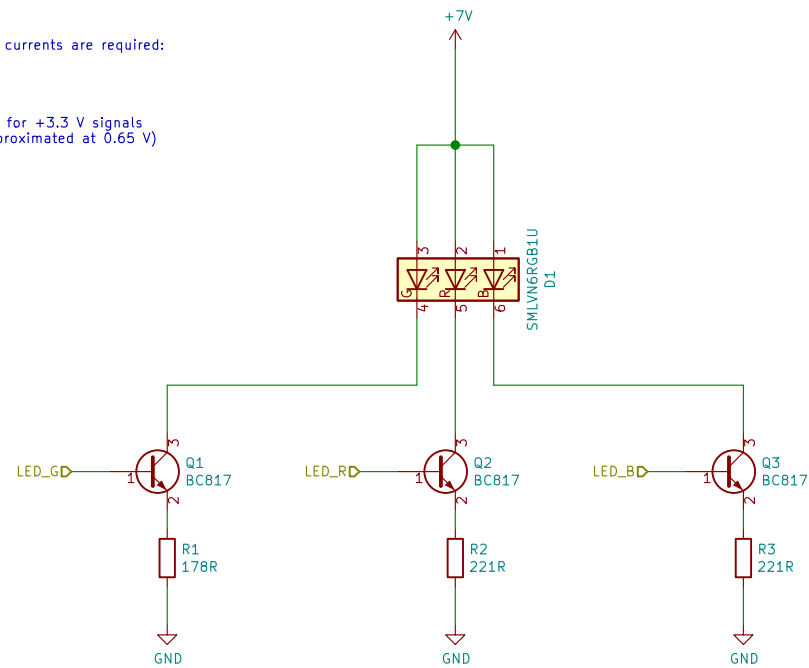


For white light, the following currents are required:  
I<sub>red</sub> = 12 mA  
I<sub>green</sub> = 15 mA  
I<sub>blue</sub> = 12 mA

The resistors were calculated for +3.3 V signals  
(V<sub>be</sub> 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

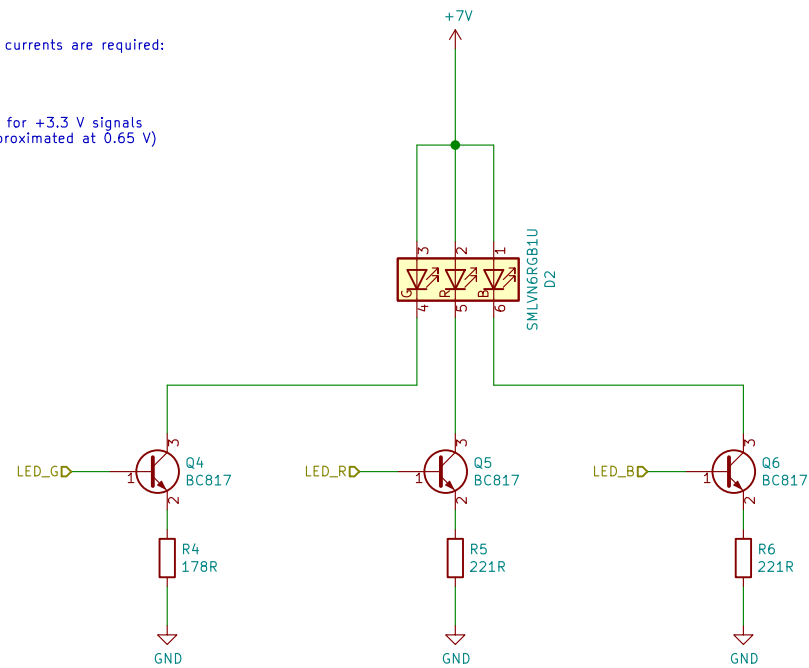
KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 3/19

For white light, the following currents are required:  
I<sub>red</sub> = 12 mA  
I<sub>green</sub> = 15 mA  
I<sub>blue</sub> = 12 mA

The resistors were calculated for +3.3 V signals  
(V<sub>be</sub> 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

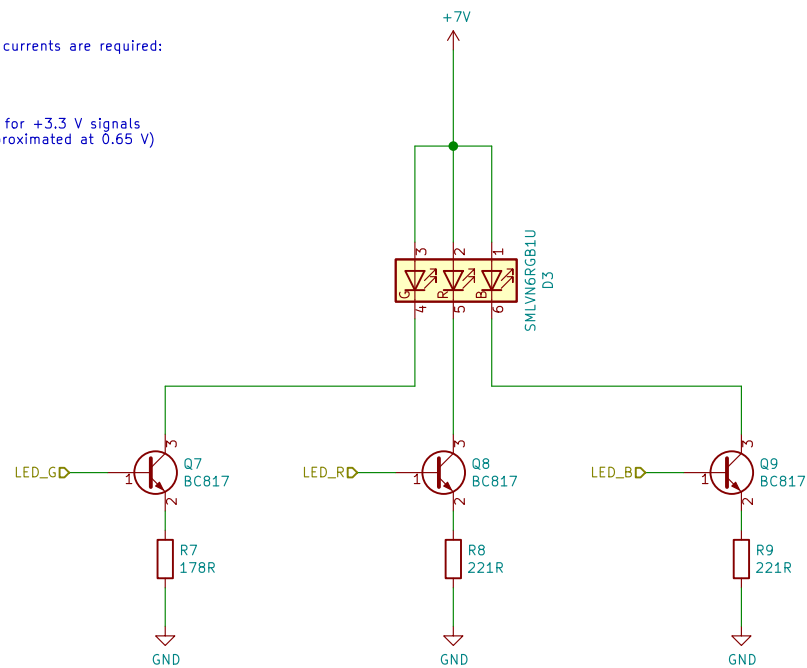
KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 4/19

