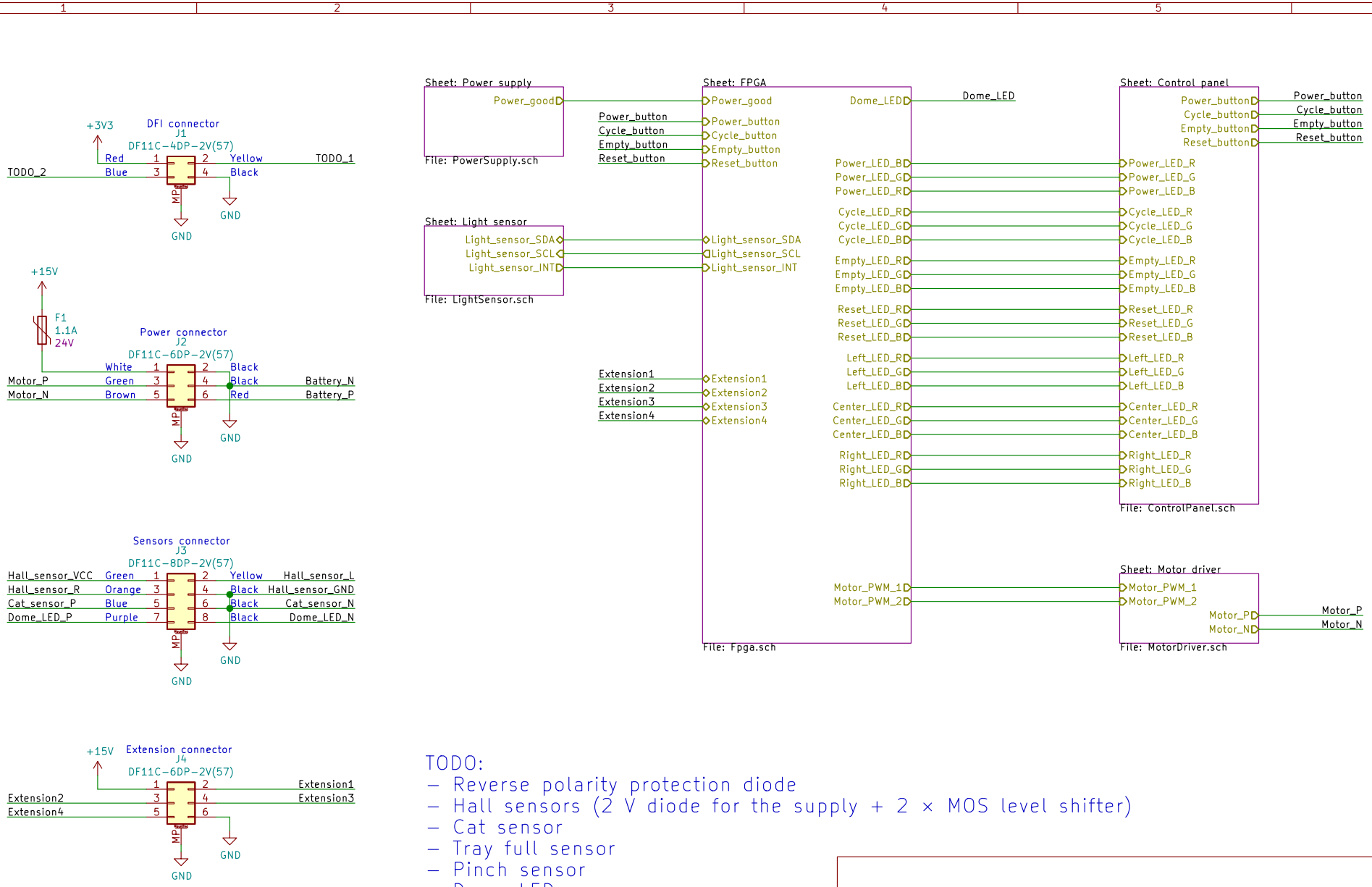
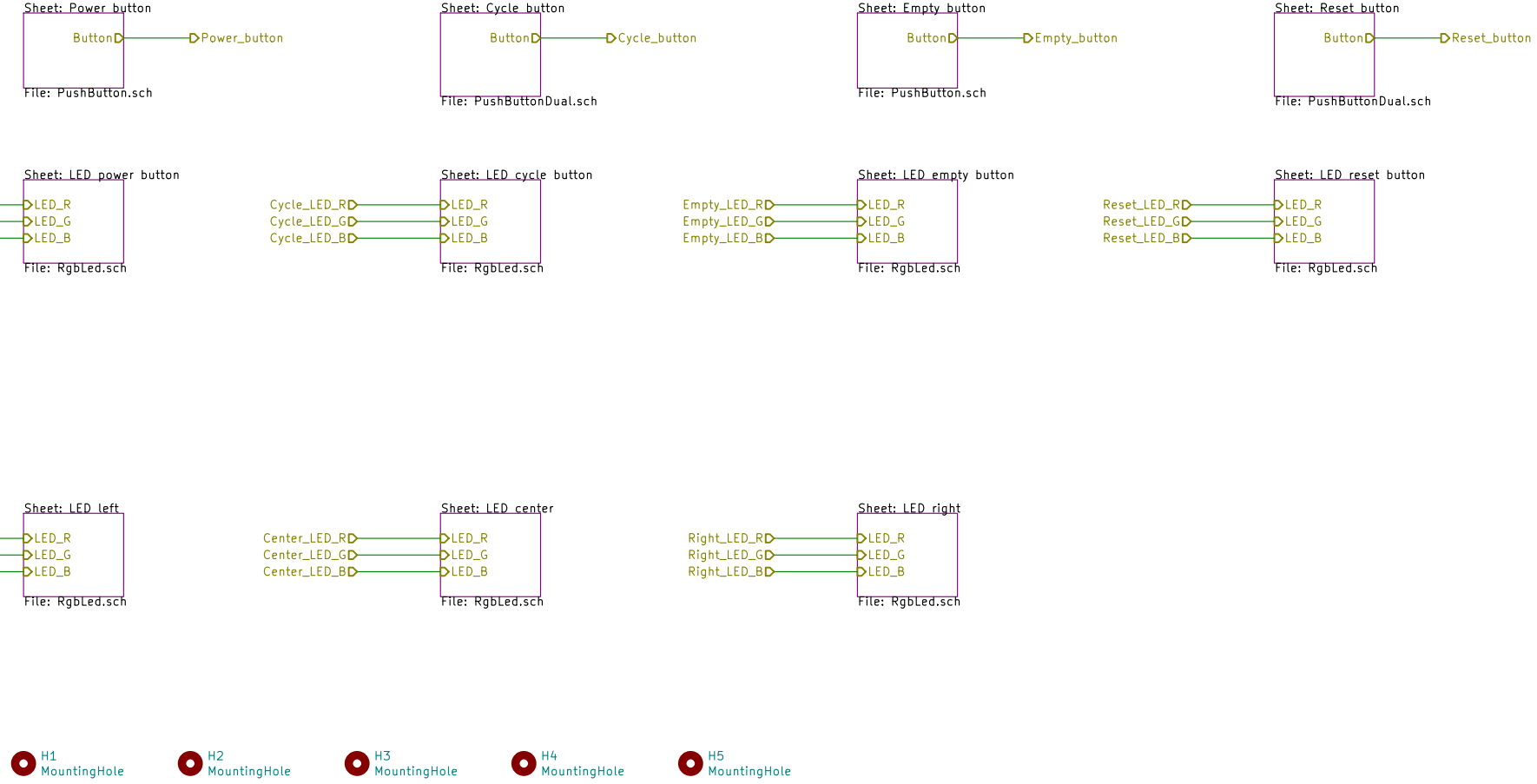


