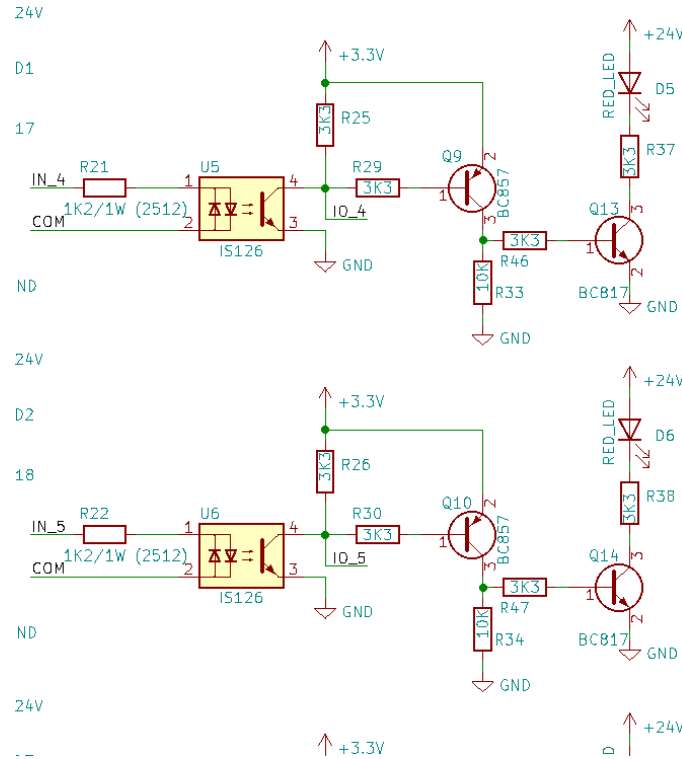
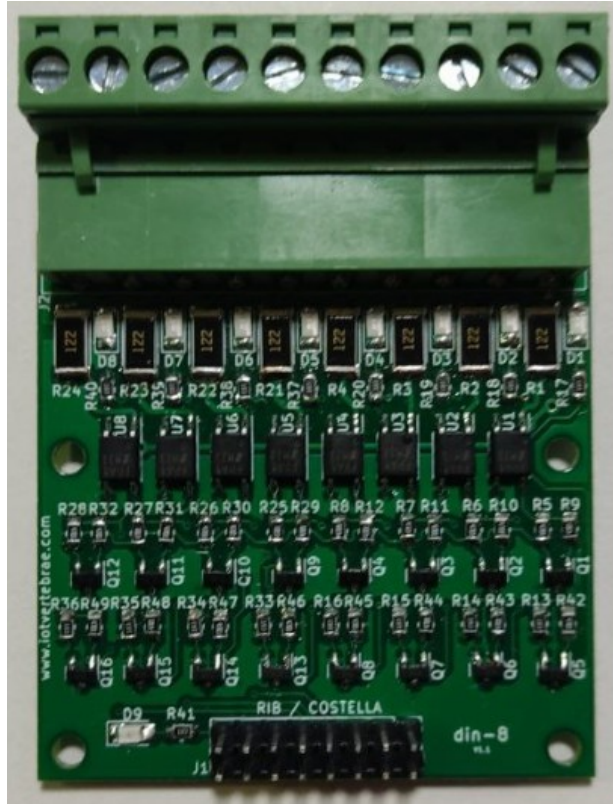
# Vèrtebra digital



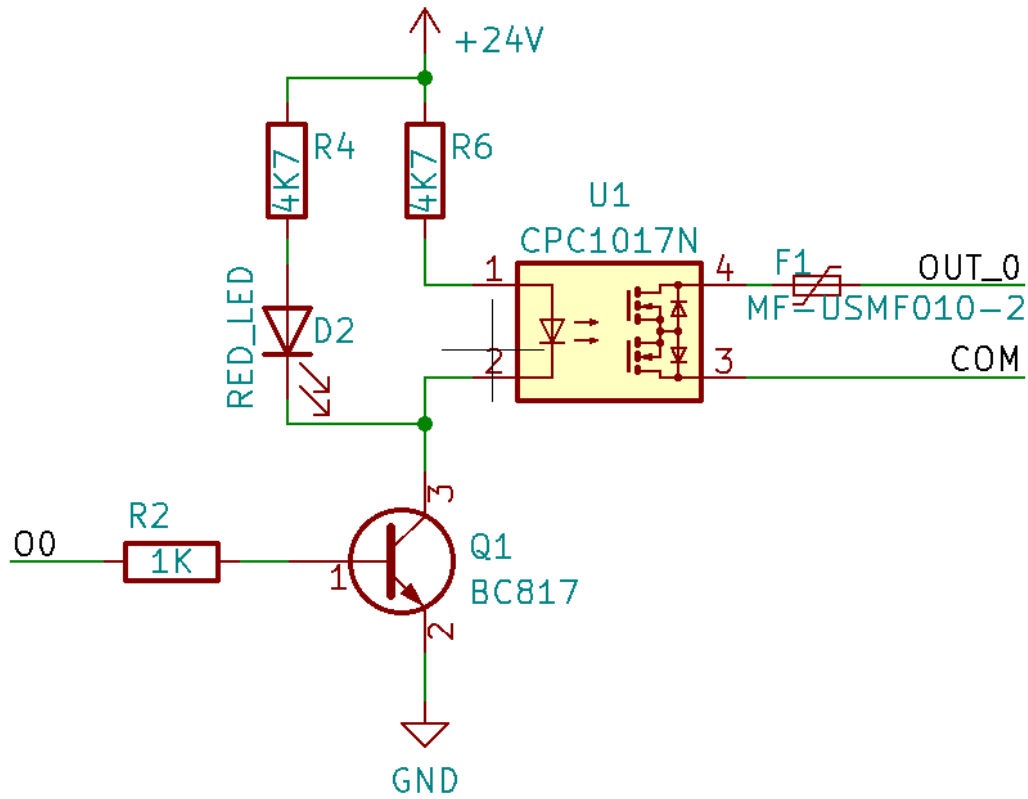
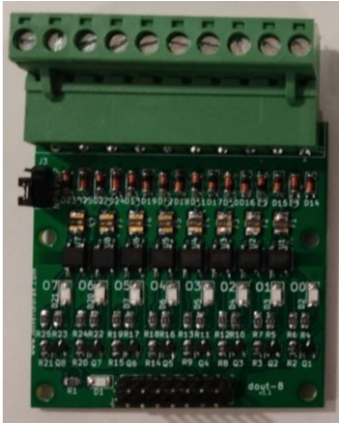
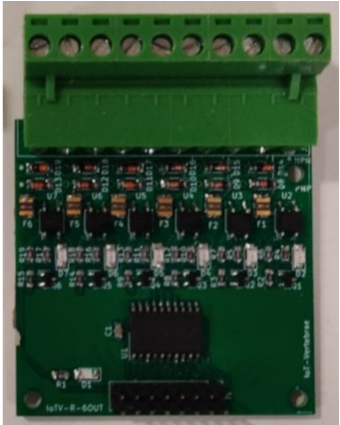
# Costella d'entrades digitals