For white light, the following currents are required:  
I<sub>red</sub> = 12 mA  
I<sub>green</sub> = 15 mA  
I<sub>blue</sub> = 12 mA

The resistors were calculated for +3.3 V signals  
(V<sub>be</sub> 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

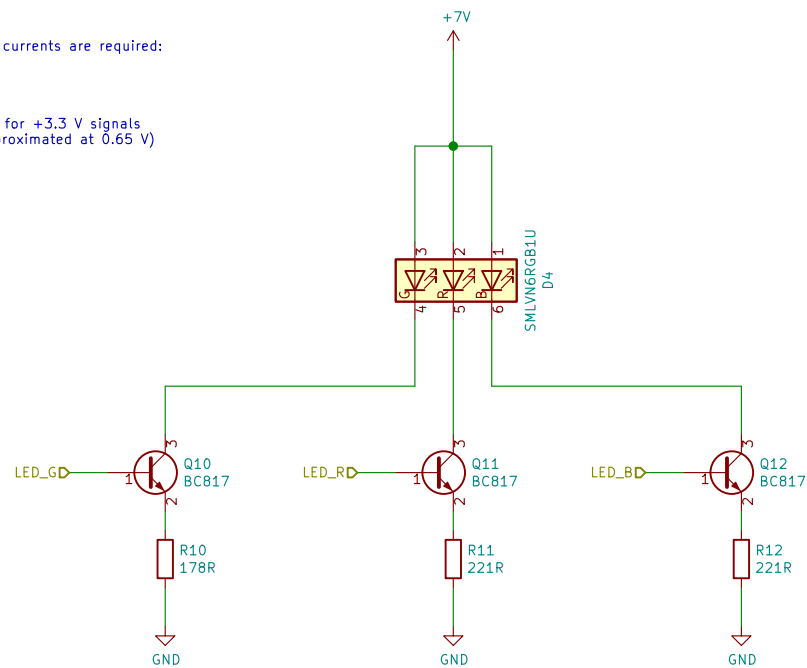
KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 5/19

For white light, the following currents are required:  
I<sub>red</sub> = 12 mA  
I<sub>green</sub> = 15 mA  
I<sub>blue</sub> = 12 mA

The resistors were calculated for +3.3 V signals  
(V<sub>be</sub> 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

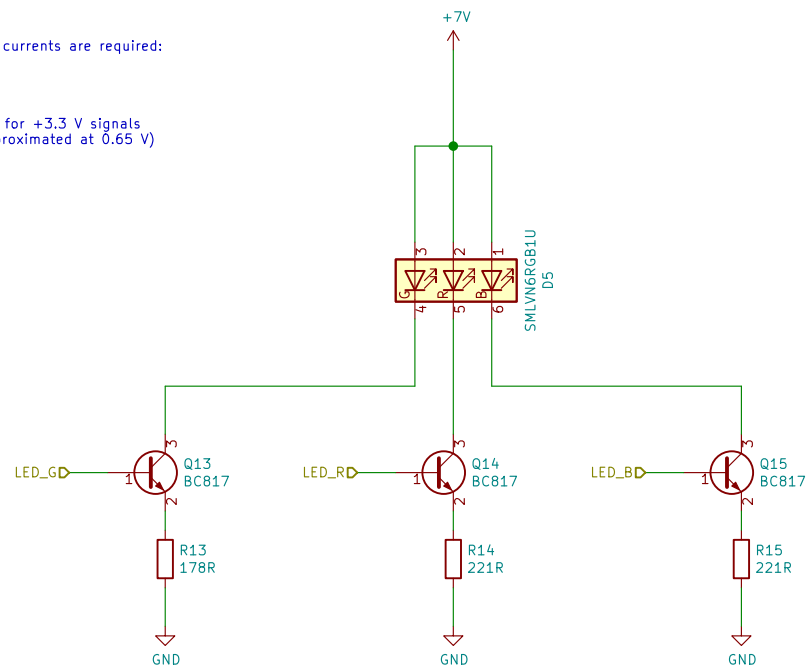
KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 6/19

For white light, the following currents are required:  
I<sub>red</sub> = 12 mA  
I<sub>green</sub> = 15 mA  
I<sub>blue</sub> = 12 mA

The resistors were calculated for +3.3 V signals  
(V<sub>be</sub> 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

