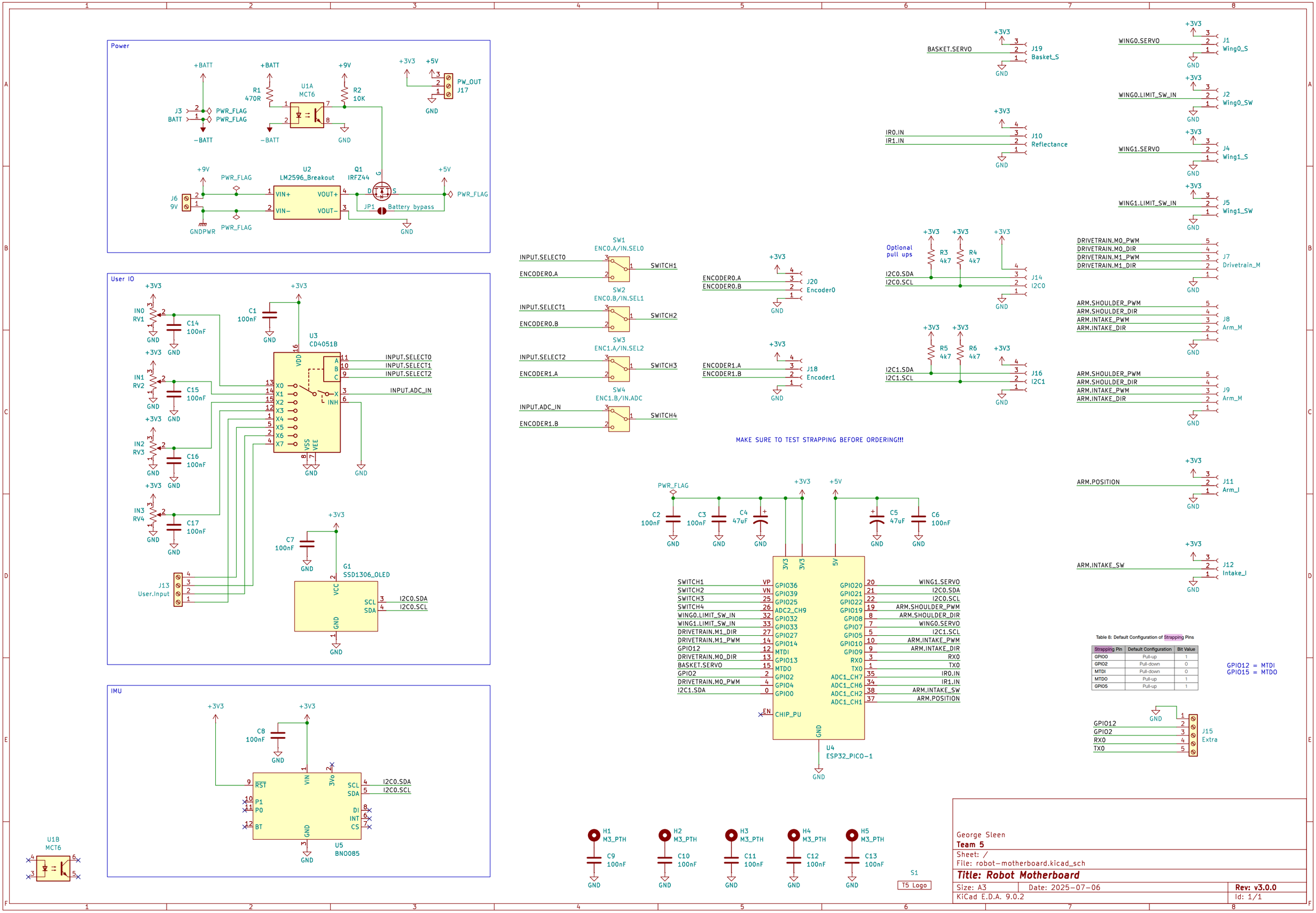
Power
+BATT
J3
BATT
PWR_FLAG
PWR_FLAG
−BATT
R1
470R
U1A
MCT6
−BATT
GND
+9V
R2
10K
+3V3
+5V
PW_OUT
J17
GND
+9V
J6
9V
GNDPWR
PWR_FLAG
PWR_FLAG
U2
LM2596_Breakout
VIN+
VIN−
VOUT+
VOUT−
Q1
IRFZ44
JP1
Battery bypass
GND
+5V
PWR_FLAG
User IO
IN0
RV1
C14
100nF
IN1
RV2
C15
100nF
IN2
RV3
C16
100nF
IN3
RV4
C17
100nF
C1
100nF
U3
CD4051B
INPUT.SELECT0
INPUT.SELECT1
INPUT.SELECT2
INPUT.ADC_IN
J13
User.Input
C7
100nF
G1
SSD1306_OLED
I2C0.SDA
I2C0.SCL
IMU
C8
100nF
U5
BNO085
I2C0.SDA
I2C0.SCL
U1B
MCT6
SW1
ENC0.A/IN.SEL0
INPUT.SELECT0
ENCODER0.A
SWITCH1
SW2
ENC0.B/IN.SEL1
INPUT.SELECT1
ENCODER0.B
SWITCH2
SW3
ENC1.A/IN.SEL2
INPUT.SELECT2
ENCODER1.A
SWITCH3
SW4
ENC1.B/IN.ADC
INPUT.ADC_IN
ENCODER1.B
SWITCH4
ENCODER0.A
ENCODER0.B
J20
Encoder0
ENCODER1.A
ENCODER1.B
J18
Encoder1
MAKE SURE TO TEST STRAPPING BEFORE ORDERING!!!
BASKET.SERVO
J19
Basket_S
IR0.IN
IR1.IN
J10
Reflectance
Optional
pull ups
R3
4k7
R4
4k7
I2C0.SDA
I2C0.SCL
J14
I2C0
R5
4k7
R6
4k7
I2C1.SDA
I2C1.SCL
J16
I2C1
WING0.SERVO
J1
Wing0_S
WING0.LIMIT_SW_IN
J2
Wing0_SW
WING1.SERVO
J4
Wing1_S
WING1.LIMIT_SW_IN
J5
Wing1_SW
DRIVETRAIN.M0_PWM
DRIVETRAIN.M0_DIR
DRIVETRAIN.M1_PWM