# Costella d'entrades digitals

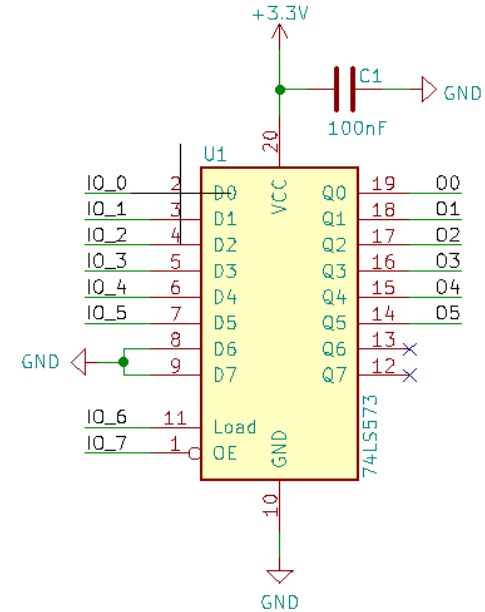
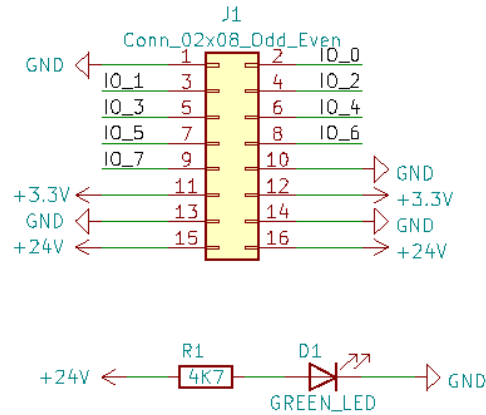
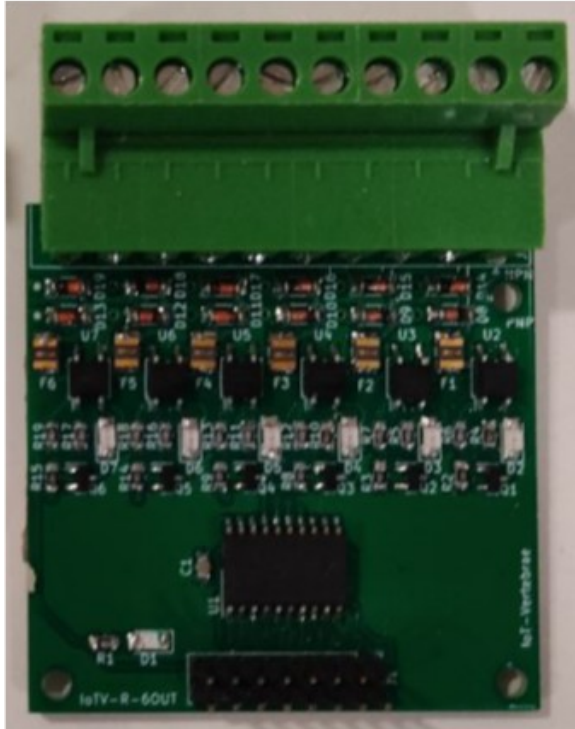