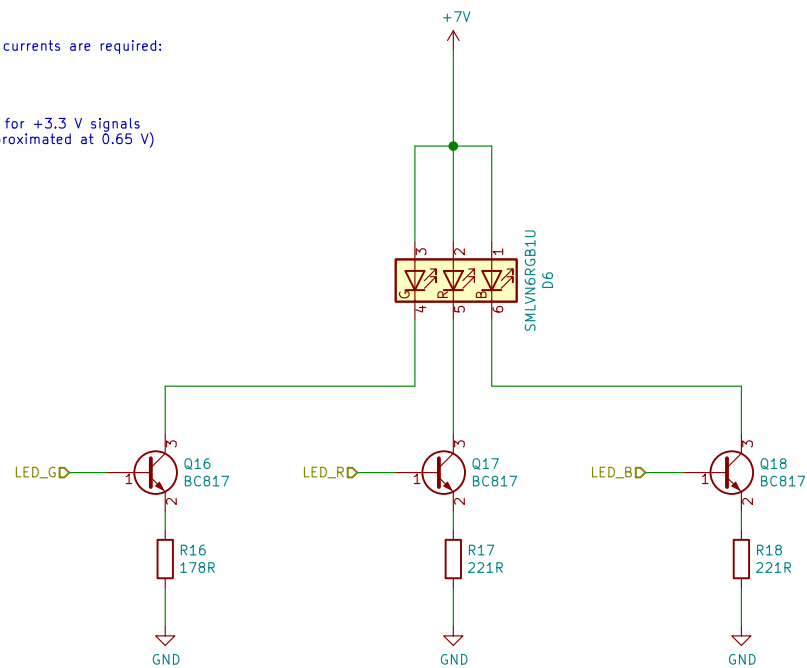
KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 7/19

For white light, the following currents are required:  
I<sub>red</sub> = 12 mA  
I<sub>green</sub> = 15 mA  
I<sub>blue</sub> = 12 mA

The resistors were calculated for +3.3 V signals  
(V<sub>be</sub> 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**