TODO:
- Reverse polarity protection diode
- Hall sensors (2 V diode for the supply + 2 × MOS level shifter)
- Cat sensor
- Tray full sensor
- Pinch sensor
- Dome LED

TODO later:
- Bluetooth (MDBT40?)

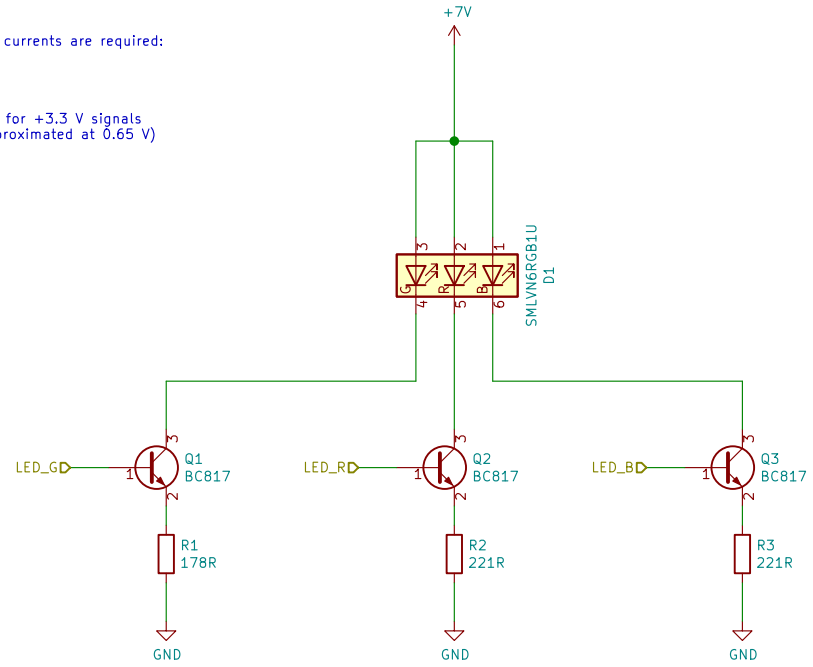
L. Sartory		
Sheet: /		
File: LitterRobot.sch		
Title: Litter Robot 3 – Main board		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 1/19



L. Sartory		
Sheet: /Control panel/ File: ControlPanel.sch		
Title: Litter Robot 3 – Control panel		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 2/19

For white light, the following currents are required:
Ired = 12 mA
Igreen = 15 mA
Iblue = 12 mA

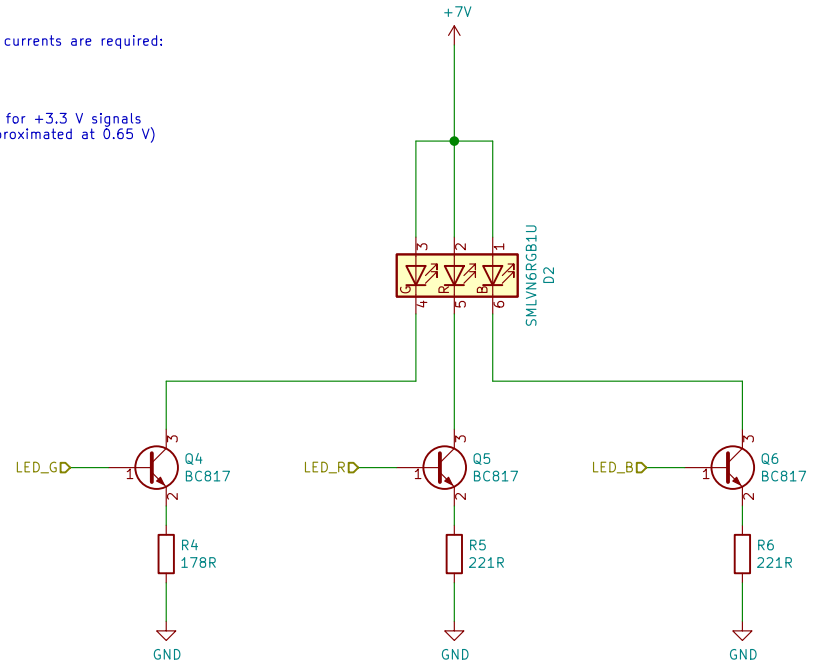
The resistors were calculated for +3.3 V signals
(Vbe of the transistors is approximated at 0.65 V)