# Costella de sortides digitals



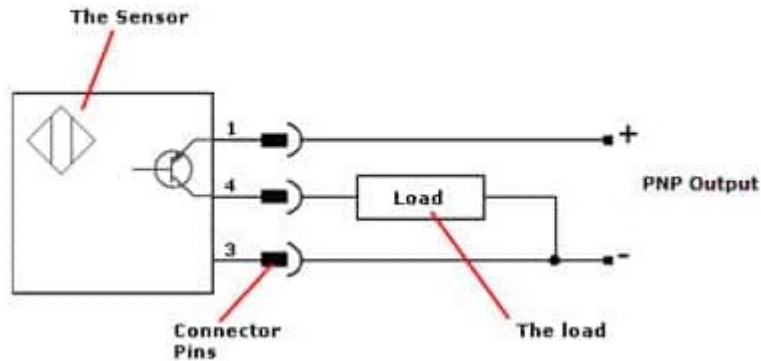


# Costella de 6 sortides digitals (v1.0)

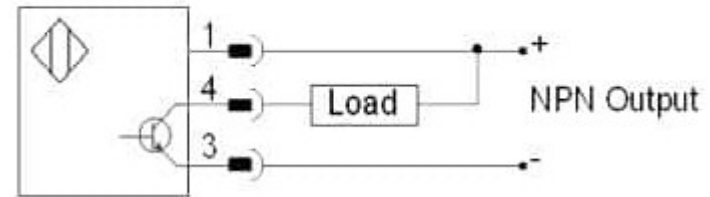


# Sortides PNP i NPN

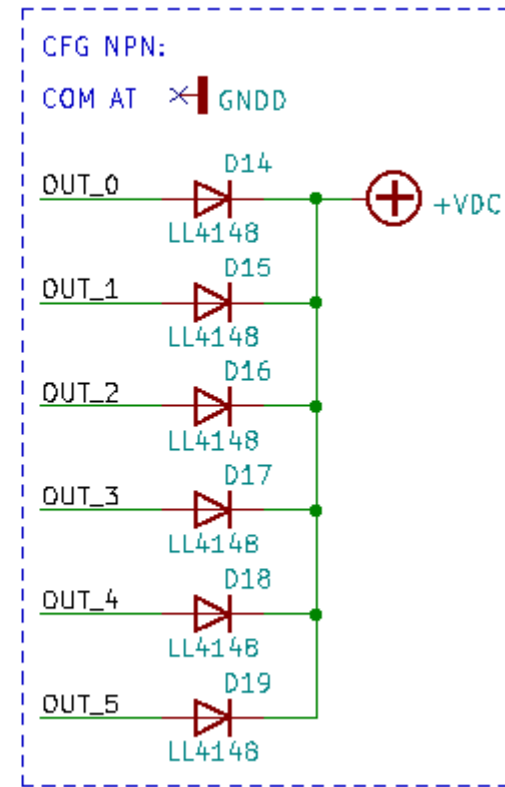
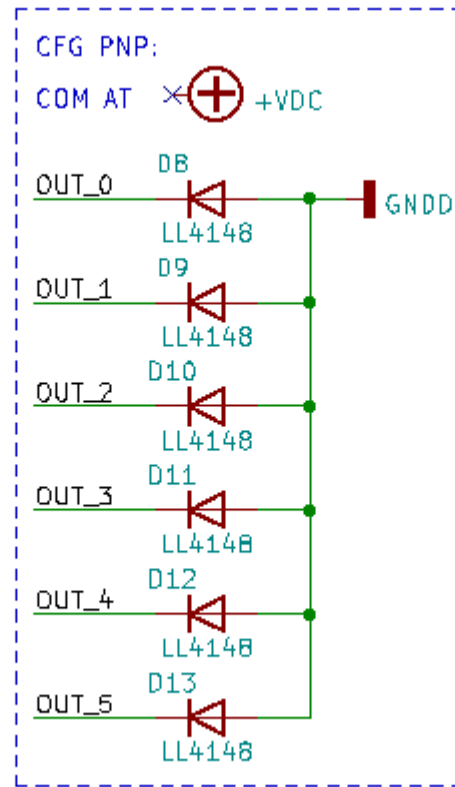
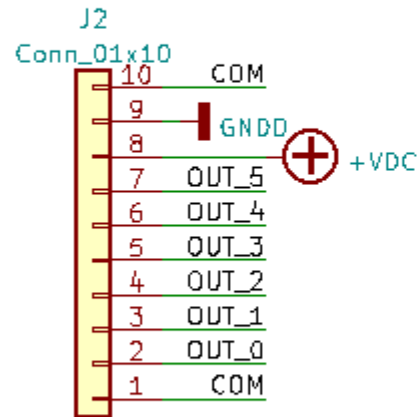
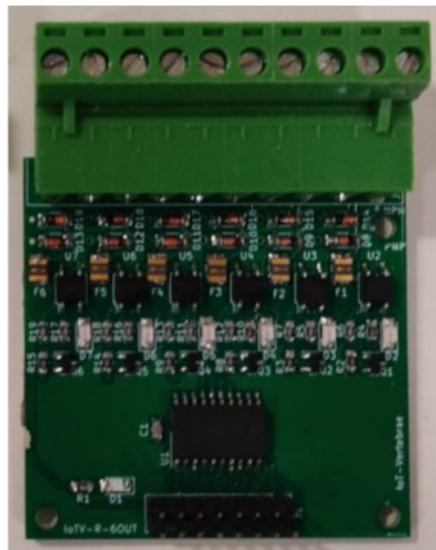
PNP 3-wire Standard Diagram



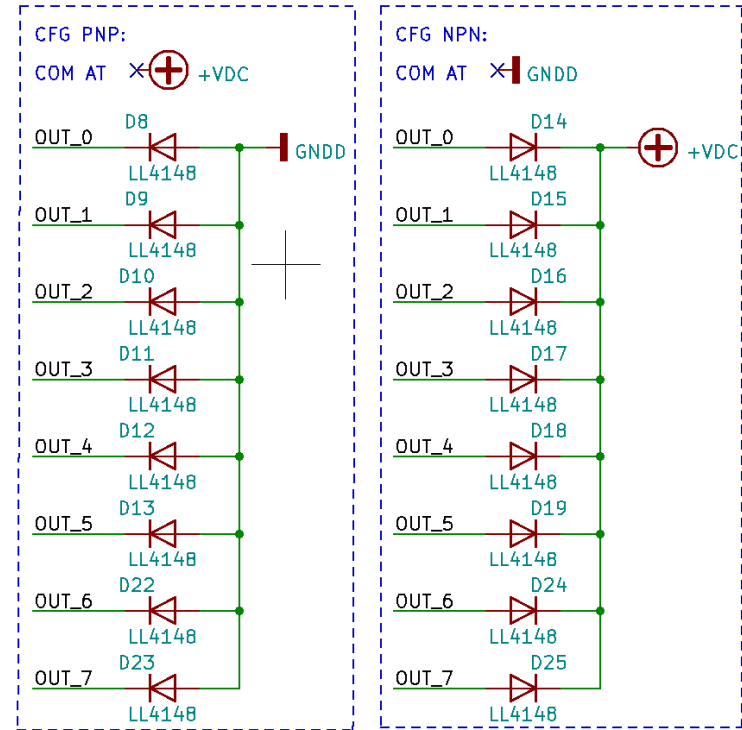
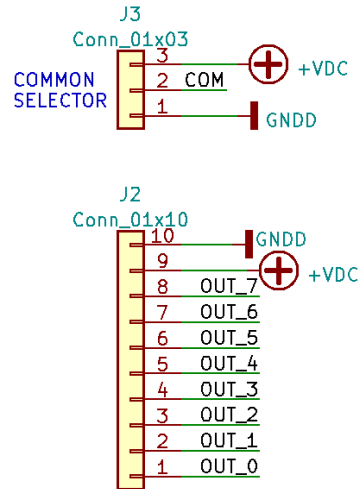
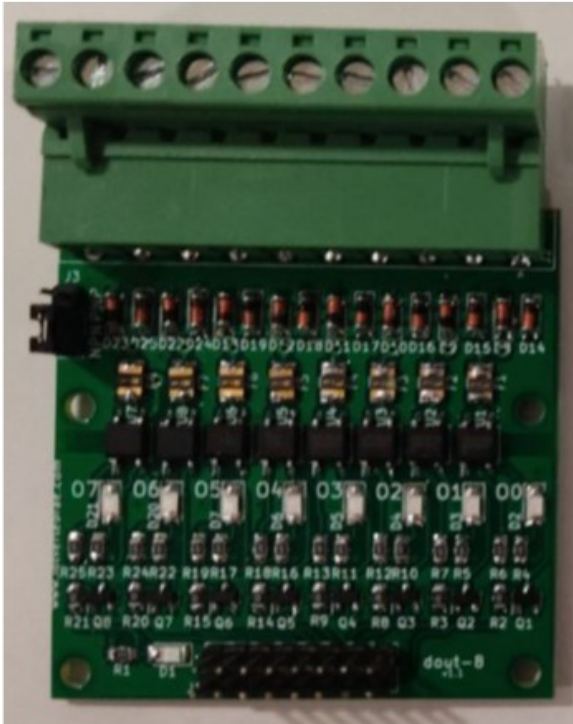
NPN 3-wire Standard Diagram