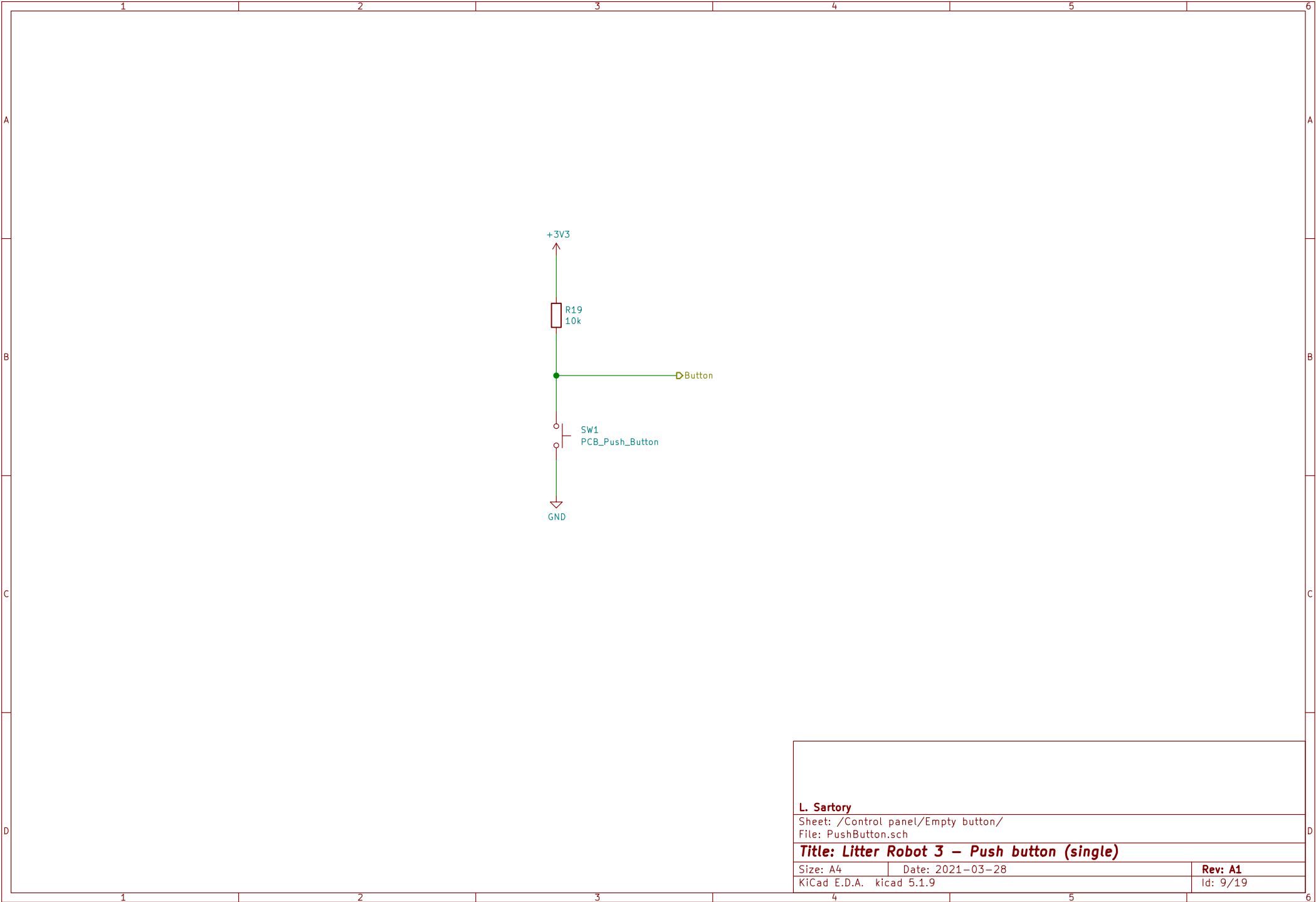
Size: A4 Date: 2021-03-28

KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 8/19





L. Sartory

Sheet: /Control panel/Empty button/  
File: PushButton.sch

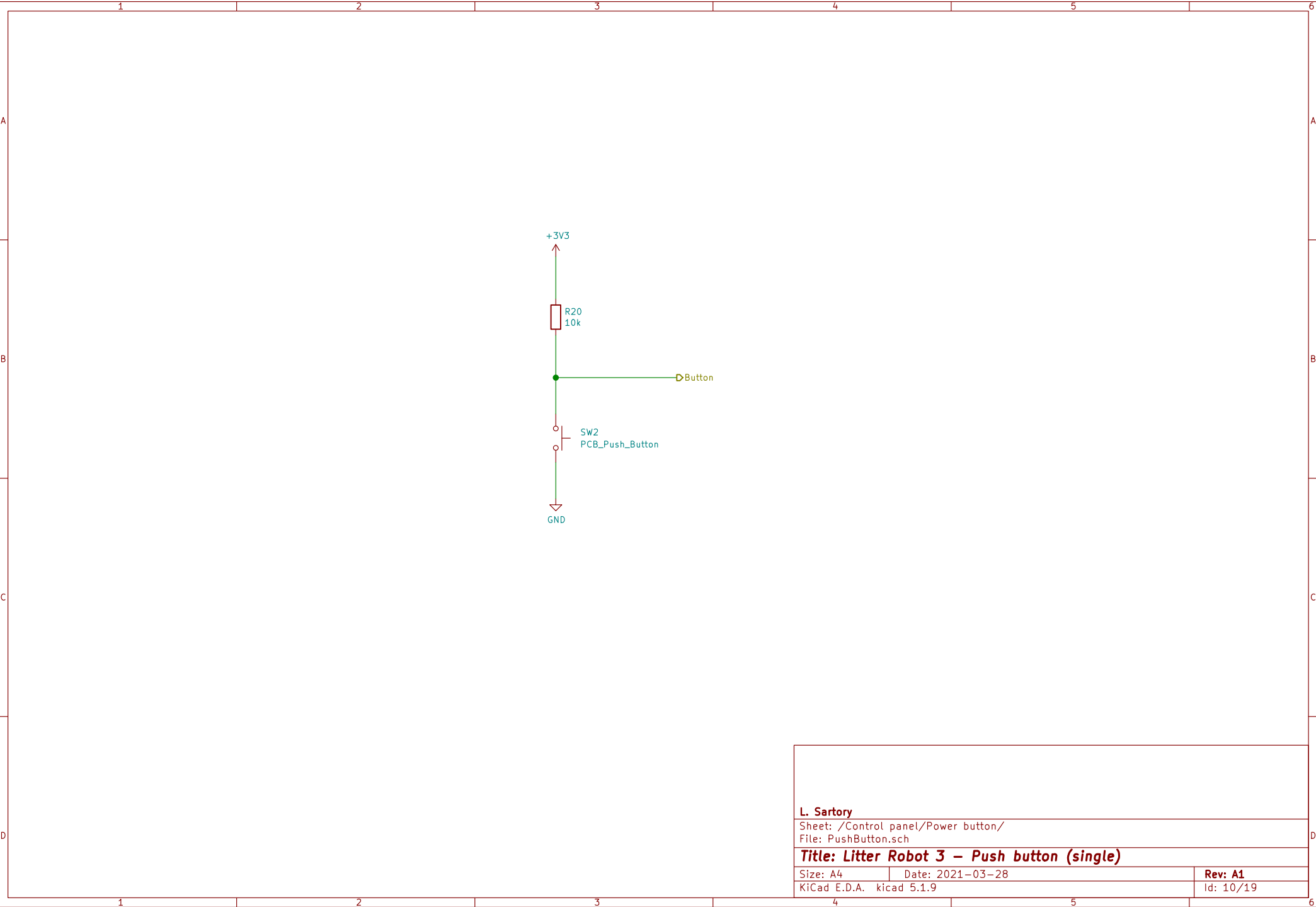
**Title: Litter Robot 3 – Push button (single)**

Size: A4 Date: 2021-03-28

KiCad E.D.A. kicad 5.1.9

Rev: A1

Id: 9/19



L. Sartory

Sheet: /Control panel/Power button/  
File: PushButton.sch

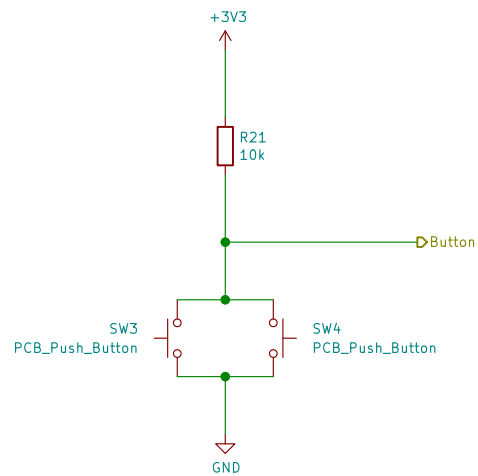
**Title: Litter Robot 3 – Push button (single)**