L. Sartory		
Sheet: /Control panel/LED left/		
File: RgbLed.sch		
Title: Litter Robot 3 – RGB LED		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 3/19

For white light, the following currents are required:
Ired = 12 mA
Igreen = 15 mA
Iblue = 12 mA

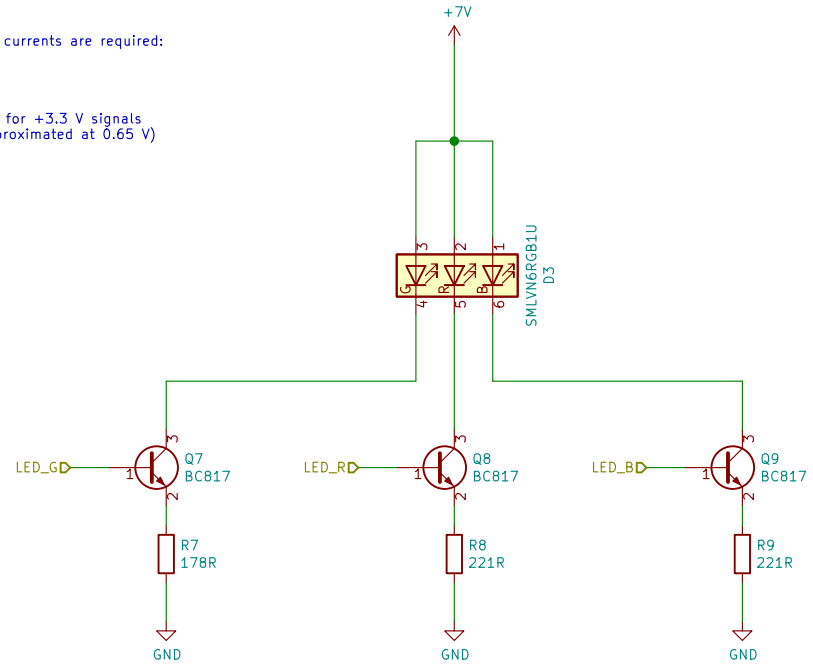
The resistors were calculated for +3.3 V signals
(Vbe of the transistors is approximated at 0.65 V)



L. Sartory		
Sheet: /Control panel/LED right/		
File: RgbLed.sch		
Title: Litter Robot 3 – RGB LED		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 4/19

For white light, the following currents are required:
Ired = 12 mA
Igreen = 15 mA
Iblue = 12 mA

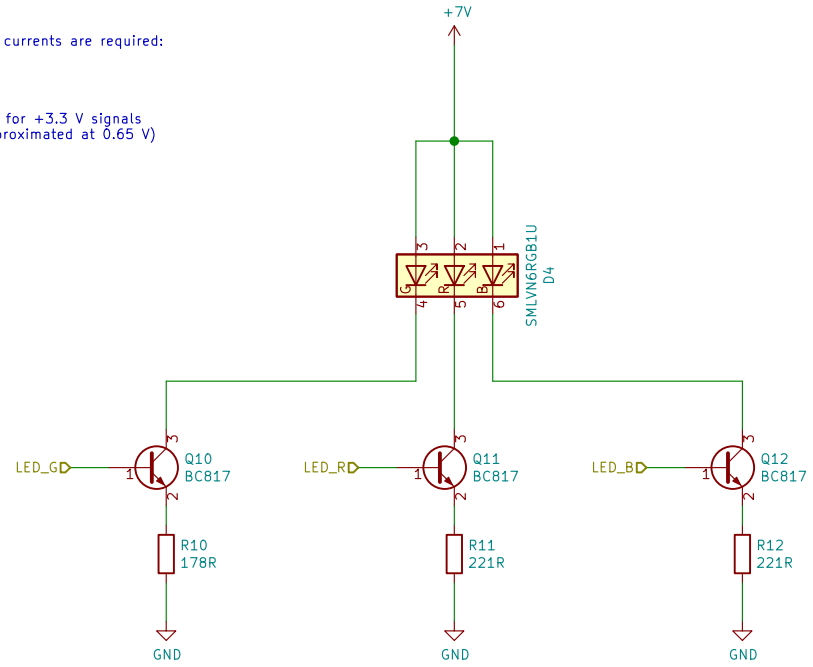
The resistors were calculated for +3.3 V signals
(Vbe of the transistors is approximated at 0.65 V)



L. Sartory		
Sheet: /Control panel/LED center/		
File: RgbLed.sch		
Title: Litter Robot 3 – RGB LED		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 5/19

For white light, the following currents are required:
Ired = 12 mA
Igreen = 15 mA
Iblue = 12 mA