# Costella de 6 sortides digitals (v1.0)

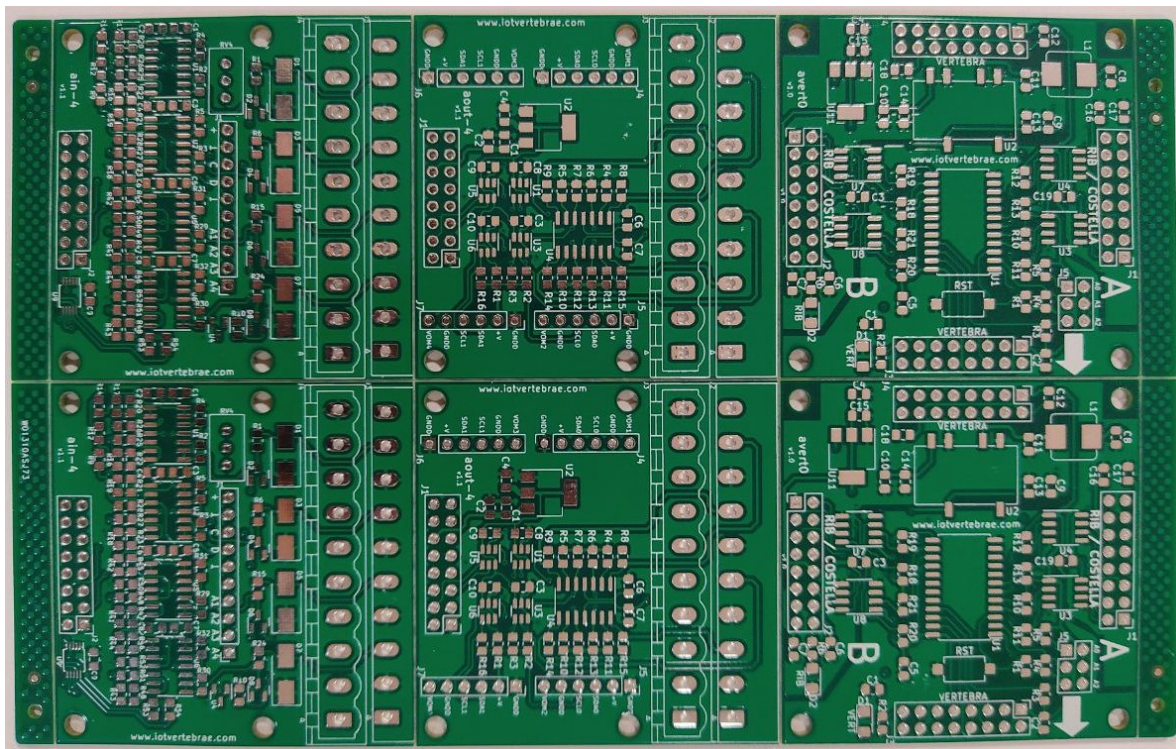
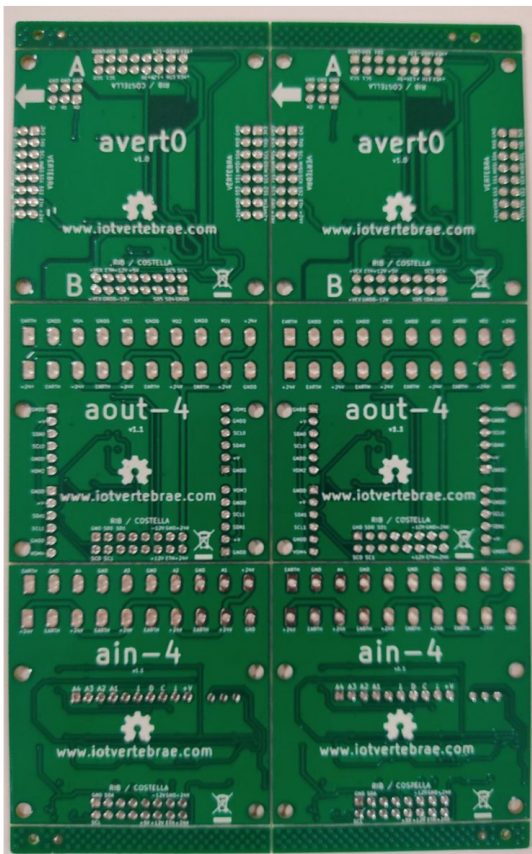