Size: A4 Date: 2021-03-28

KiCad E.D.A. kicad 5.1.9

Rev: A1

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

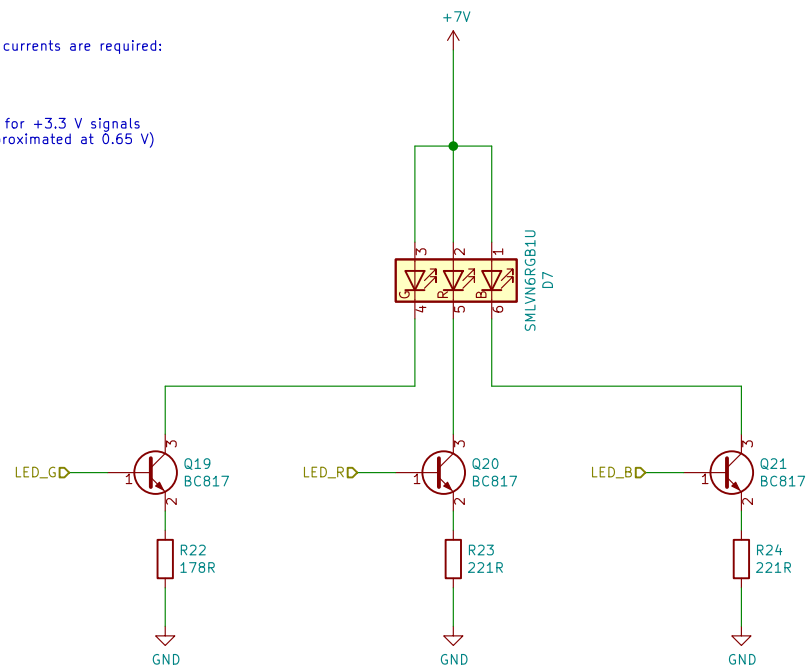
KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 11/19

For white light, the following currents are required:  
I<sub>red</sub> = 12 mA  
I<sub>green</sub> = 15 mA  
I<sub>blue</sub> = 12 mA

The resistors were calculated for +3.3 V signals  
(V<sub>be</sub> of the transistors is approximated at 0.65 V)



**L. Sartory**

Sheet: /Control panel/LED power button/  
File: RgbLed.sch

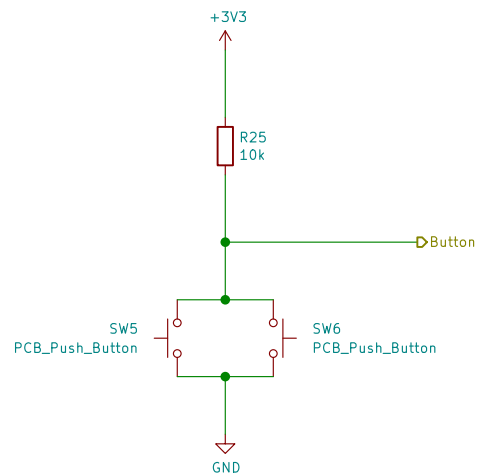
**Title: Litter Robot 3 – RGB LED**

Size: A4 Date: 2021-03-28

KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 12/19



**L. Sartory**

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

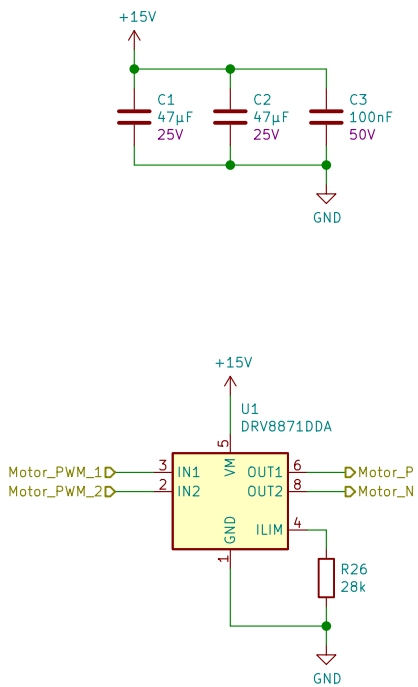
**Title: Litter Robot 3 – Push button (dual)**