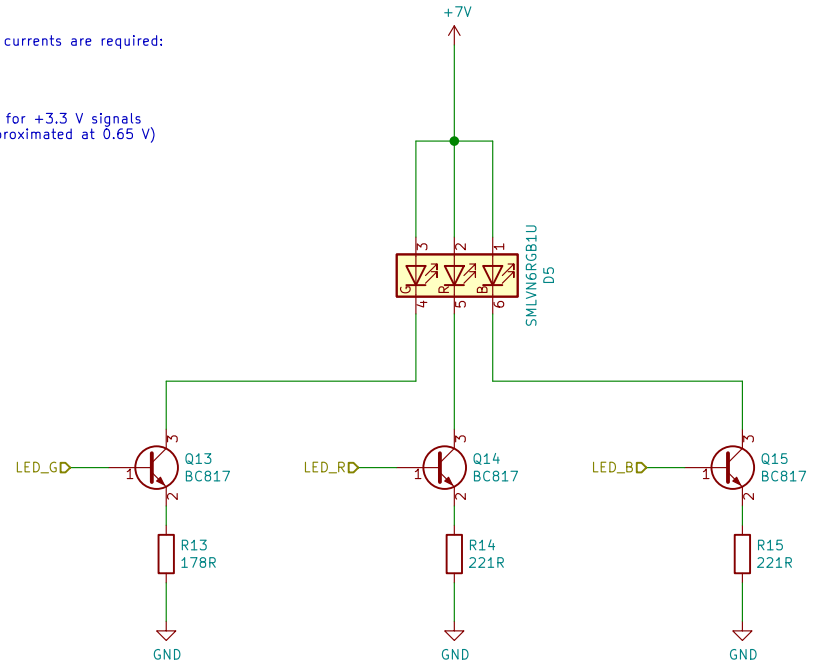
The resistors were calculated for +3.3 V signals
(Vbe of the transistors is approximated at 0.65 V)



L. Sartory		
Sheet: /Control panel/LED cycle button/		
File: RgbLed.sch		
Title: Litter Robot 3 – RGB LED		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 6/19

For white light, the following currents are required:
Ired = 12 mA
Igreen = 15 mA
Iblue = 12 mA

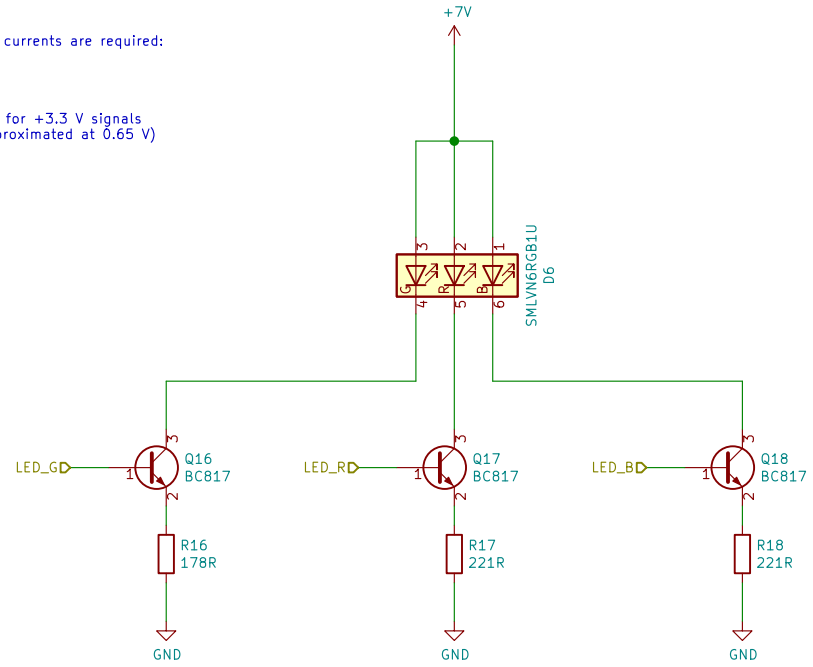
The resistors were calculated for +3.3 V signals
(Vbe of the transistors is approximated at 0.65 V)



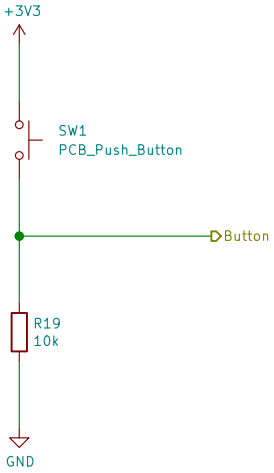
L. Sartory		
Sheet: /Control panel/LED reset button/		
File: RgbLed.sch		
Title: Litter Robot 3 – RGB LED		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 7/19

For white light, the following currents are required:
Ired = 12 mA
Igreen = 15 mA
Iblue = 12 mA

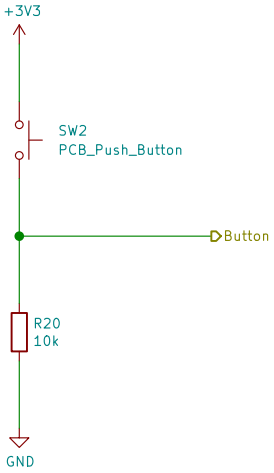
The resistors were calculated for +3.3 V signals
(Vbe of the transistors is approximated at 0.65 V)



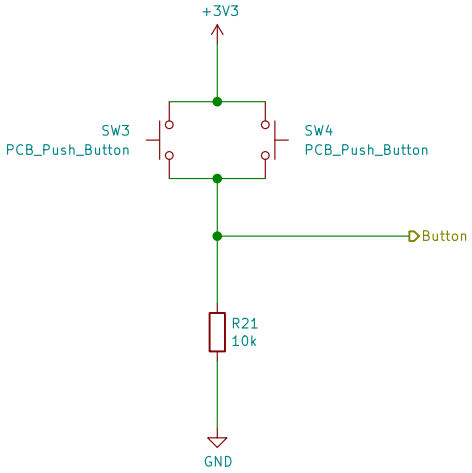
L. Sartory		
Sheet: /Control panel/LED empty button/		
File: RgbLed.sch		
Title: Litter Robot 3 – RGB LED		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 8/19



