POWER MENAGEMENT

R3 =
16k Ohm for Battery 70mAh
30k Ohm for Battery 100mAh

+5V

J1
USB4125-GF-A-0190_REVA2

SHIELD_3	S4
SHIELD_2	S3
SHIELD_1	S2
SHIELD	S1
GND_1	B12
GND	A12
CC2	B5
CC1	A5
VBUS_1	B9
VBUS	A9

R2 1k
R1 1k

R3 R

U4
Li-Pol Charger

1	TEMP	CE	8
2	PROG	CHRG#	7
3	GND	STDBY#	6
4	VCC	BAT	5

C1 100nF

+4.2V BAT

U6

1	OD	GND	6
2	VM	VCC	5
3	OC	TD	4

DW01A

R5 1k

U9

1	D	D	8
3	S1	D2	7
	S1	S2	6
	G1	G2	5

R4 100

C2 100nF

C3 10uF

PAD2 Battery+

PAD3 Battery-

GND

Bottom part of top PCB

MCU_schematic

File: MCU.kicad_sch

LINEAR REGULATOR

+4.2V BAT

U8

	Vin	VOUT	5
2	GND		
3	EN	SNS/NC	5

10nF C15

10nF C16

+3.3V

GND

DC MOTOR DRIVER

+4.2V BAT

+3.3V

R23 30k

C6 100nF

C9 10uF

C7 10uF

C8 10uF

U2
DRV8833PW

1	SLEEP	VINT	14
11	VCP	VM	12
3	AISEN		
6	BISEN	FAULT	8
16	AIN1	AOUT1	2
15	AIN2	AOUT2	4
9	BIN1	BOUT1	7
10	BIN2	BOUT2	5
	GND		13

Ain1
Ain2
Bin1
Bin2

R7 200
R8 200

PAD5 DC_Motor_1+
PAD6 DC_Motor_1-
PAD7 DC_Motor_2+
PAD8 DC_Motor_2-

GND

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Filip Huczek

Title:

Size: A4   Date:

KiCad E.D.A. 8.0.5

Rev:

Id: 1/2

MICROCONTROLLER UNIT

+3.3V +3.3V

C5
100nF
C4
10nF
GND

R6 10k

U1
STM32C011F4Ux

NRST	4	PF2	
Button	20	PC14	
Bin2	1	PC15	
SCL	18	PB6	
SDA	19	PB7	

PA0 5 Led_R
PA1 6 Led_G
PA2 7 Led_B
PA3 8 ADC_1
PA4 9 ADC_2
PA5 10 BatteryVoltage_ADC
PA6 11 Ain1
PA7 12 Ain2
PA8 13 Bin1
PA9/PA11 14 INTERRUPT_1
PA10/PA12 15 INTERRUPT_2
PA13 16 SWDIO
PA14 17 SWCLK

VDD 2
VSS 3

GND

BUTTON
WITH HARDWARE DEBOUNCING

Button +3.3V
10k R17
R18 100
C14 100nF
SW1 SW_Push
GND

RGB LED

LED1
XZM2CRKM2DGFBB45SCCB

3 R9 60-80 Led_R
2 R10 100 Led_G
1 R11 100 Led_B
4

GND

LINE SENSOR

+4.2V BAT +3.3V   +4.2V BAT +3.3V

ADC_2
ADC_1

10k R15   150 R16   10k R19   150 R20

A1 GP2S700HCP   A2 GP2S700HCP

GND GND GND GND

VOLTAGE DIVIDER

+4.2V BAT

R21 10k

Voltage Range:
1.6V - 2.1V

BatteryVoltage_ADC

R22 10k

GND

ENEMIE SENSORS

+3.3V

R13 2.2k
2.2k R12   8.2k R14   8.2k R24

U3
VCNL4040M3OE

GND 1
C-SENSOR
VDD 3
VDD-LED 4

DSP
LED DRIVER
OSCI
PS DS
I2C BUS Logic CONTROL
ALS 16 BIT
ALS PD

SCL 8 SCL
SDA 7 SDA
INT 6 INTERRUPT_1
C-LED 5 INTERRUPT_2

C10 100nF
C11 2.2uF
GND GND

+3.3V

U7
VCNL4040M3OE

GND 1
C-SENSOR
VDD 3
VDD-LED 4

DSP
LED DRIVER
OSCI
PS DS
I2C BUS Logic CONTROL
ALS 16 BIT
ALS PD

SCL 8
SDA 7
INT 6
C-LED 5

C12 100nF
C13 2.2uF
GND GND

ST-LINK

SWDIO	1	PAD1 SWDIO	
SWCLK	1	PAD9 SWCLK	
NRST	1	PAD10 NRST	