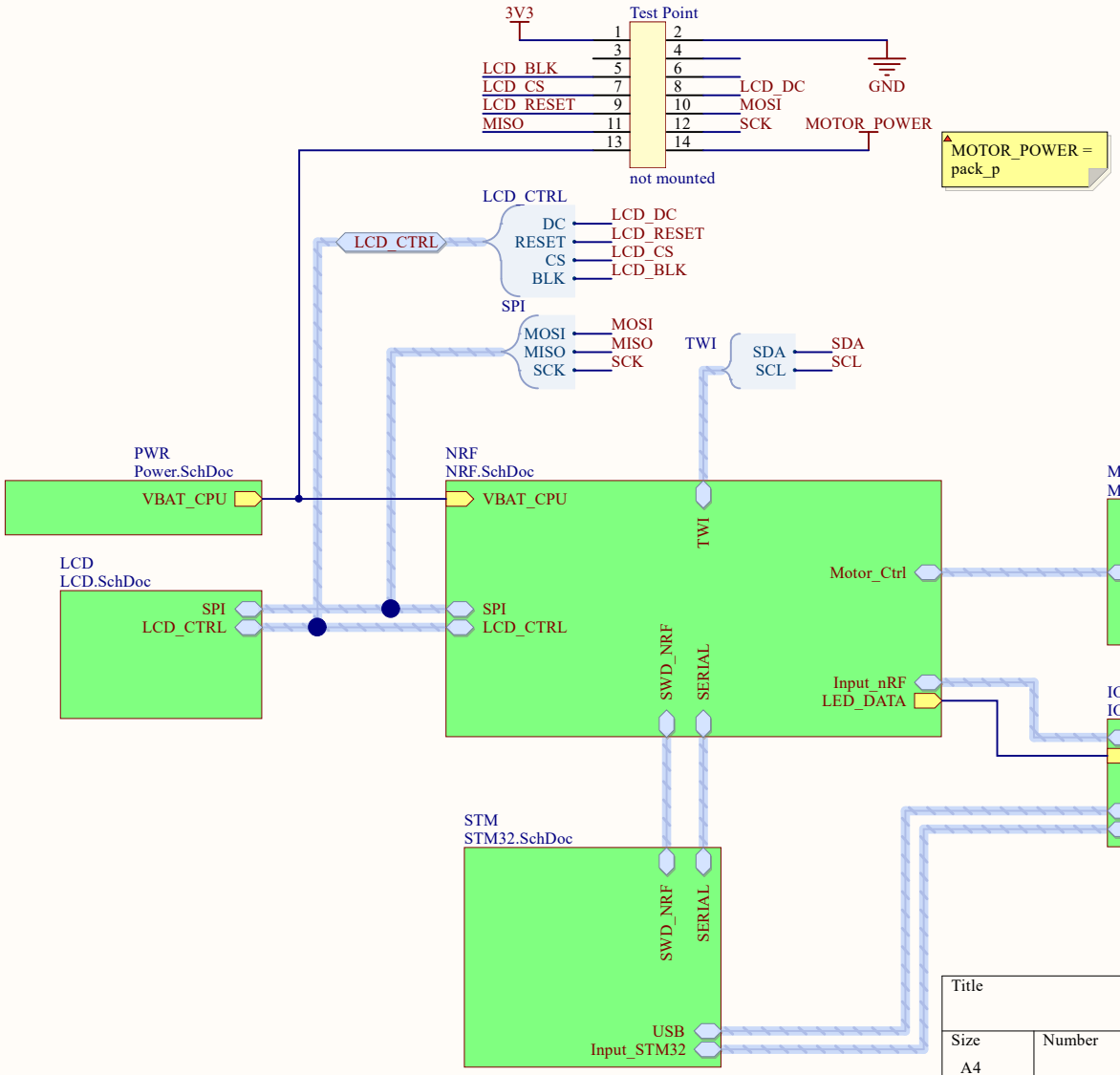
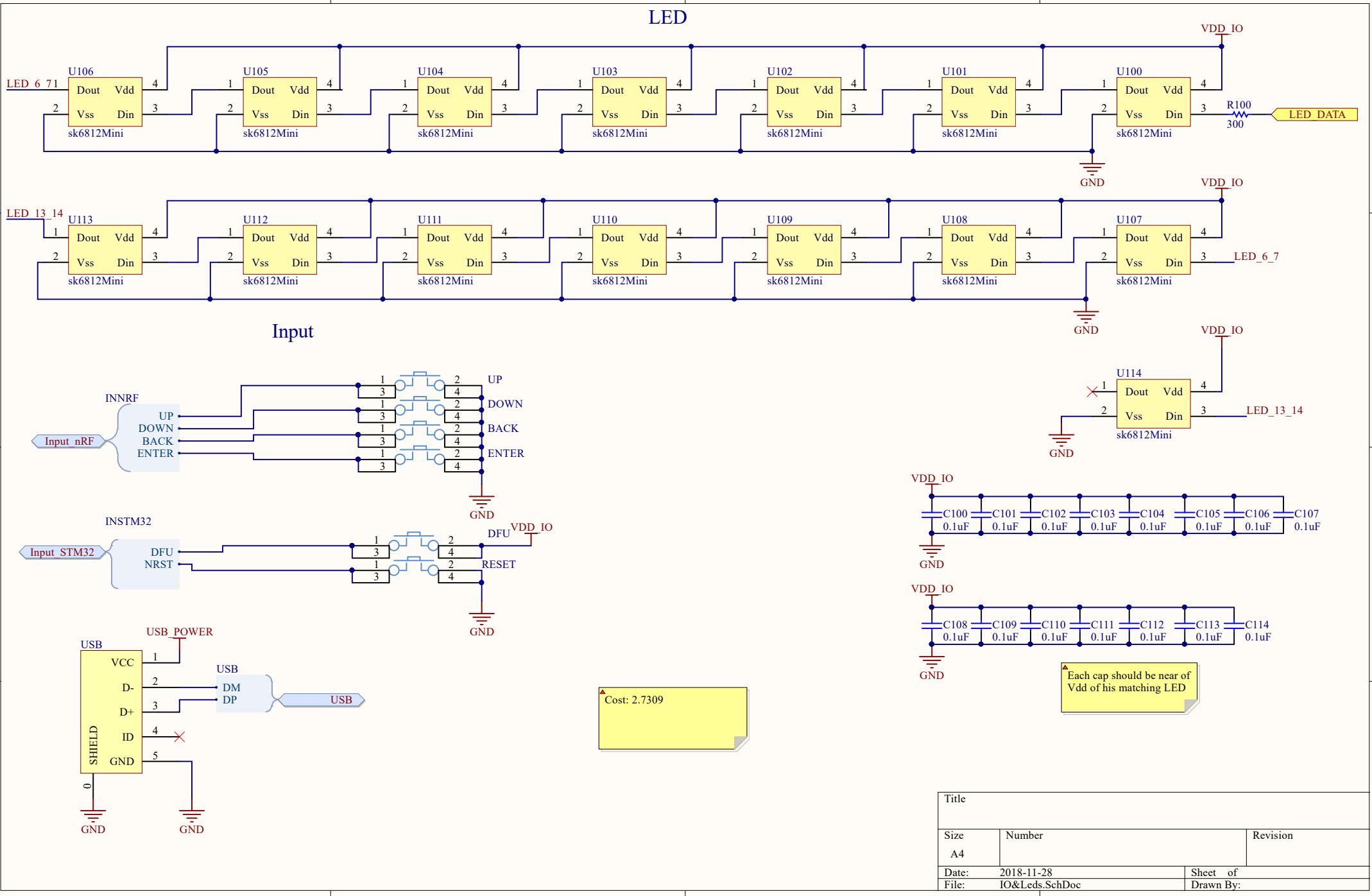
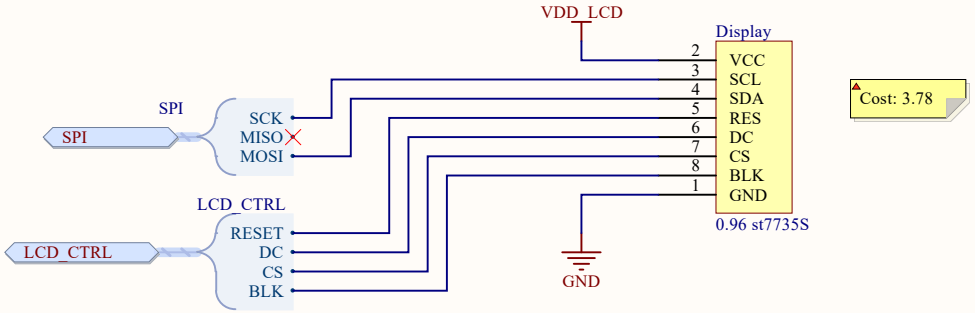
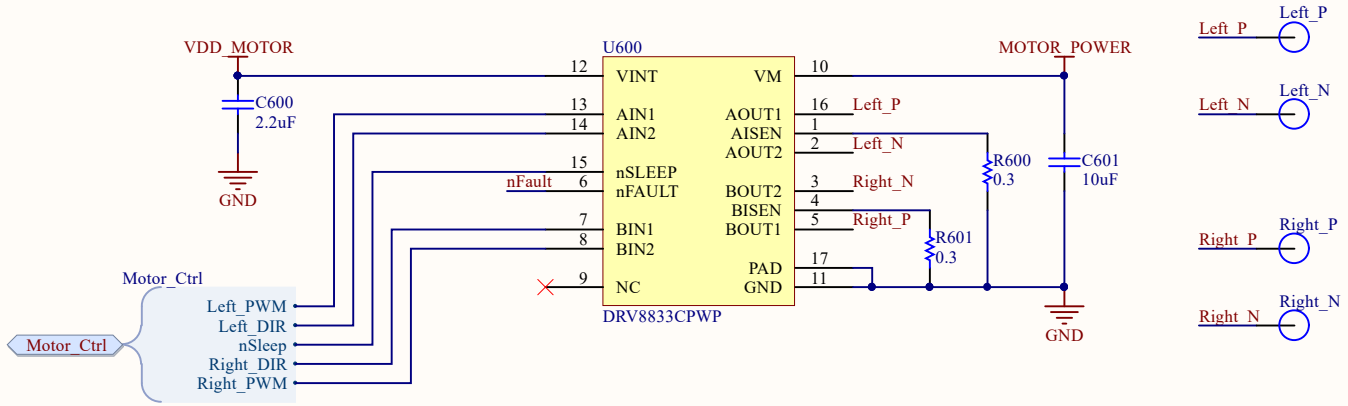

3V3
Test Point
1
2
3
4
LCD_BLK
5
6
LCD_CS
7
8
LCD_DC
LCD_RESET
9
10
MOSI
MISO
11
12
SCK
13
14
GND
MOTOR_POWER
not mounted
MOTOR_POWER =
pack_p