L. Sartory		
Sheet: /Control panel/Empty button/		
File: PushButton.sch		
Title: Litter Robot 3 – Push button (single)		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 9/19



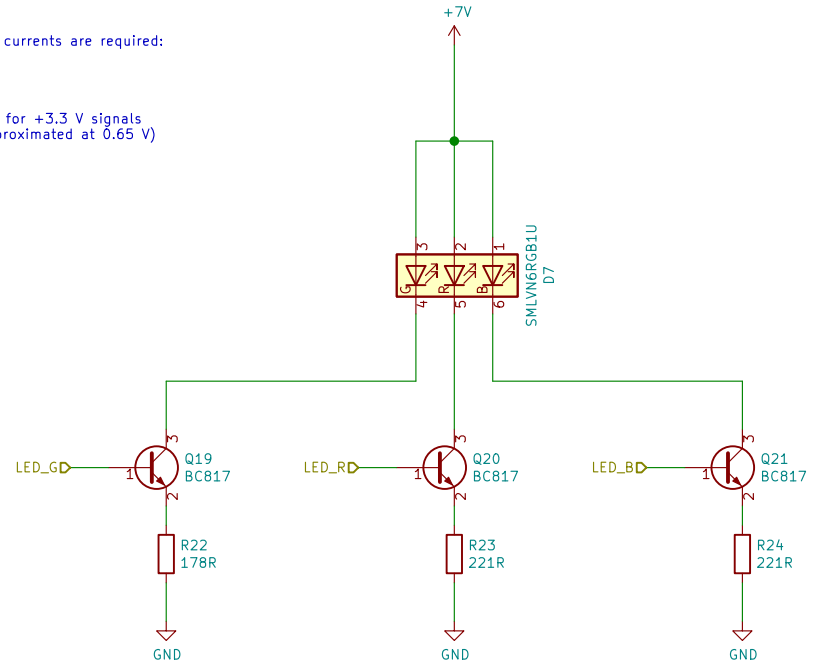
L. Sartory		
Sheet: /Control panel/Power button/		
File: PushButton.sch		
Title: Litter Robot 3 – Push button (single)		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 10/19



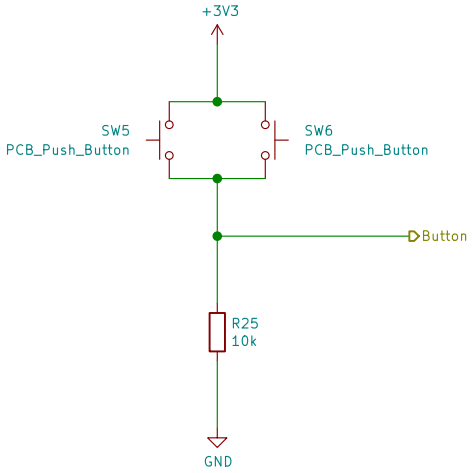
L. Sartory		
Sheet: /Control panel/Cycle button/		
File: PushButtonDual.sch		
Title: Litter Robot 3 – Push button (dual)		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 11/19

For white light, the following currents are required:
Ired = 12 mA
Igreen = 15 mA
Iblue = 12 mA

The resistors were calculated for +3.3 V signals
(Vbe of the transistors is approximated at 0.65 V)



L. Sartory		
Sheet: /Control panel/LED power button/		
File: RgbLed.sch		
Title: Litter Robot 3 – RGB LED		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 12/19