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

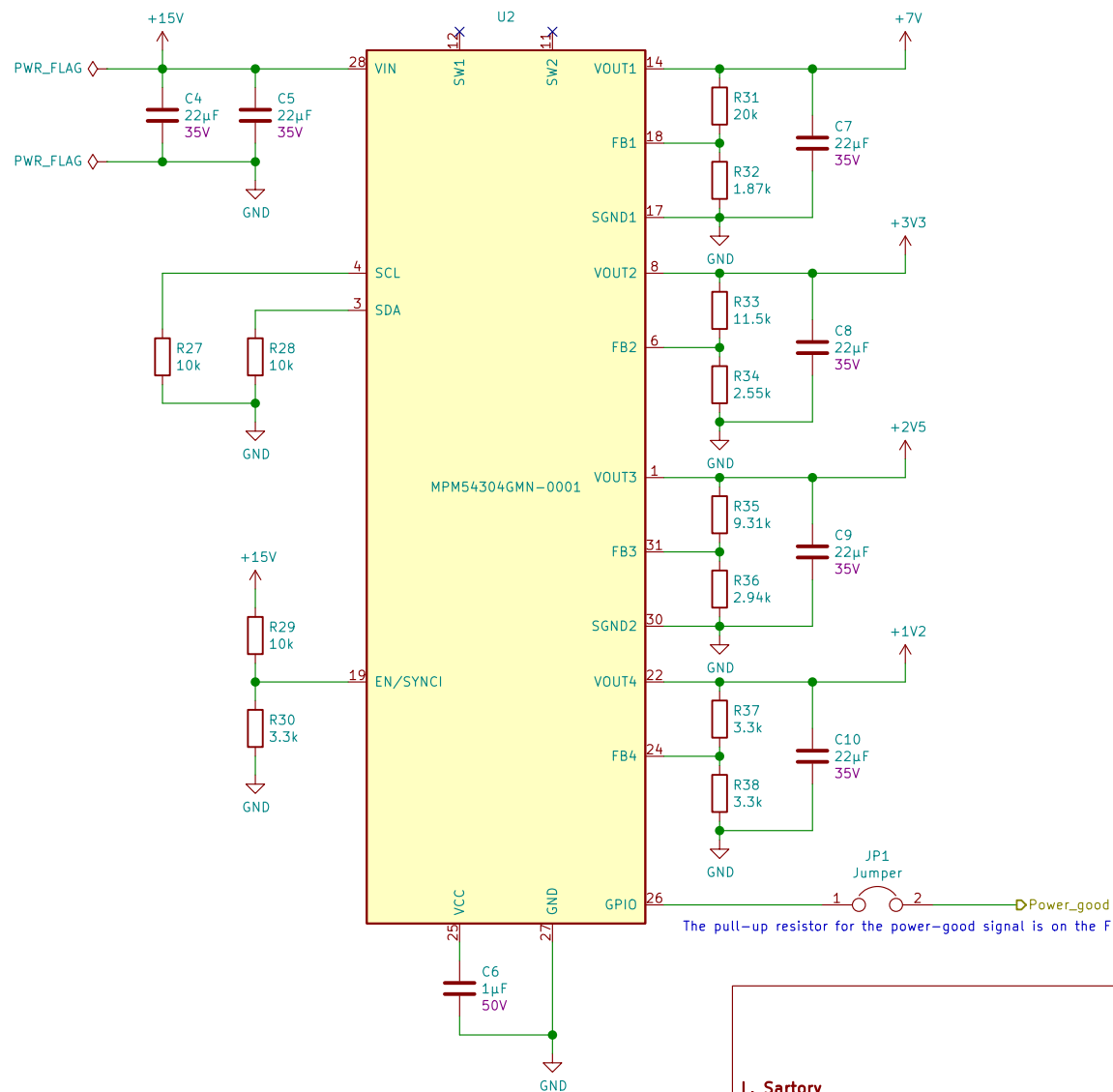
**Title: Litter Robot 3 – Motor driver**

Size: A4 Date: 2021-03-28

KiCad E.D.A. kicad 5.1.9

**Rev: A1**

Id: 14/19



The pull-up resistor for the power-good signal is on the FPGA config page.