LCD_CTRL
DC
RESET
CS
BLK
LCD_DC
LCD_RESET
LCD_CS
LCD_BLK
SPI
MOSI
MISO
SCK
TWI
SDA
SCL
PWR
Power.SchDoc
VBAT_CPU
NRF
NRF.SchDoc
MotorControl
MotorControl.SchDoc
Motor_Ctrl
LCD
LCD.SchDoc
SWD_NRF
SERIAL
Input_nRF
LED_DATA
IO
IO&Leds.SchDoc
USB
Input_STM32
STM
STM32.SchDoc
Title
Size
A4
Number
Revision
Date:
2018-11-28
Sheet of
File:
Badge.SchDoc
Drawn By:

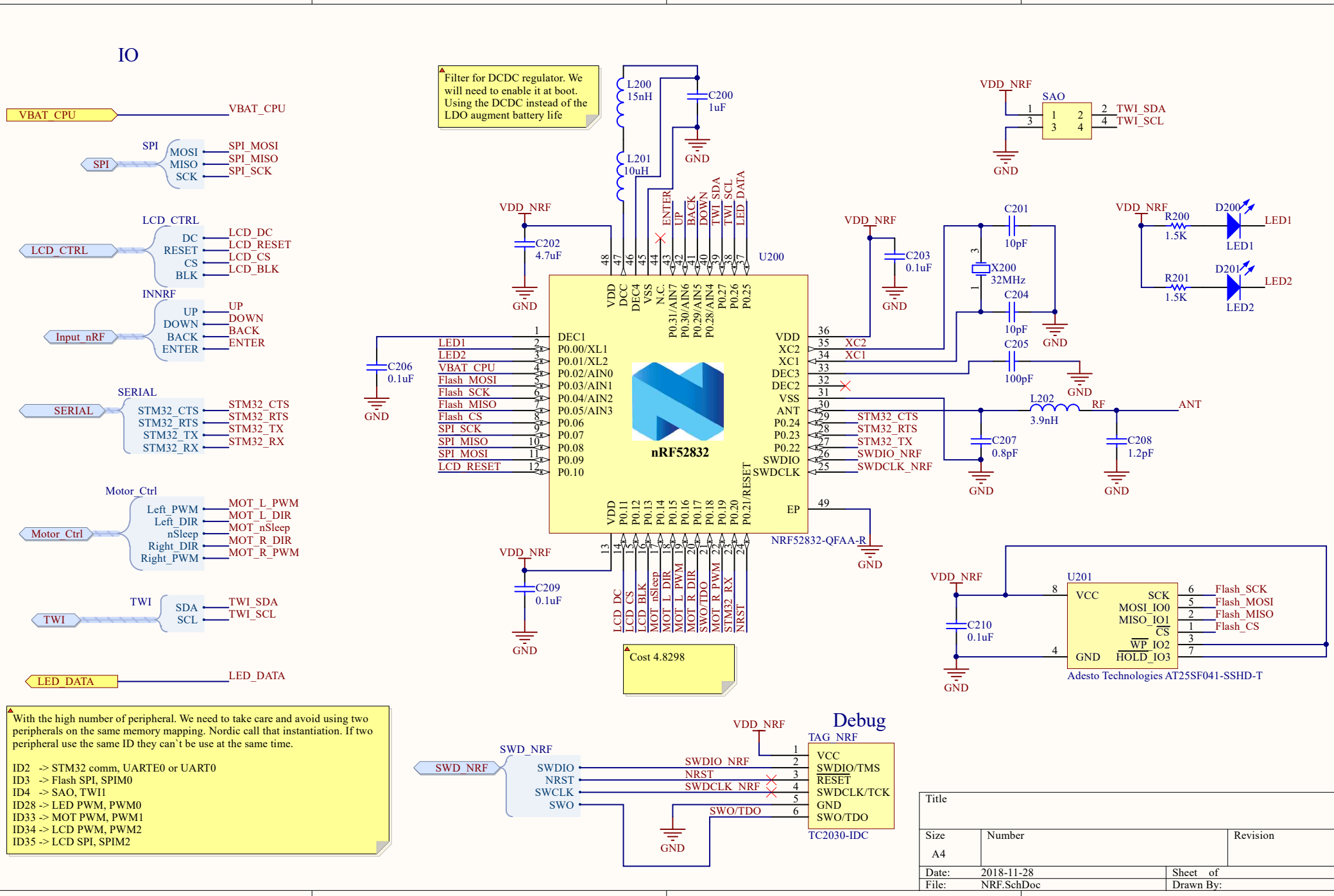

LED
VDD_IO
LED_6_71
U106
U105
U104
U103
U102
U101
U100
Dout
Vdd
Vss
Din
sk6812Mini
R100
300
LED_DATA
GND
LED_13_14
U113
U112
U111
U110
U109
U108
U107
LED_6_7
Input
INNRF
UP
DOWN
BACK
ENTER
Input_nRF
INSTM32
DFU
NRST