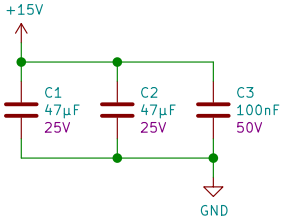


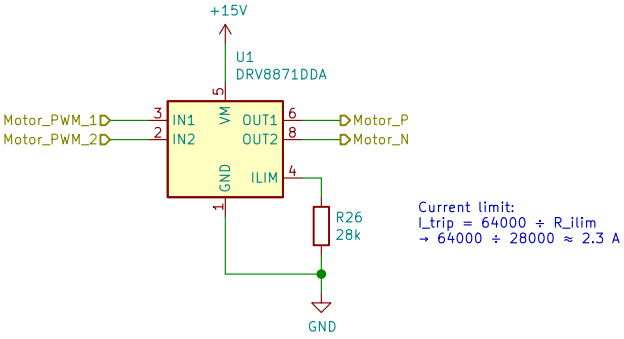
L. Sartory

Sheet: /Control panel/Reset button/
File: PushButtonDual.sch

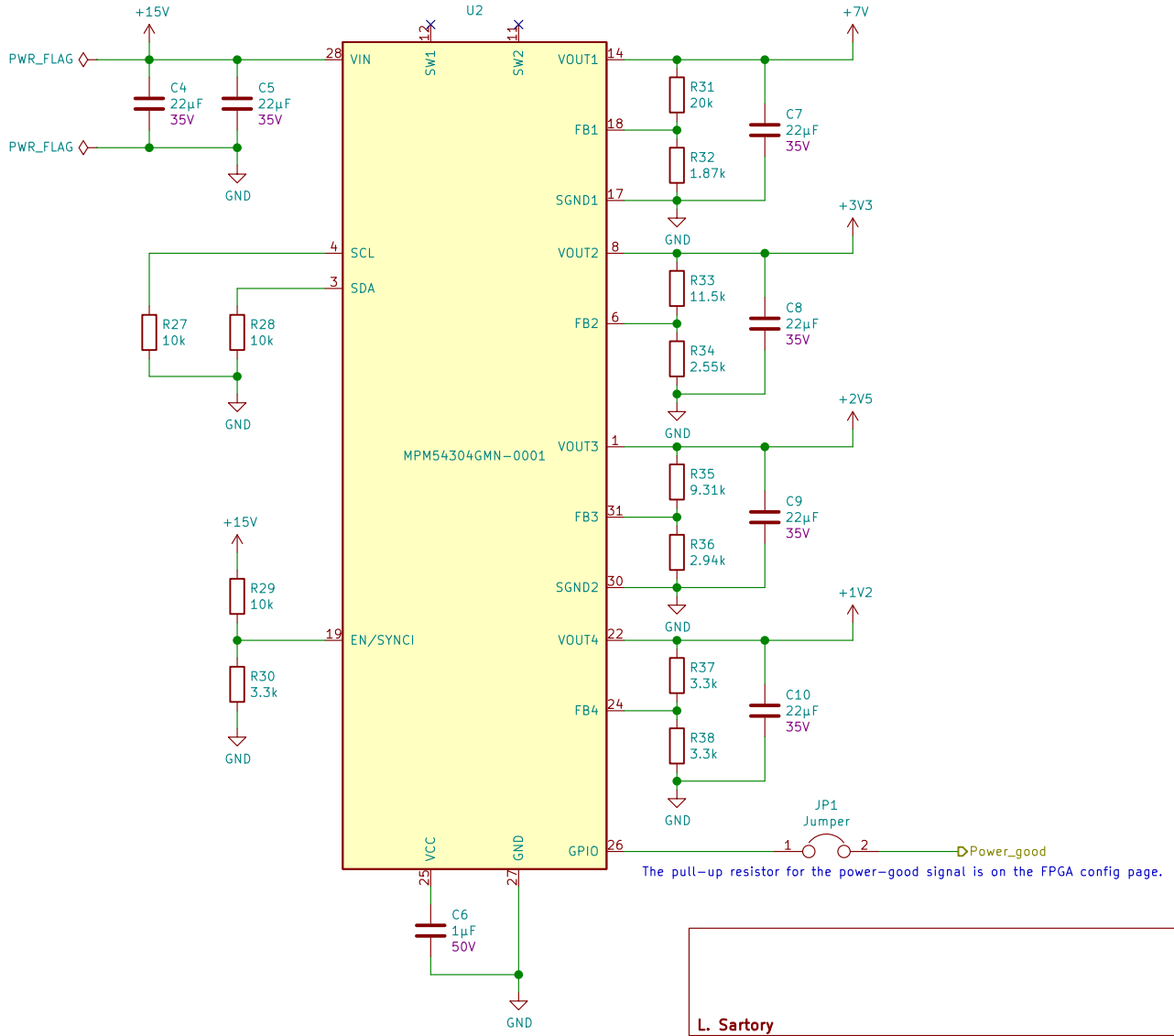
Title: Litter Robot 3 – Push button (dual)

Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 13/19

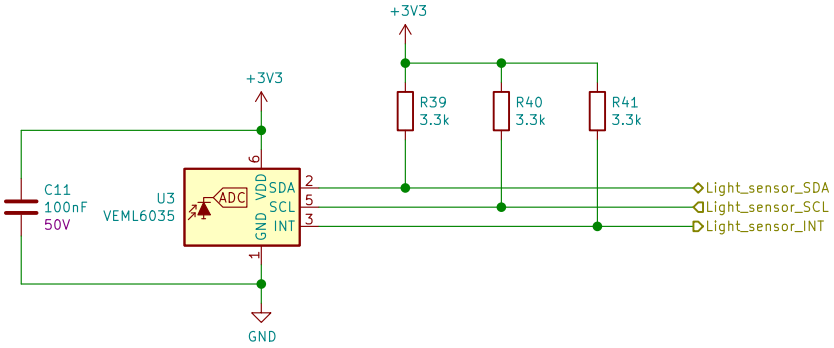




L. Sartory		
Sheet: /Motor driver/ File: MotorDriver.sch		
Title: Litter Robot 3 – Motor driver		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 14/19



L. Sartory		
Sheet: /Power supply/		
File: PowerSupply.sch		
Title: Litter Robot 3 – Power supply		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 15/19