# Costella de 8 sortides digitals (v1.1)

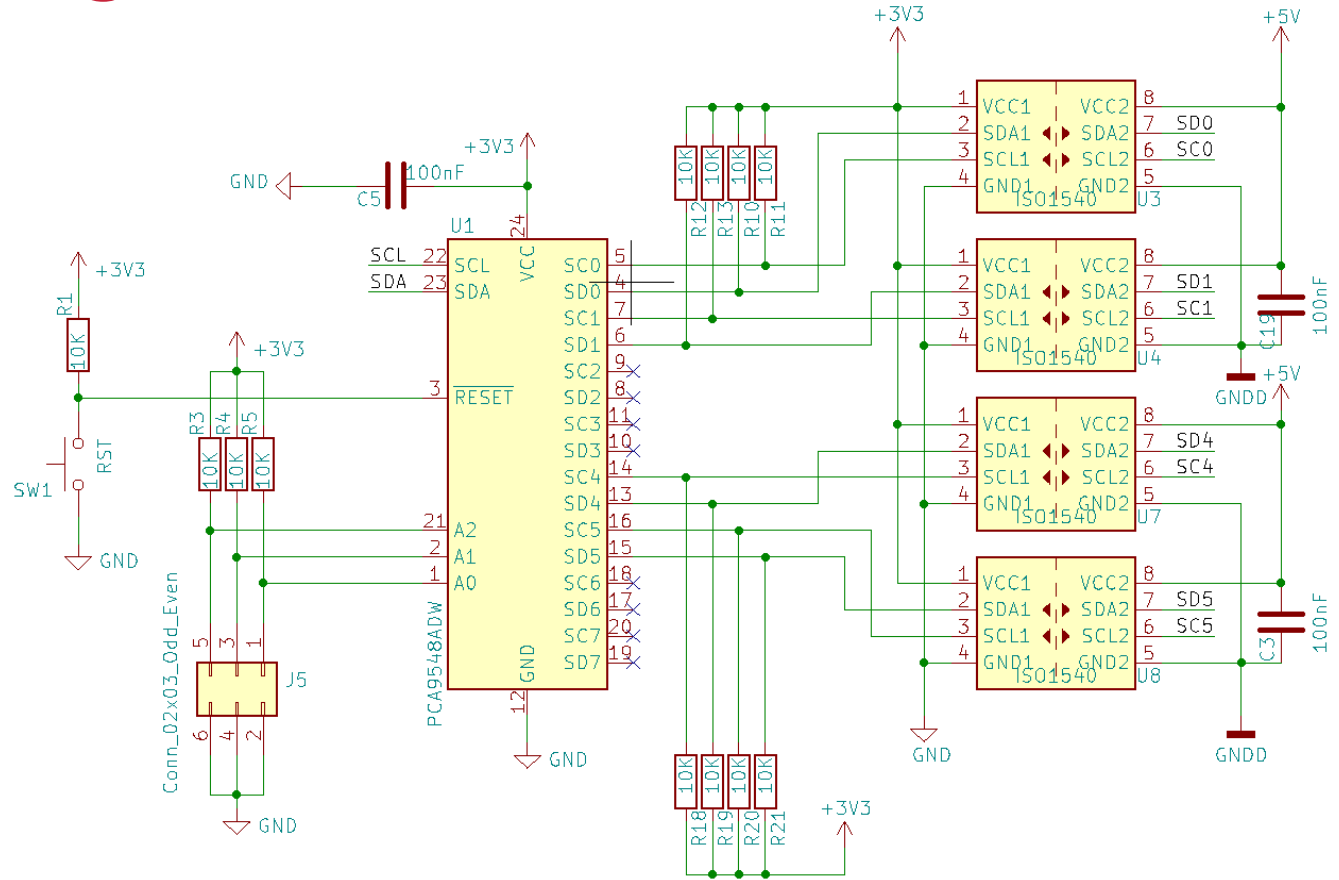
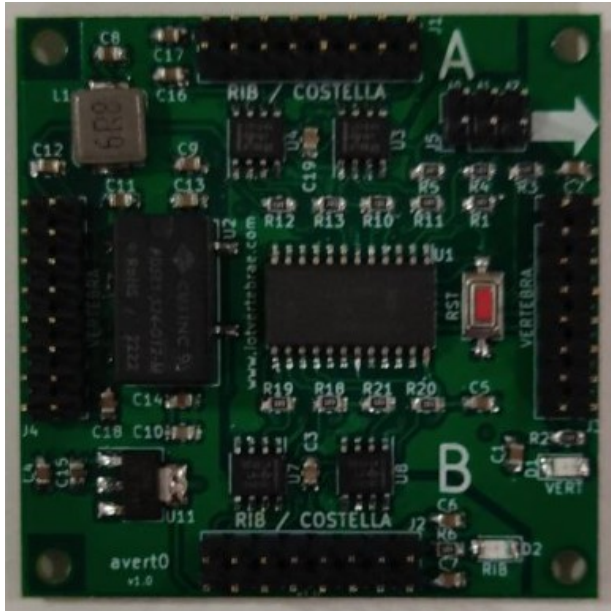