Input_STM32
RESET
USB_POWER
USB
VCC
D-
D+
ID
GND
SHIELD
DM
DP
U114
LED_13_14
C100
C101
C102
C103
C104
C105
C106
C107
C108
C109
C110
C111
C112
C113
C114
0.1uF
Each cap should be near of Vdd of his matching LED
Cost: 2.7309
Title
Size
A4
Number
Revision
Date:
2018-11-28
Sheet of
File:
IO&Leds.SchDoc
Drawn By:

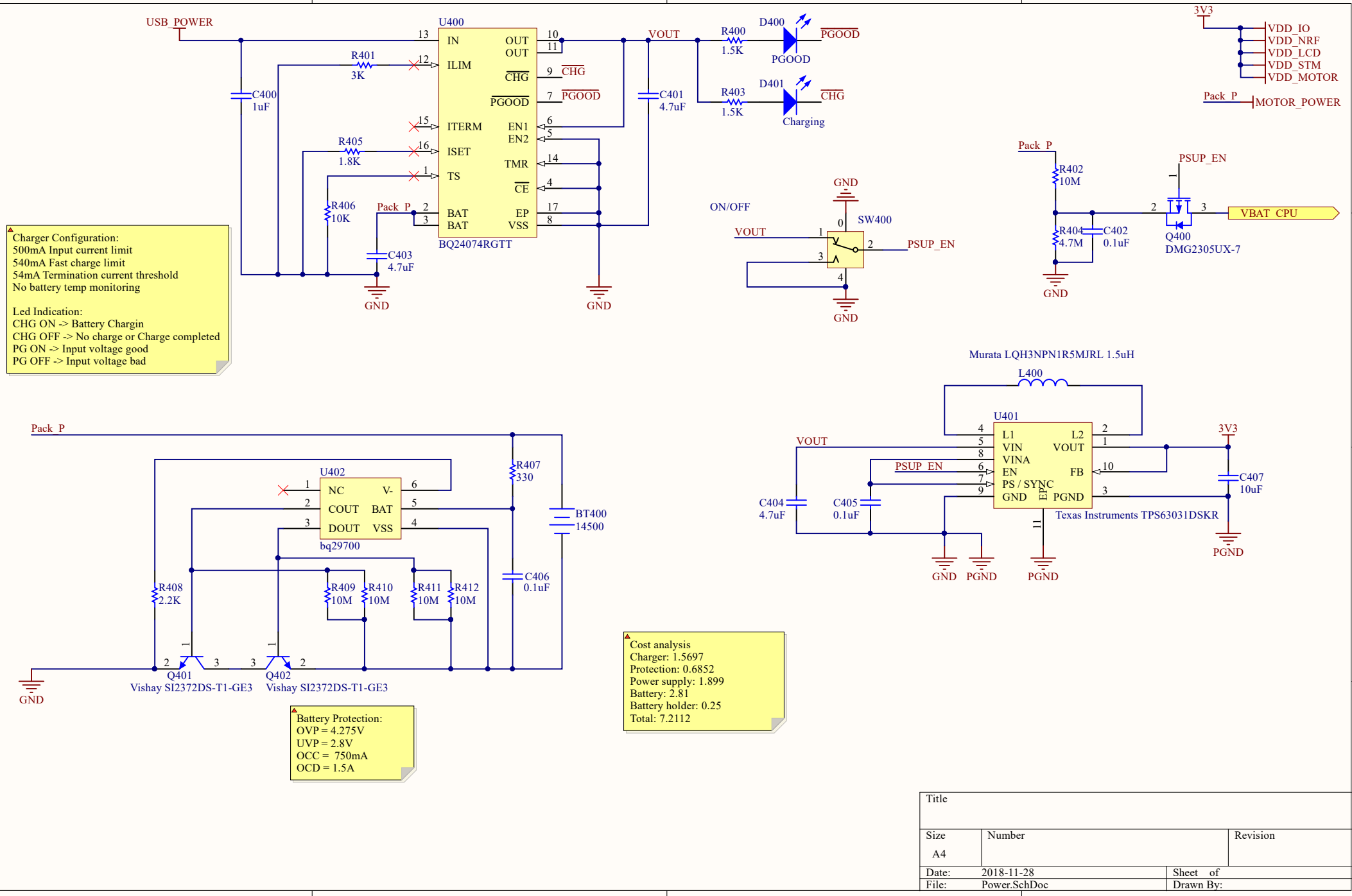


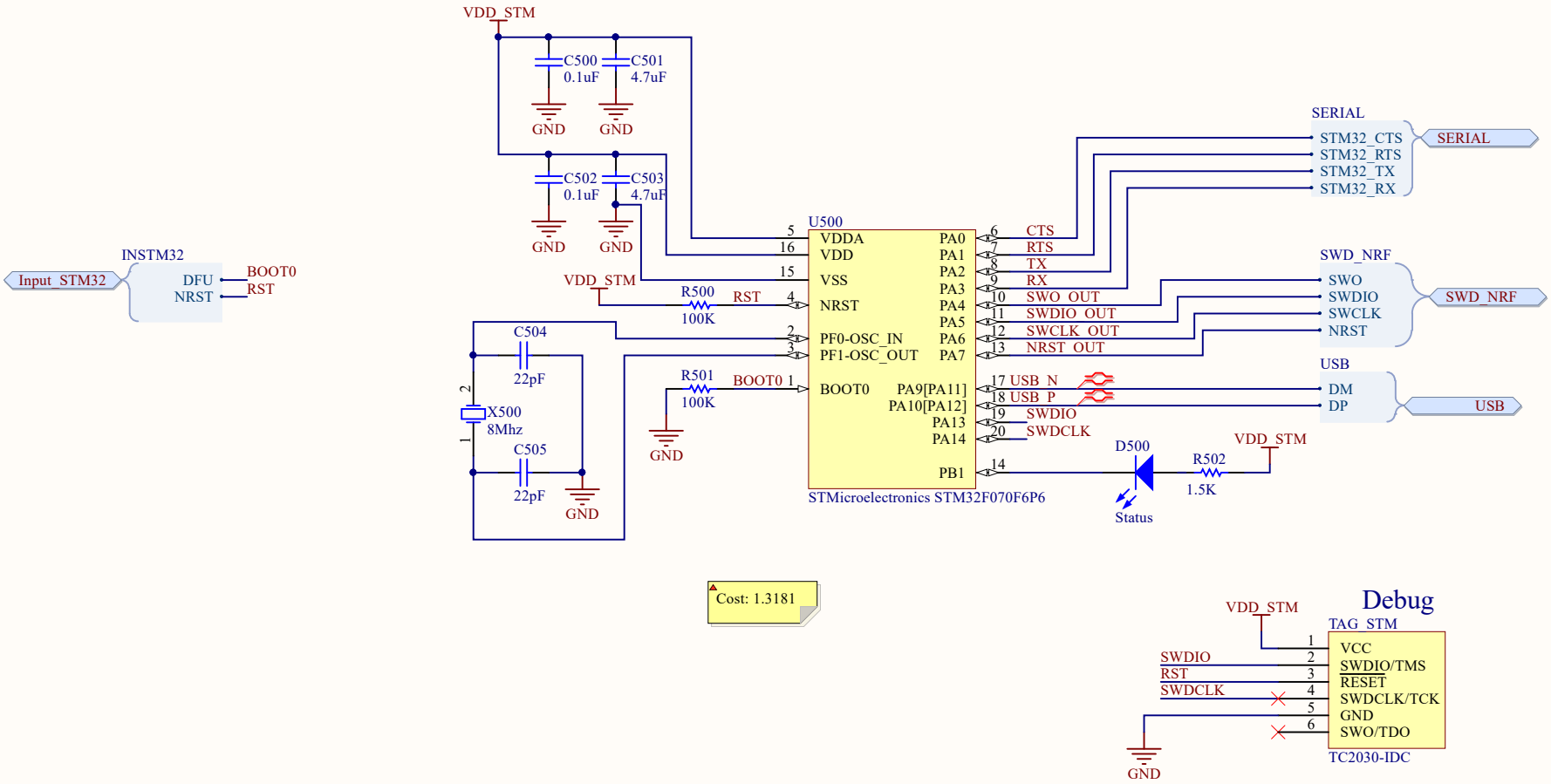
Title		
Size A4	Number	Revision
Date: 2018-11-28		Sheet of
File: LCD.SchDoc		Drawn By:



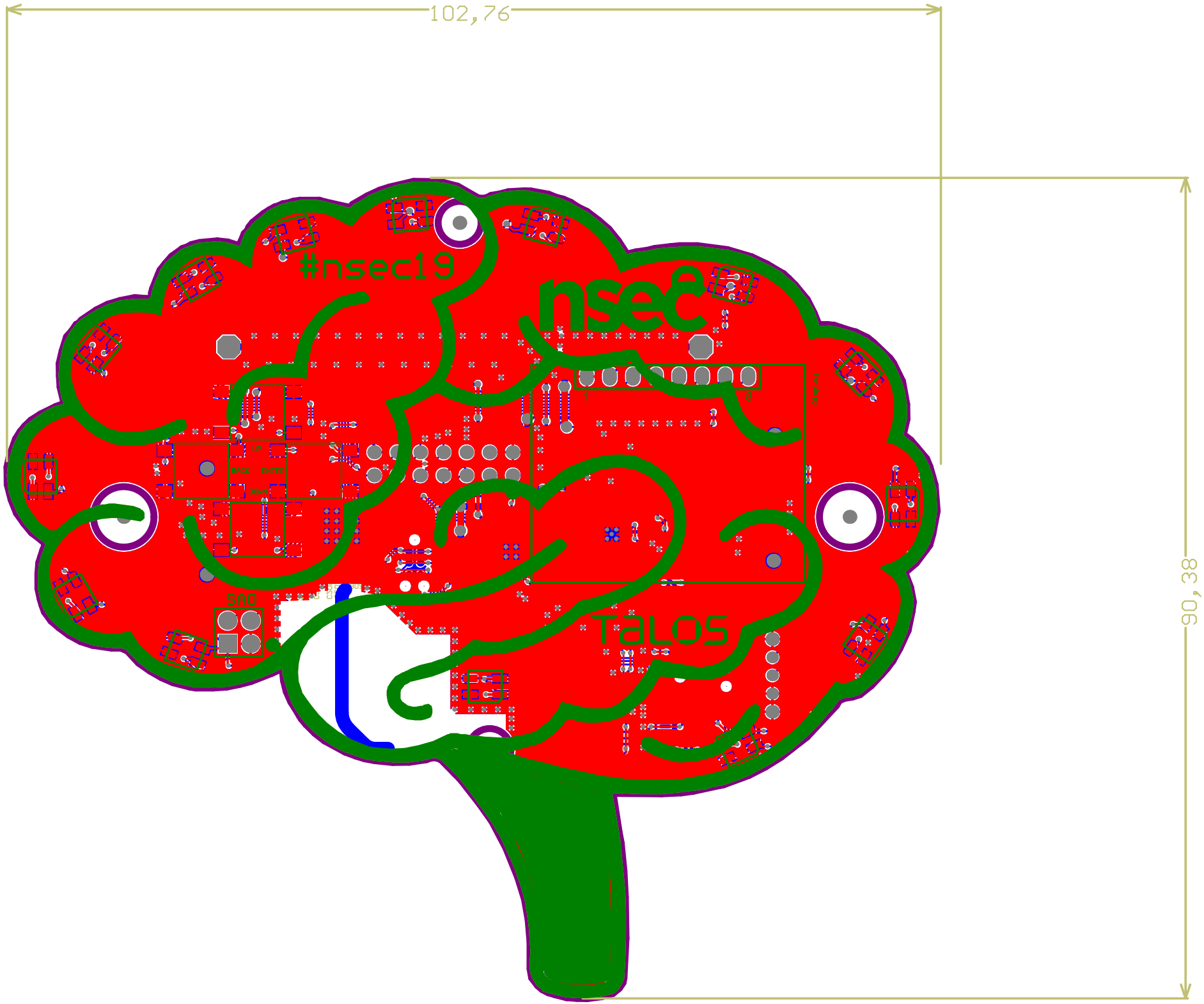
Title		
Size A4	Number	Revision
Date: 2018-11-28		Sheet of
File: MotorControl.SchDoc		Drawn By:

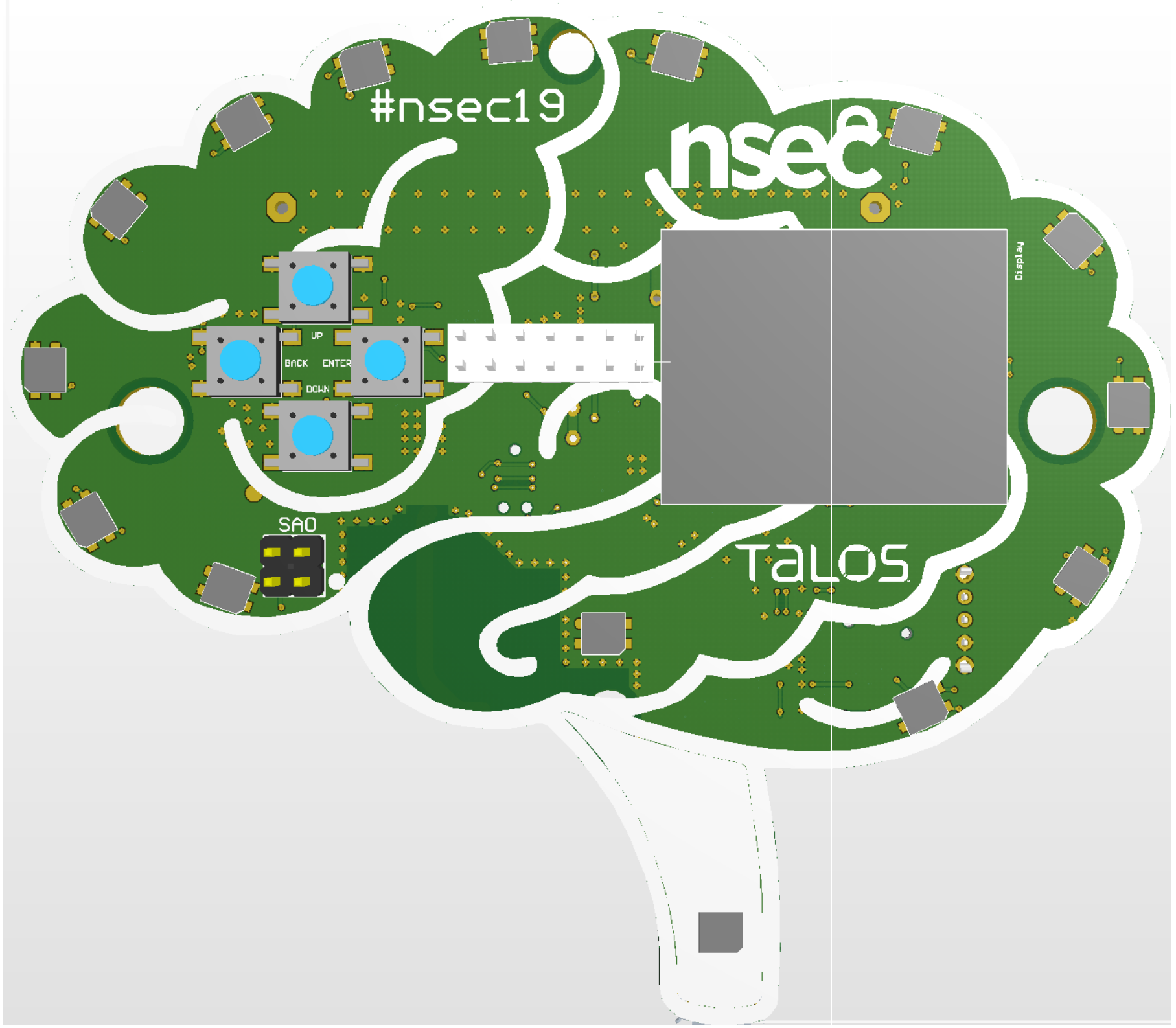

IO
VBAT_CPU
VBAT_CPU
SPI
MOSI
MISO
SCK
SPI_MOSI
SPI_MISO
SPI_SCK
LCD_CTRL
DC
RESET
CS
BLK
LCD_DC
LCD_RESET
LCD_CS
LCD_BLK
INNRF
UP
DOWN
BACK
ENTER
Input_nRF
SERIAL
STM32_CTS
STM32_RTS
STM32_TX
STM32_RX
Motor_Ctrl
Left_PWM
Left_DIR
nSleep
Right_DIR
Right_PWM
MOT_L_PWM
MOT_L_DIR
MOT_nSleep
MOT_R_DIR
MOT_R_PWM
TWI
SDA
SCL
TWI_SDA
TWI_SCL
LED_DATA
With the high number of peripheral. We need to take care and avoid using two peripherals on the same memory mapping. Nordic call that instantiation. If two peripheral use the same ID they can`t be use at the same time.
