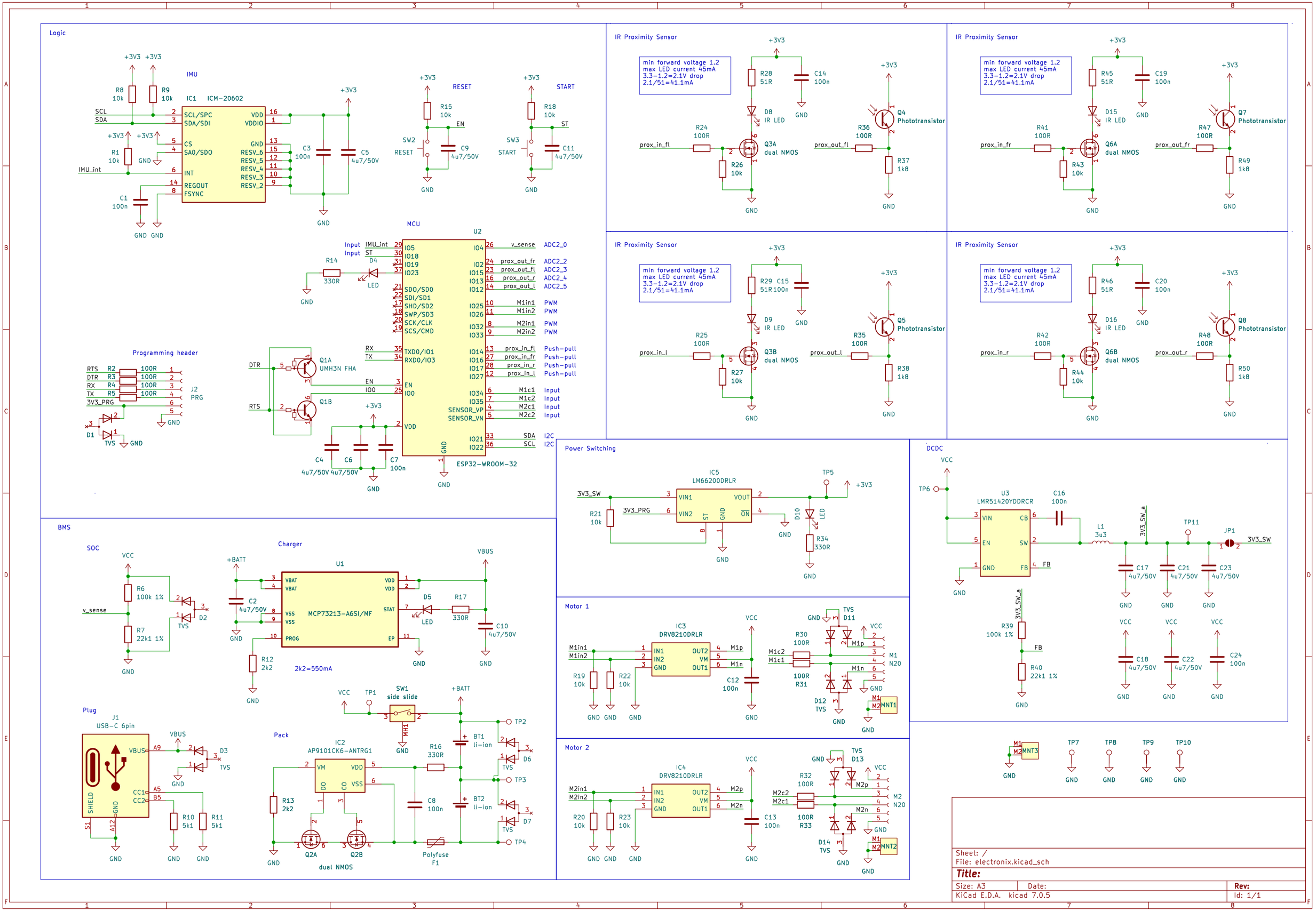
Logic
IMU
IC1 ICM-20602
SCL/SPC
SDA/SDI
CS
SA0/SDO
INT
REGOUT
FSYNC
VDD
VDDIO
GND
RESV_6
RESV_5
RESV_4
RESV_3
RESV_2
R8 10k
R9 10k
R1 10k
C1 100n
C3 100n
C5 4u7/50V
IMU_int
RESET
R15 10k
SW2
C9 4u7/50V
START
R18 10k
SW3
C11 4u7/50V
MCU
U2
ESP32-WROOM-32
R14 330R
D4 LED
Programming header
J2 PRG
D1 TVS
Q1A UMH3N FHA
Q1B
C4 4u7/50V
C6 4u7/50V
C7 100n
IR Proximity Sensor
min forward voltage 1.2
max LED current 45mA
3.3-1.2=2.1V drop
2.1/51=41.1mA
R28 51R
C14 100n
D8 IR LED
R24 100R
Q3A dual NMOS
R26 10k
R36 100R
Q4 Phototransistor
R37 1k8
R45 51R
C19 100n
D15 IR LED
R41 100R
Q6A dual NMOS
R43 10k
R47 100R
Q7 Phototransistor
R49 1k8
R29 51R
C15 100n
D9 IR LED
R25 100R
Q3B dual NMOS
R27 10k
R35 100R
Q5 Phototransistor
R38 1k8
R46 51R
C20 100n
D16 IR LED
R42 100R
Q6B dual NMOS
R44 10k
R48 100R
Q8 Phototransistor
R50 1k8
Power Switching
IC5 LM66200DRLR
VIN1
VIN2
VOUT
ST
GND
ON
R21 10k
D10 LED
R34 330R
TP5
DCDC
U3 LMR51420YDDRCR
VIN
EN
GND
CB
SW
FB
C16 100n
L1 3u3
C17 4u7/50V
C21 4u7/50V
C23 4u7/50V
TP11
JP1
R39 100k 1%
R40 22k1 1%
C18 4u7/50V
C22 4u7/50V
C24 100n
BMS
SOC
R6 100k 1%
R7 22k1 1%
D2 TVS
Charger
U1
MCP73213-A6SI/MF
VBAT
VSS
PROG
VDD
STAT
EP
C2 4u7/50V
R12 2k2
D5 LED
R17 330R
C10 4u7/50V
2k2=550mA
Plug
J1 USB-C 6pin
VBUS
CC1
CC2
SHIELD
D3 TVS
R10 5k1
R11 5k1
Pack
IC2 AP9101CK6-ANTRG1
VM
DD
CO
VSS
R13 2k2
Q2A
Q2B
dual NMOS
SW1 side slide
MH1
R16 330R
C8 100n
Polyfuse F1
BT1 li-ion
BT2 li-ion
D6 TVS
D7 TVS
TP1
TP2
TP3
TP4
Motor 1
IC3 DRV8210DRLR
IN1
IN2
OUT1
OUT2
M1in1
M1in2
R19 10k
R22 10k
C12 100n
M1p
M1n
R30 100R
R31 100R
D11 TVS
D12 TVS
M1
N20
MNT1
Motor 2
IC4 DRV8210DRLR
M2in1
M2in2
R20 10k
R23 10k
C13 100n
M2p
M2n
R32 100R
R33 100R
D13 TVS
D14 TVS
MNT2
MNT3
TP7
TP8
TP9
TP10
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