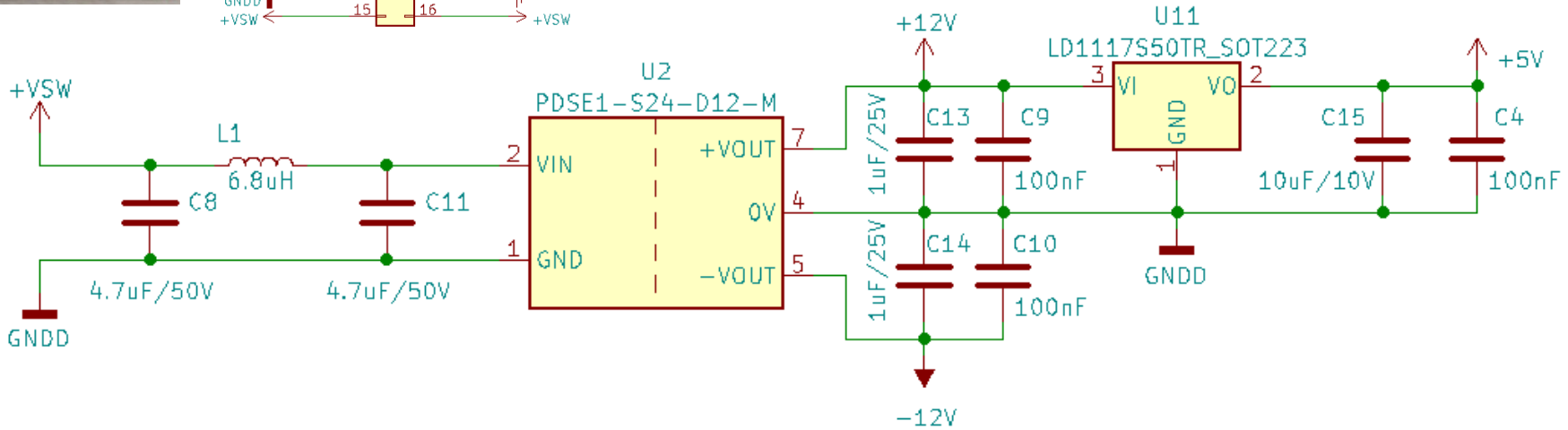
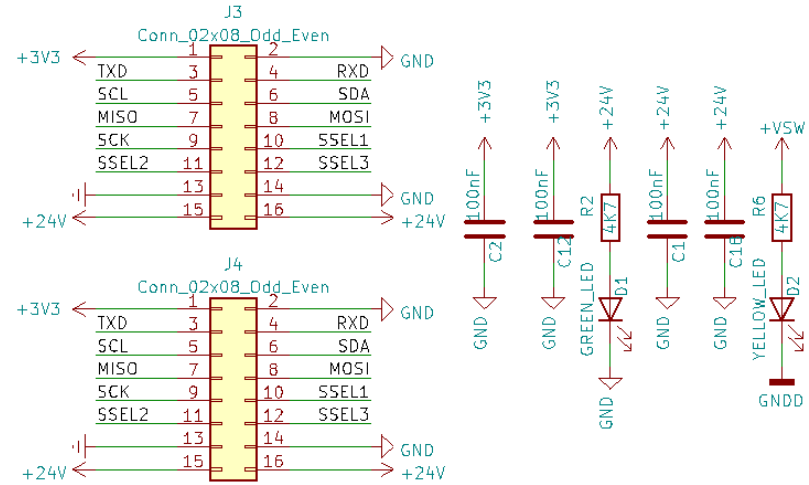
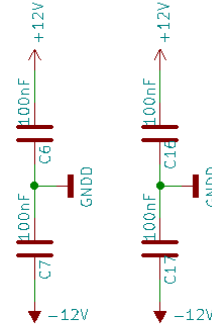
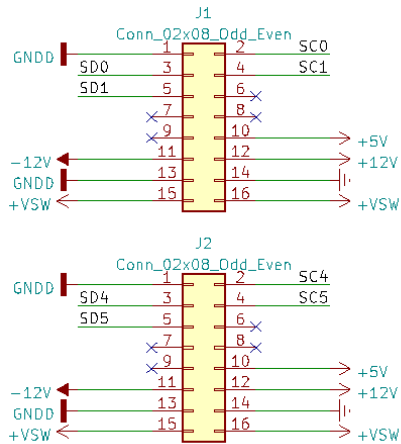
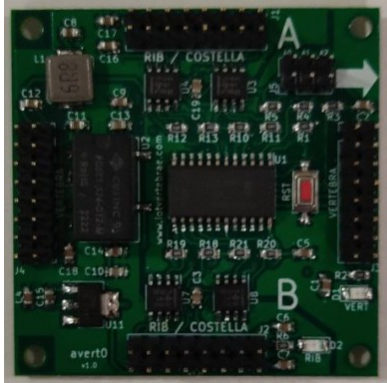
# Vèrtebres i costelles analògiques



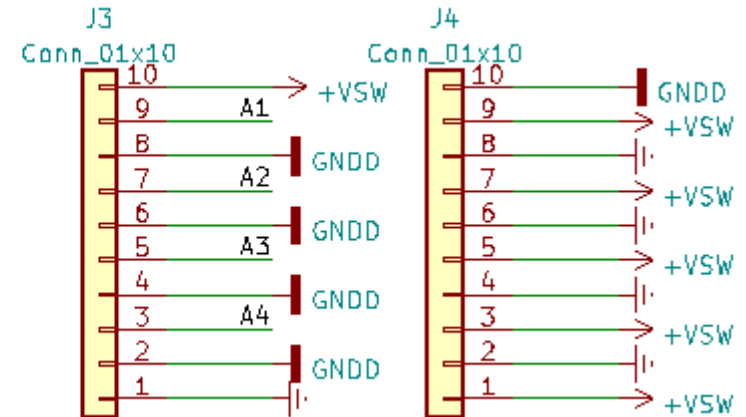
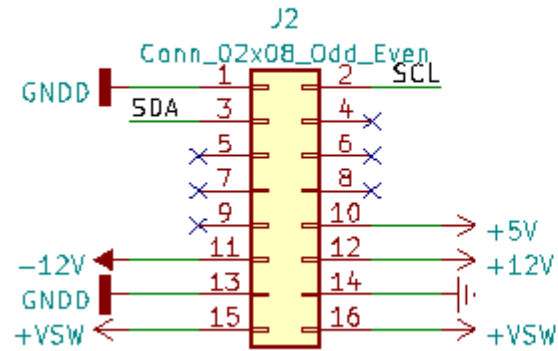
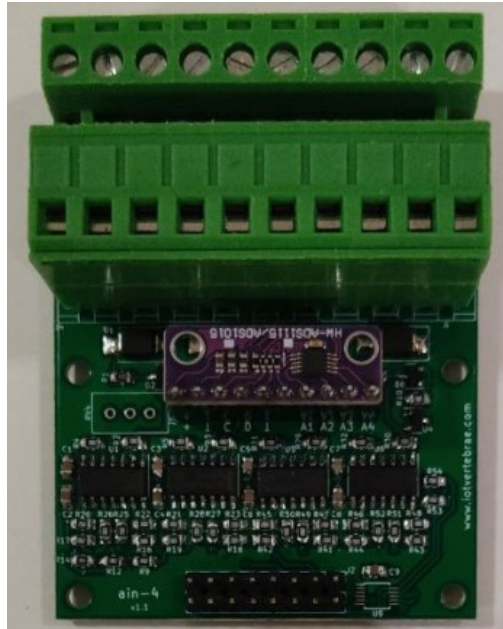
# Vèrtebra analògica