**L. Sartory**

Sheet: /Power supply/

File: PowerSupply.sch

**Title: Litter Robot 3 – Power supply**

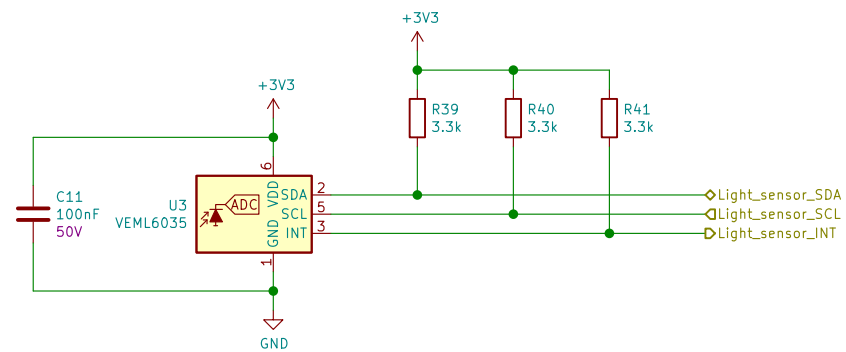
Size: A4

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**

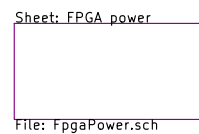
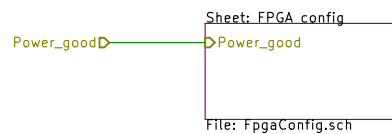
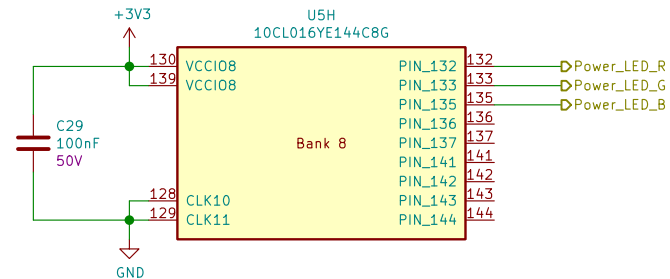
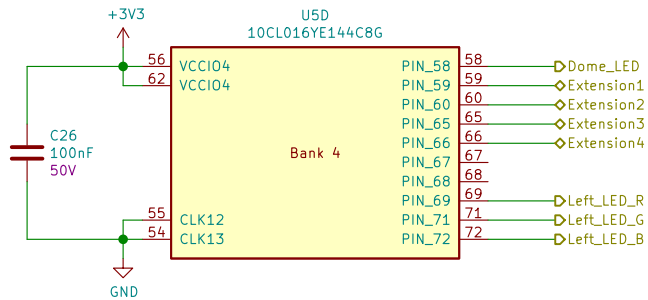
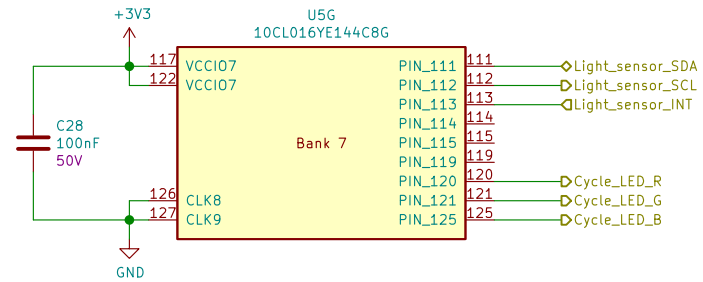
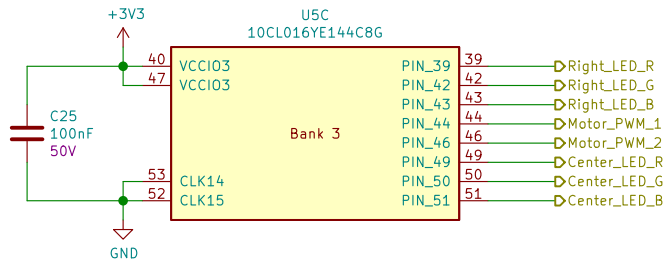
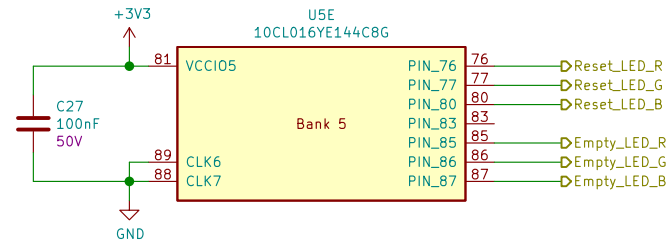
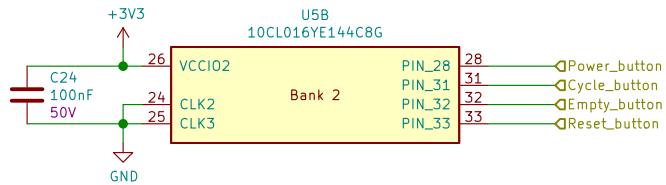
Size: A4 Date: 2021-03-28