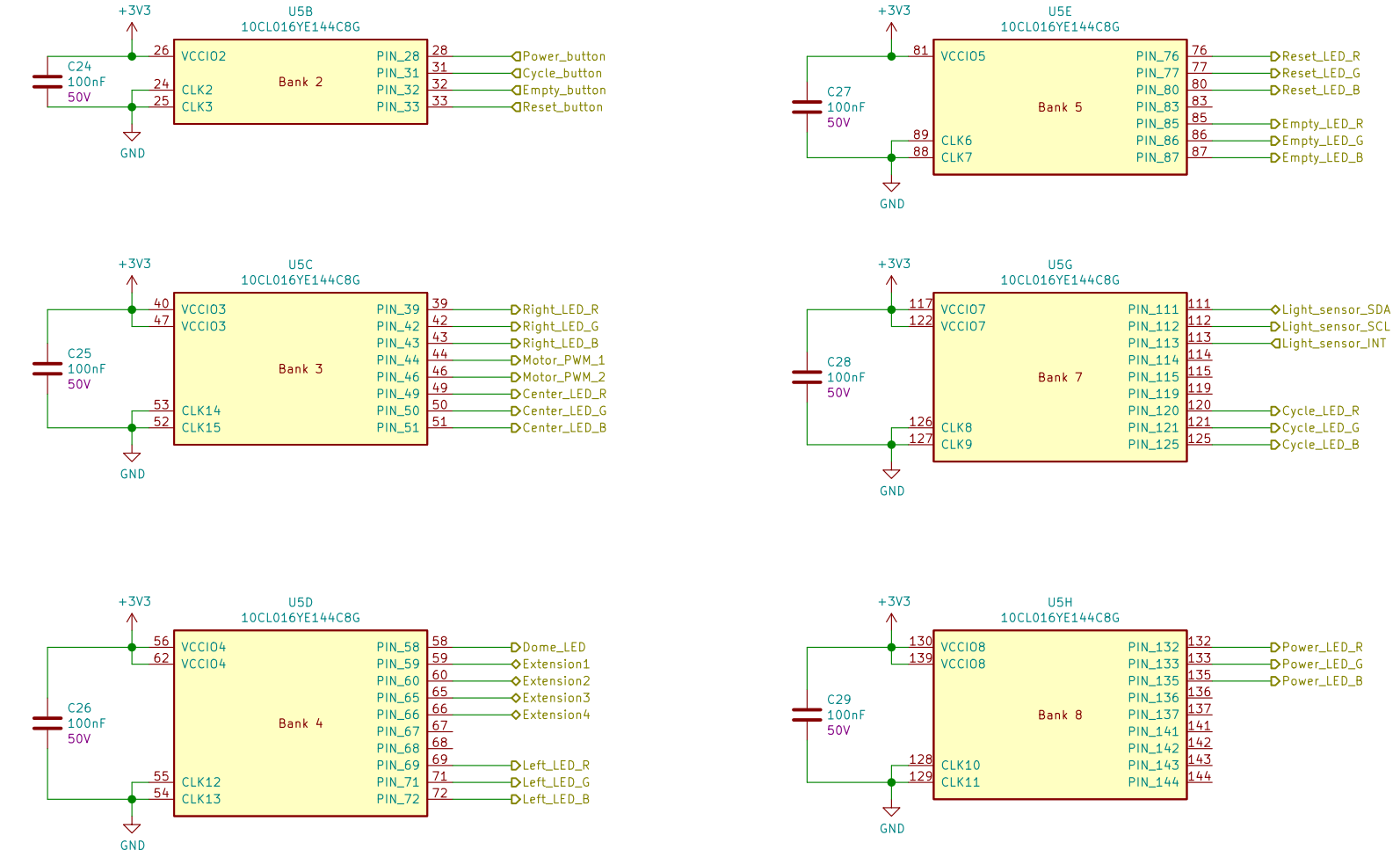


L. Sartory

Sheet: /Light sensor/
File: LightSensor.sch

Title: Litter Robot 3 – Ambient light sensor

Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 16/19



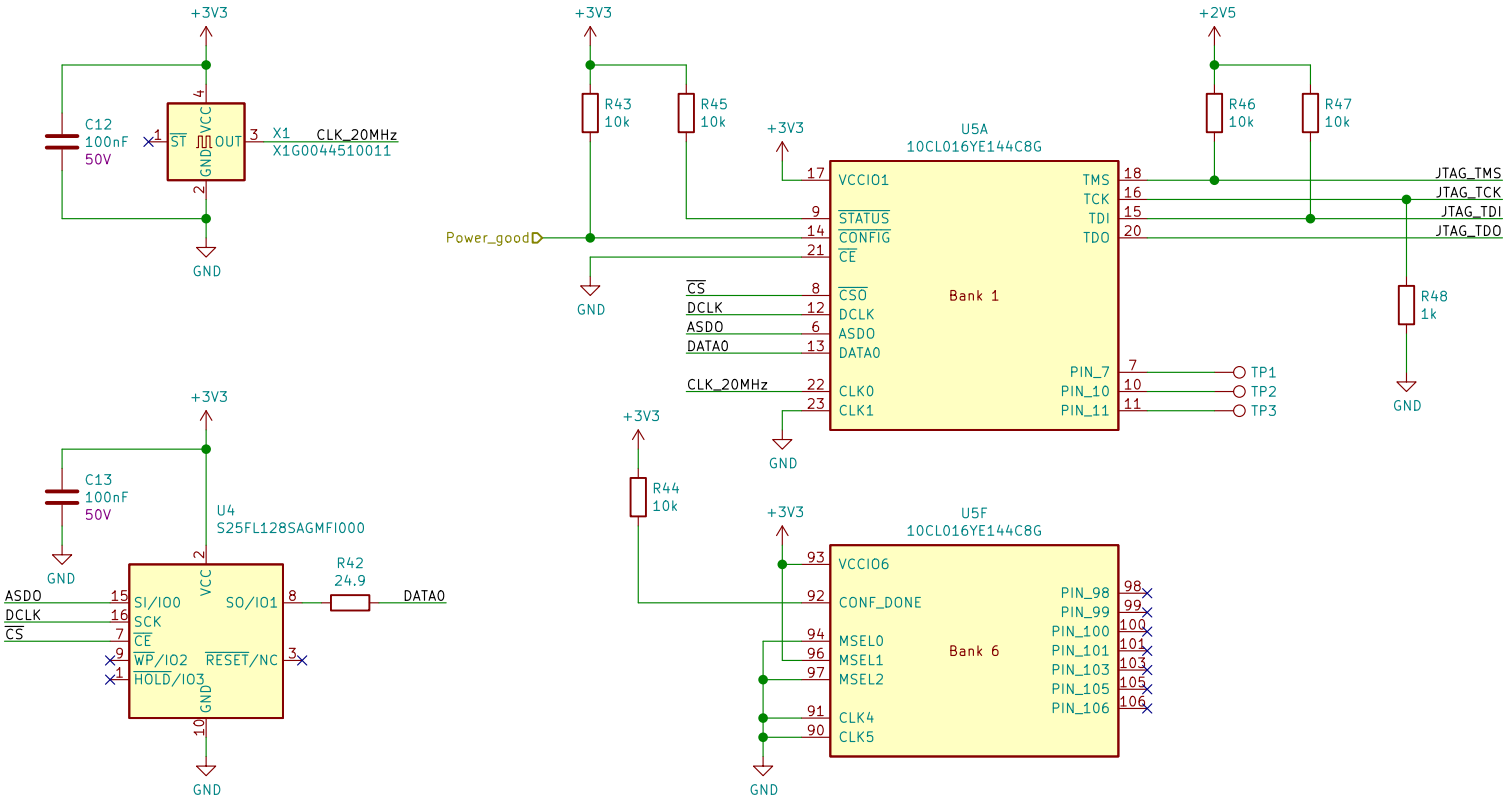
L. Sartory

Sheet: /FPGA/
File: Fpga.sch

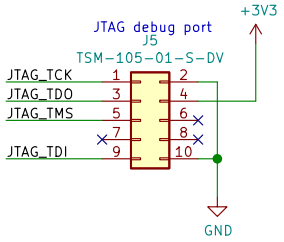
Title: Litter Robot 3 – FPGA

Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 17/19

Intel® Cyclone® 10 LP Device Family Pin Connection Guidelines:
https://www.intel.com/content/dam/www/programmable/us/en/pdfs/literature/dp/cyclone-10/pcg-01021.pdf



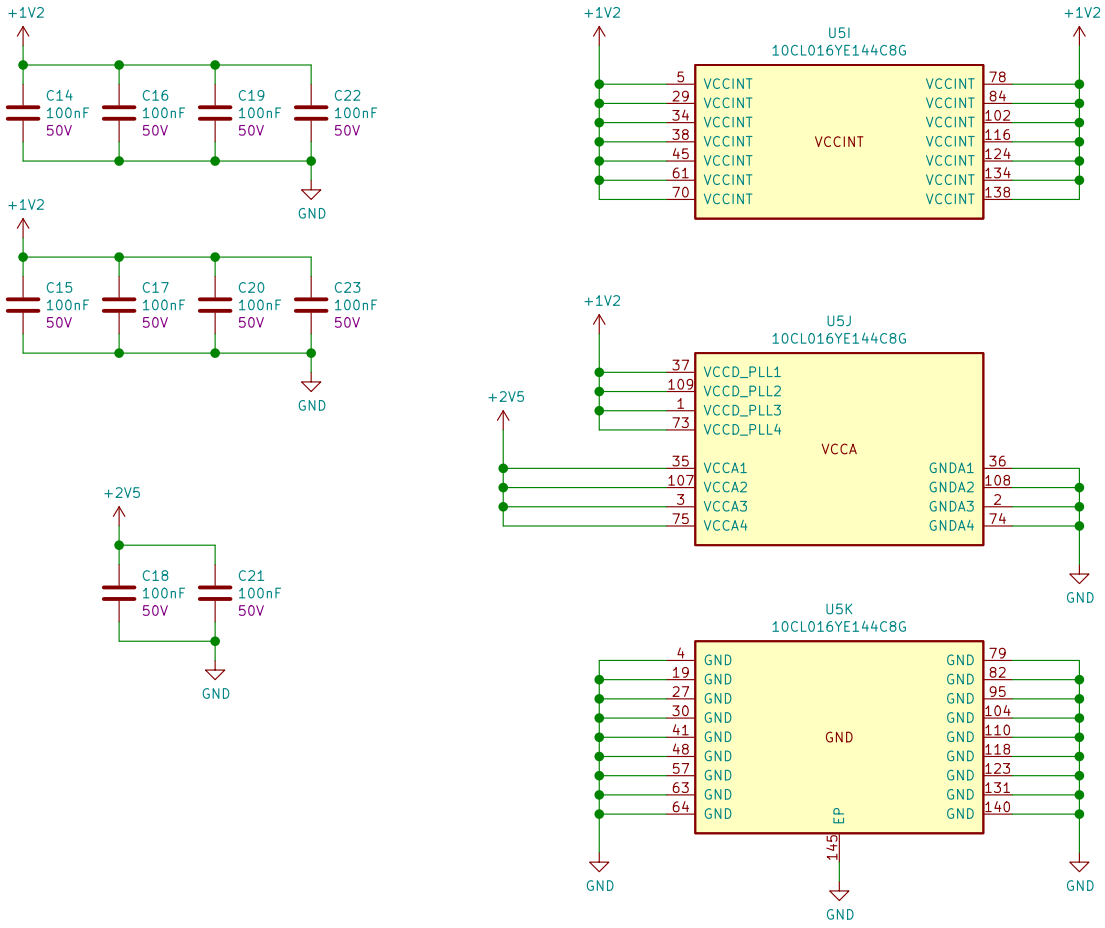
MSEL[2..0] = "010" → Active serial, standard POR, 3.3 V



For other configuration device options:
https://www.intel.com/content/www/us/en/programmable/support/support-resources/support-centers/configuration-support.html#intel-config-devices

MT25QL128ABA8ESF-0SIT / MT25QL128ABA8ESF-0AAT
MX25L12833FMI-10G
S25FL128SAGMFI000

L. Sartory		
Sheet: /FPGA/FPGA config/		
File: FpgaConfig.sch		
Title: Litter Robot 3 – FPGA configuration		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 18/19



L. Sartory		
Sheet: /FPGA/FPGA power/		
File: FpgaPower.sch		
Title: Litter Robot 3 – FPGA power supply		
Size: A4	Date: 2021-03-28	**Rev: A1**
KiCad E.D.A. kicad 5.1.9		Id: 19/19