ID2 -> STM32 comm, UARTE0 or UART0
ID3 -> Flash SPI, SPIM0
ID4 -> SAO, TWI1
ID28 -> LED PWM, PWM0
ID33 -> MOT PWM, PWM1
ID34 -> LCD PWM, PWM2
ID35 -> LCD SPI, SPIM2
Filter for DCDC regulator. We will need to enable it at boot. Using the DCDC instead of the LDO augment battery life
L200 15nH
C200 1uF
L201 10uH
GND
VDD_NRF
C202 4.7uF
U200
nRF52832
nRF52832-QFAA-R
C206 0.1uF
C209 0.1uF
C203 0.1uF
C201 10pF
X200 32MHz
C204 10pF
C205 100pF
L202 3.9nH
RF
ANT
C207 0.8pF
C208 1.2pF
SAO
TWI_SDA
TWI_SCL
R200 1.5K
R201 1.5K
D200
D201
LED1
LED2
Cost 4.8298
U201
C210 0.1uF
Adesto Technologies AT25SF041-SSHD-T
Flash_SCK
Flash_MOSI
Flash_MISO
Flash_CS
Debug
SWD_NRF
SWDIO
NRST
SWCLK
SWO
SWDIO_NRF
NRST
SWDCLK_NRF
SWO/TDO
TAG_NRF
VCC
SWDIO/TMS
RESET
SWDCLK/TCK
GND
SWO/TDO
TC2030-IDC
Title
Size
A4
Number
Revision
Date: 2018-11-28
Sheet of
File: NRF.SchDoc
Drawn By:


USB_POWER
U400
IN
OUT
ILIM
CHG
PGOOD
ITERM
EN1
EN2
ISET
TMR
TS
CE
BAT
EP
VSS
BQ24074RGTT
C400
1uF
R401
3K
R405
1.8K
R406
10K
C403
4.7uF
GND
VOUT
C401
4.7uF
R400
1.5K
R403
1.5K
D400
D401
PGOOD
Charging
3V3
VDD_IO
VDD_NRF
VDD_LCD
VDD_STM
VDD_MOTOR
Pack_P
MOTOR_POWER
ON/OFF
SW400
PSUP_EN
R402
10M
R404
4.7M
C402
0.1uF
Q400
DMG2305UX-7
VBAT_CPU
Charger Configuration:
500mA Input current limit
540mA Fast charge limit
54mA Termination current threshold
No battery temp monitoring
Led Indication:
CHG ON -> Battery Chargin
CHG OFF -> No charge or Charge completed
PG ON -> Input voltage good
PG OFF -> Input voltage bad
Murata LQH3NPN1R5MJRL 1.5uH
L400
U401
L1
L2
VIN
VOUT
VINA
FB
EN
PS / SYNC
GND
PGND
EP
Texas Instruments TPS63031DSKR
C404
4.7uF
C405
0.1uF
C407
10uF
U402
NC
V-
COUT
BAT
DOUT
VSS
bq29700
R407
330
BT400
14500
C406
0.1uF
R408
2.2K
R409
10M
R410
10M
R411
10M
R412
10M
Q401
Vishay SI2372DS-T1-GE3
Q402
Vishay SI2372DS-T1-GE3
Battery Protection:
OVP = 4.275V
UVP = 2.8V
OCC = 750mA
OCD = 1.5A
Cost analysis
Charger: 1.5697
Protection: 0.6852
Power supply: 1.899
Battery: 2.81
Battery holder: 0.25
Total: 7.2112
Title
Size
A4
Number
Revision
Date: 2018-11-28
Sheet of
File: Power.SchDoc
Drawn By:



Title		
Size: A4	Number	Revision
Date: 2018-11-28		Sheet of
File: STM32.SchDoc		Drawn By:


102,76
90,38
#nsec19
nsec
Display
UP
BACK
ENTER
DOWN
SAO
TALOS


#nsec19
nsec
UP
BACK
ENTER
DOWN
Display
SAO
TALOS