DRIVETRAIN.M1_DIR
J7
Drivetrain_M
ARM.SHOULDER_PWM
ARM.SHOULDER_DIR
ARM.INTAKE_PWM
ARM.INTAKE_DIR
J8
Arm_M
ARM.SHOULDER_PWM
ARM.SHOULDER_DIR
ARM.INTAKE_PWM
ARM.INTAKE_DIR
J9
Arm_M
ARM.POSITION
J11
Arm_I
ARM.INTAKE_SW
J12
Intake_I
PWR_FLAG
C2
100nF
C3
100nF
C4
47uF
C5
47uF
C6
100nF
U4
ESP32_PICO−1
SWITCH1
SWITCH2
SWITCH3
SWITCH4
WING0.LIMIT_SW_IN
WING1.LIMIT_SW_IN
DRIVETRAIN.M1_DIR
DRIVETRAIN.M1_PWM
GPIO12
DRIVETRAIN.M0_DIR
BASKET.SERVO
GPIO2
DRIVETRAIN.M0_PWM
I2C1.SDA
WING1.SERVO
I2C0.SDA
I2C0.SCL
ARM.SHOULDER_PWM
ARM.SHOULDER_DIR
WING0.SERVO
I2C1.SCL
ARM.INTAKE_PWM
ARM.INTAKE_DIR
RX0
TX0
IR0.IN
IR1.IN
ARM.INTAKE_SW
ARM.POSITION
Table 8: Default Configuration of Strapping Pins
Strapping Pin | Default Configuration | Bit Value
GPIO0 | Pull-up | 1
GPIO2 | Pull-down | 0
MTDI | Pull-down | 0
MTDO | Pull-up | 1
GPIO5 | Pull-up | 1
GPIO12 = MTDI
GPIO15 = MTDO
J15
Extra
GPIO12
GPIO2
RX0
TX0
H1
M3_PTH
C9
100nF
H2
M3_PTH
C10
100nF
H3
M3_PTH
C11
100nF
H4
M3_PTH
C12
100nF
H5
M3_PTH
C13
100nF
S1
T5 Logo
George Sleen
Team 5
Sheet: /
File: robot−motherboard.kicad_sch
Title: Robot Motherboard
Size: A3
Date: 2025−07−06
Rev: v3.0.0
KiCad E.D.A. 9.0.2
Id: 1/1