# Vèrtebra analògica

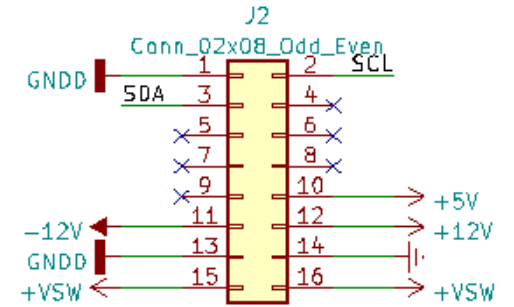
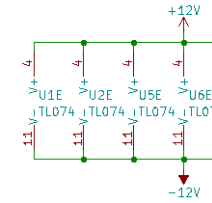
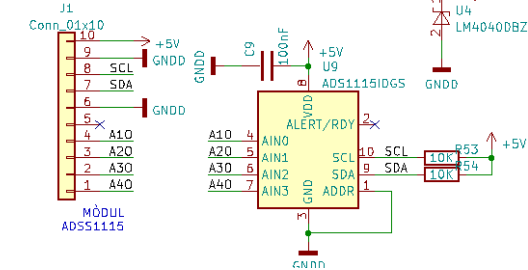
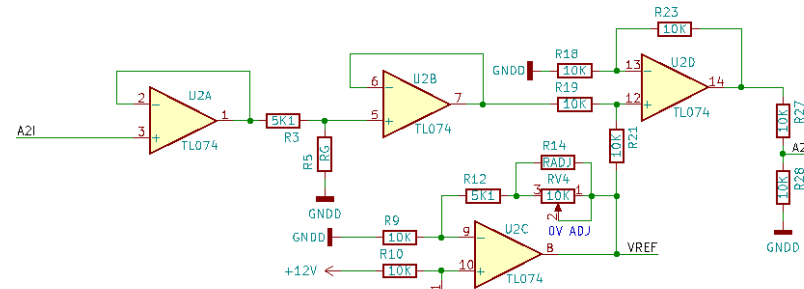
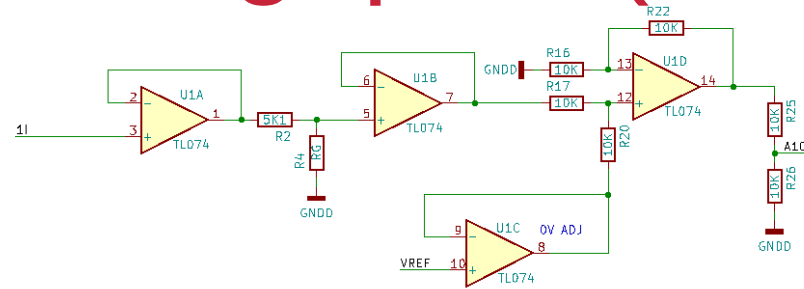
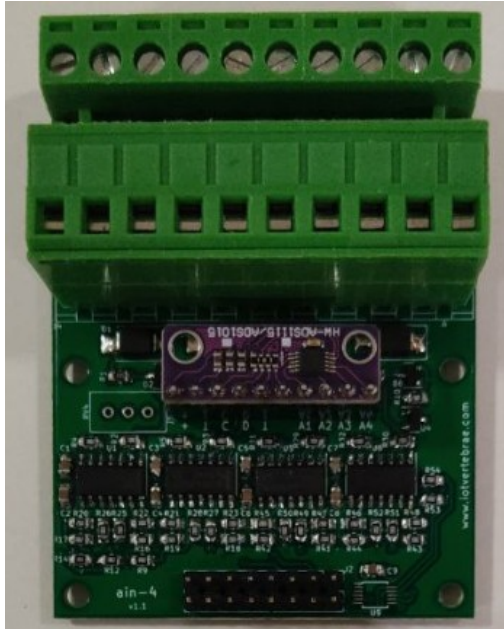


# 4 entrades analògiques (-10V a 10V)

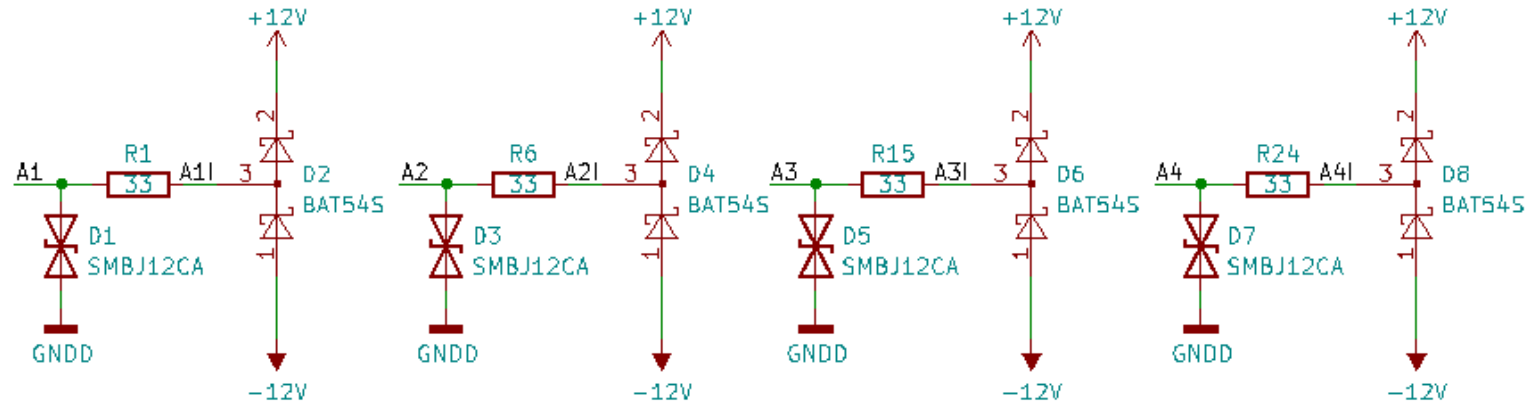
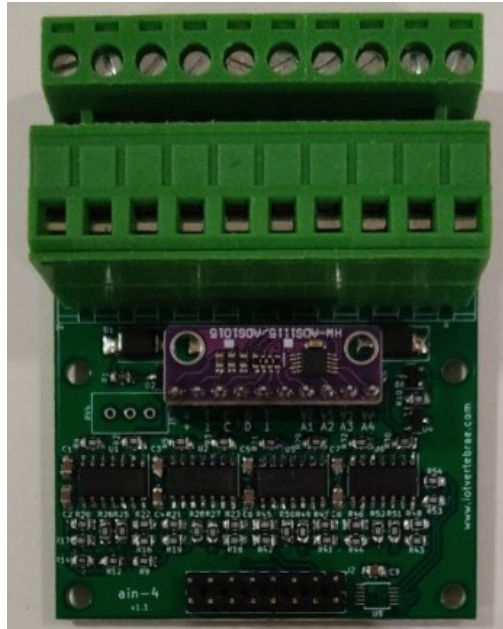




