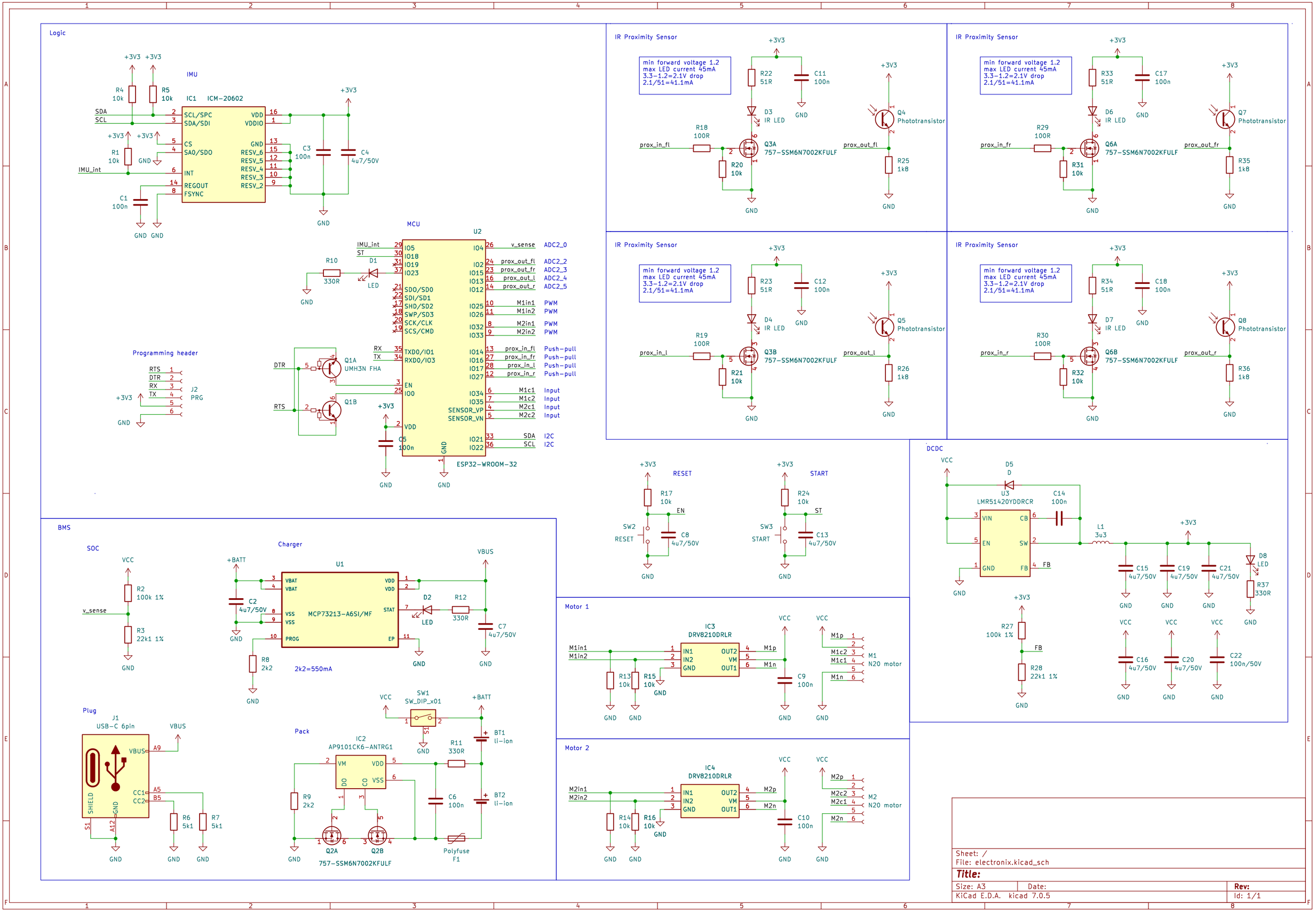
Logic
IMU
IC1 ICM-20602
SCL/SPC
SDA/SDI
CS
SA0/SDO
INT
REGOUT
FSYNC
VDD
VDDIO
GND
RESV_6
RESV_5
RESV_4
RESV_3
RESV_2
SDA
SCL
IMU_int
R4 10k
R5 10k
R1 10k
C1 100n
C3 100n
C4 4u7/50V
+3V3
GND
MCU
U2
ESP32-WROOM-32
IMU_int
ST
R10 330R
D1 LED
RX
TX
DTR
RTS
Q1A UMH3N FHA
Q1B
EN
IO0
VDD
C5 100n
v_sense
prox_out_fl
prox_out_fr
prox_out_l
prox_out_r
M1in1
M1in2
M2in1
M2in2
prox_in_fl
prox_in_fr
prox_in_l
prox_in_r
M1c1
M1c2
M2c1
M2c2
SENSOR_VP
SENSOR_VN
SDA
SCL
ADC2_0
ADC2_2
ADC2_3
ADC2_4
ADC2_5
PWM
Push-pull
Input
I2C
Programming header
J2 PRG
RTS
DTR
RX
TX
IR Proximity Sensor
min forward voltage 1.2
max LED current 45mA
3.3-1.2=2.1V drop
2.1/51=41.1mA
R22 51R
C11 100n
D3 IR LED
R18 100R
Q3A 757-SSM6N7002KFULF
R20 10k
Q4 Phototransistor
R25 1k8
R33 51R
C17 100n
D6 IR LED
R29 100R
Q6A 757-SSM6N7002KFULF
R31 10k
Q7 Phototransistor
R35 1k8
R23 51R
C12 100n
D4 IR LED
R19 100R
Q3B 757-SSM6N7002KFULF
R21 10k
Q5 Phototransistor
R26 1k8
R34 51R
C18 100n
D7 IR LED
R30 100R
Q6B 757-SSM6N7002KFULF
R32 10k
Q8 Phototransistor
R36 1k8
RESET
R17 10k
SW2 RESET
C8 4u7/50V
START
R24 10k
SW3 START
C13 4u7/50V
DCDC
VCC
D5 D
U3 LMR51420YDDRCR
VIN
EN
GND
CB
SW
FB
C14 100n
L1 3u3
C15 4u7/50V
C19 4u7/50V
C21 4u7/50V
D8 LED
R37 330R
R27 100k 1%
R28 22k1 1%
C16 4u7/50V
C20 4u7/50V
C22 100n/50V
BMS
SOC
v_sense
R2 100k 1%
R3 22k1 1%
Charger
+BATT
U1
MCP73213-A6SI/MF
VBAT
VSS
PROG
STAT
EP
C2 4u7/50V
R8 2k2
2k2=550mA
D2 LED
R12 330R
VBUS
C7 4u7/50V
Plug
J1 USB-C 6pin
VBUS
CC1
CC2
SHIELD
A9
A5
B5
A12
S1
R6 5k1
R7 5k1
Pack
IC2 AP9101CK6-ANTRG1
VM
VDD
VSS
DO
CO
SW1 SW_DIP_x01
R9 2k2
Q2A
Q2B
757-SSM6N7002KFULF
C6 100n
R11 330R
BT1 li-ion
BT2 li-ion
Polyfuse F1
Motor 1
IC3 DRV8210DRLR
IN1
IN2
OUT2
VM
OUT1
M1p
M1n
R13 10k
R15 10k
C9 100n
M1 N20 motor
Motor 2
IC4 DRV8210DRLR
M2p
M2n
R14 10k
R16 10k
C10 100n
M2 N20 motor
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