KiCad E.D.A. kicad 5.1.9

**Rev: A1**

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L. Sartory

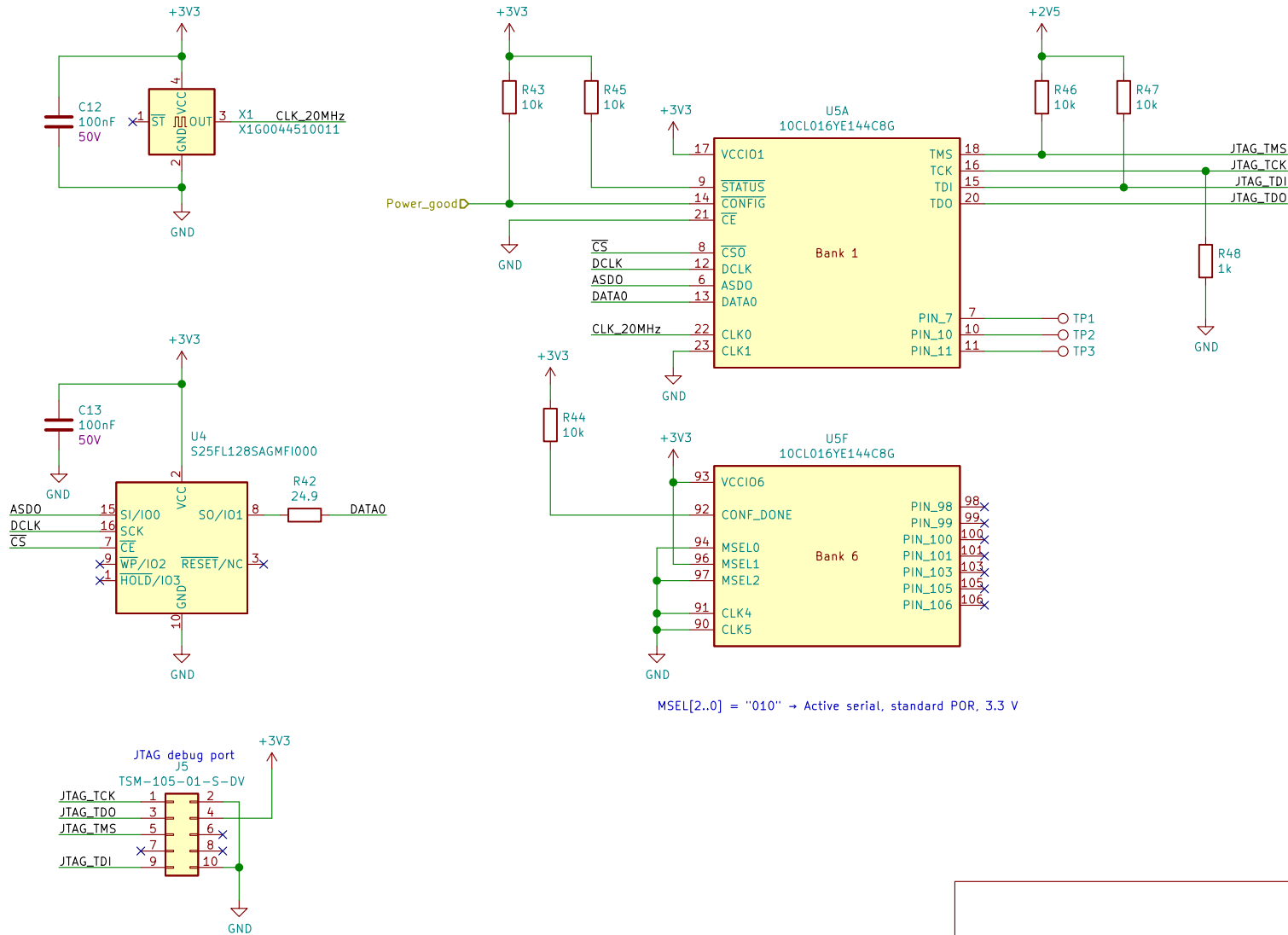
Sheet: /FPGA/  
File: Fpga.sch

Title: Litter Robot 3 – FPGA

Size: A4 Date: 2021-03-28  
KiCad E.D.A. kicad 5.1.9

Rev: A1  
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>



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-OSIT / MT25QL128ABA8ESF-OAAT  
MX25L12833FMI-10G  
S25FL128SAGMFI000

L. Sartory

Sheet: /FPGA/FPGA config/  
File: FpgaConfig.sch

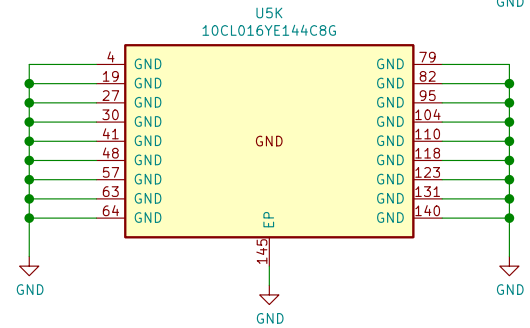
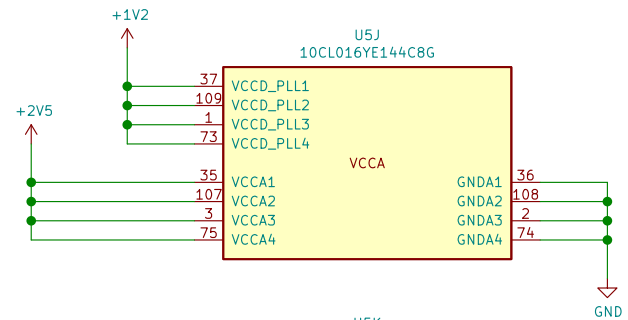
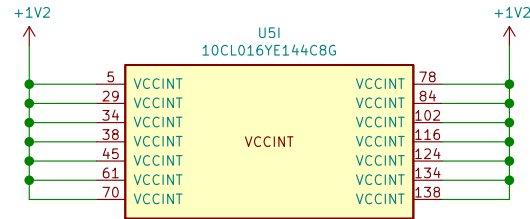
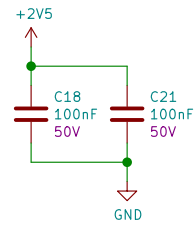
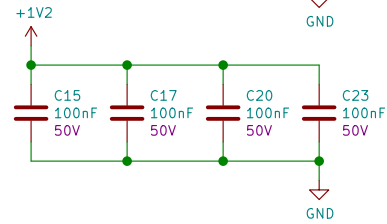
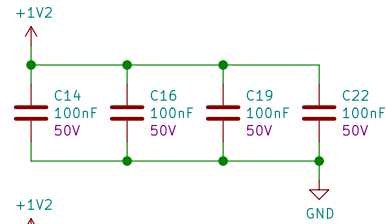
**Title: Litter Robot 3 – FPGA configuration**

Size: A4	Date: 2021-03-28
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**L. Sartory**

Sheet: /FPGA/FPGA power/  
File: FpgaPower.sch

**Title: Litter Robot 3 – FPGA power supply**

Size: A4 Date: 2021-03-28

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**Rev: A1**

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