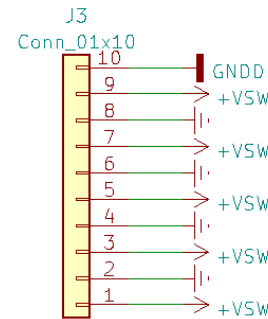
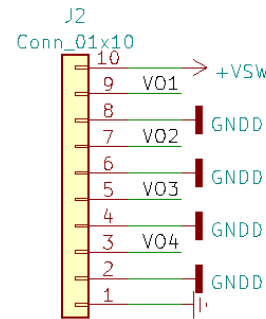
# 4 entrades analògiques (-10V a 10V)



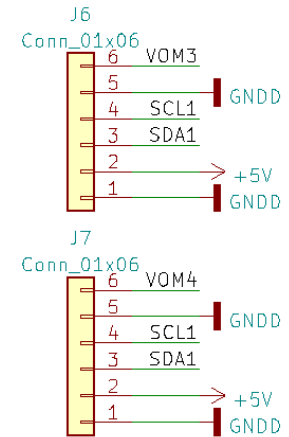
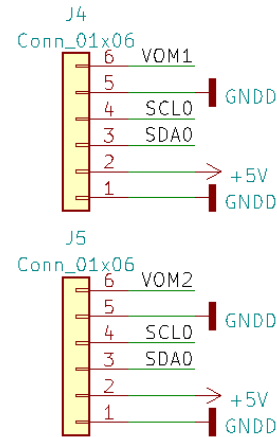
# 4 entrades analògiques (-10V a 10V)



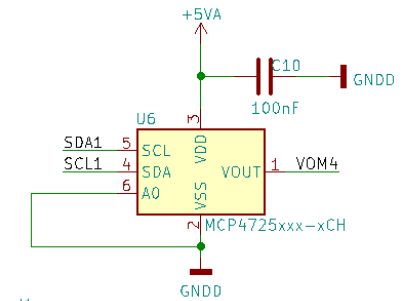
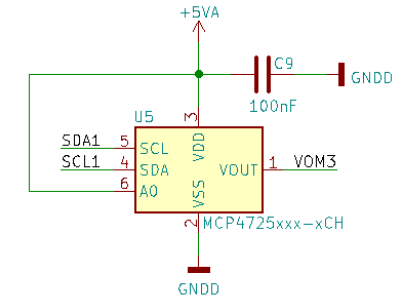
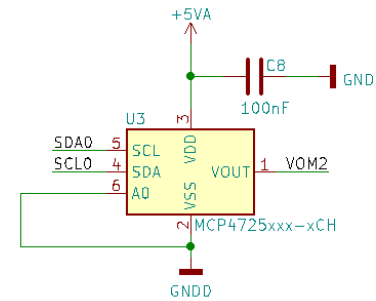
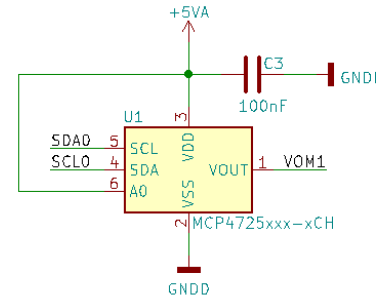
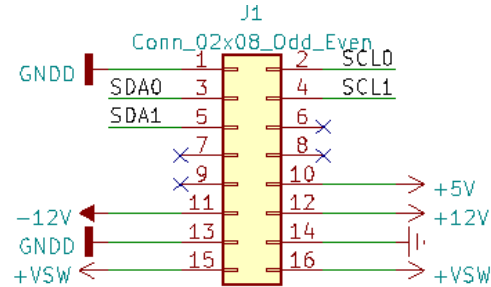
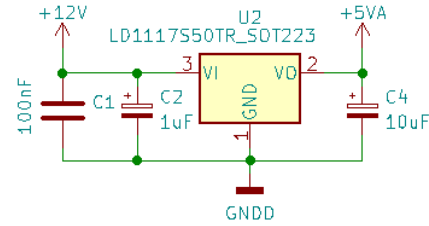
# 4 sorties analogiques (0 a 10V)



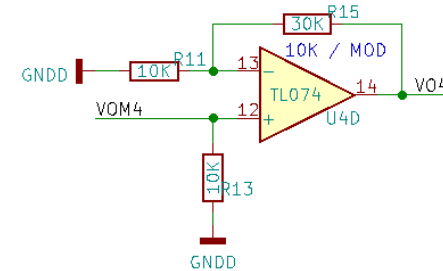
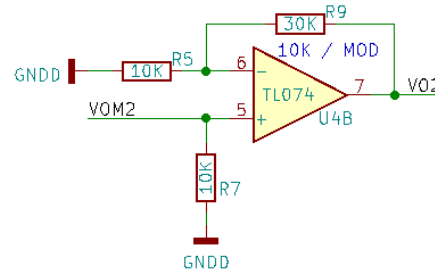
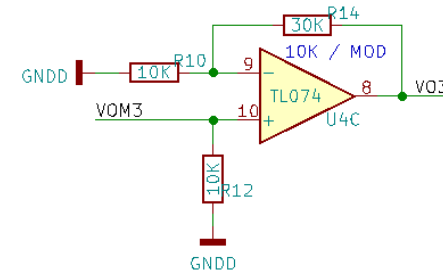
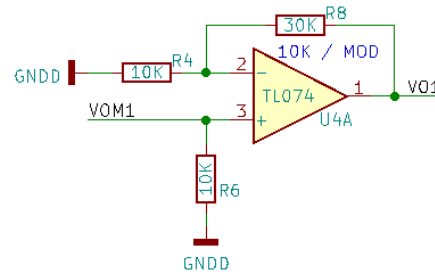
MOD (EXTERNAL MCP4725 MODULES)



# 4 sorties analogiques (0 a 10V)



# 4 sorties analogiques (0 a 10V)





# Torn de preguntes, dubtes i suggeriments

how who how ? where ? when !  
what ! when why  
how who what how why  
**Questions!**  
? ! ? how where who how where  
who ! why what how how what why ?  
? how when ? why ! ! where !  
! when

