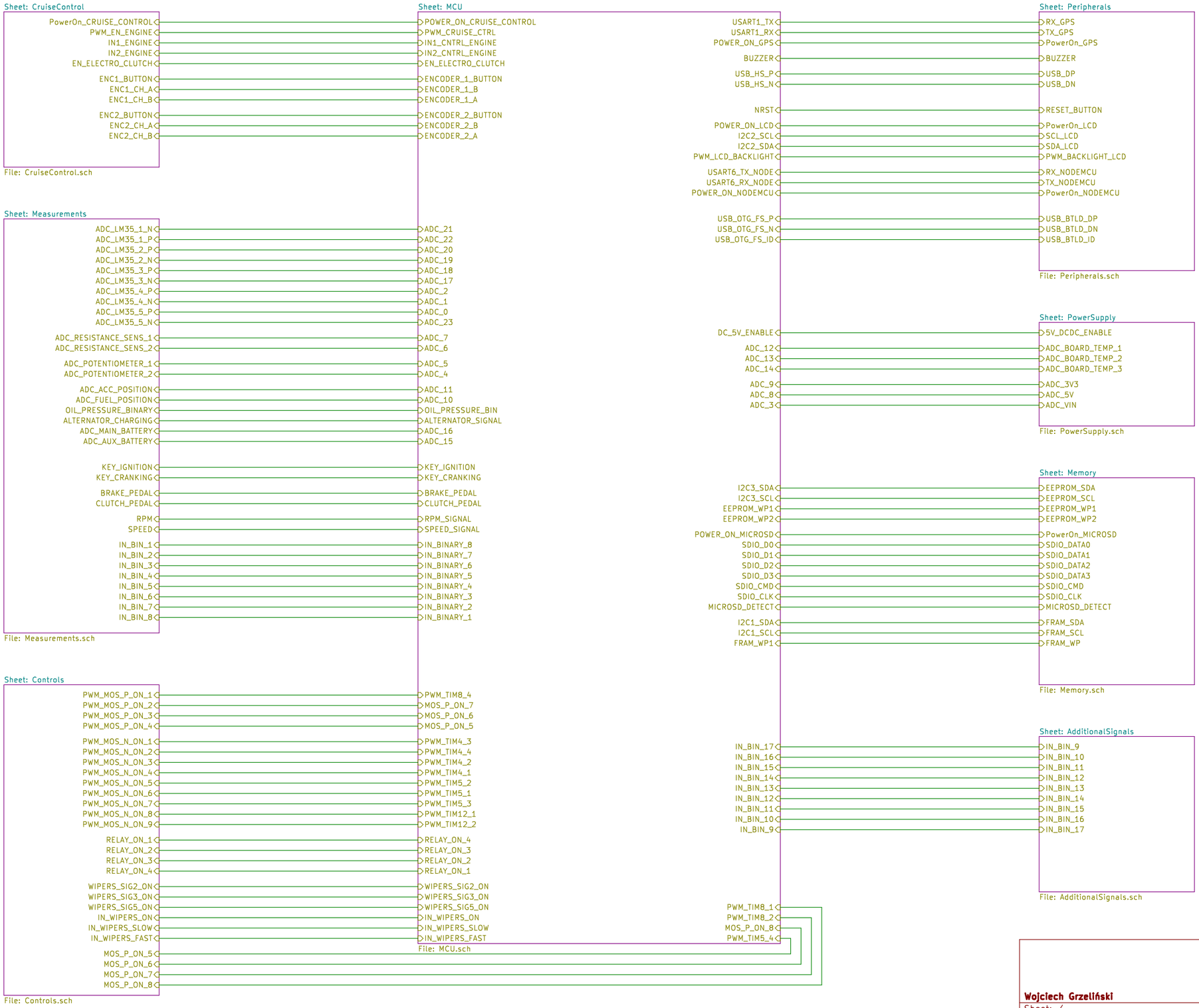
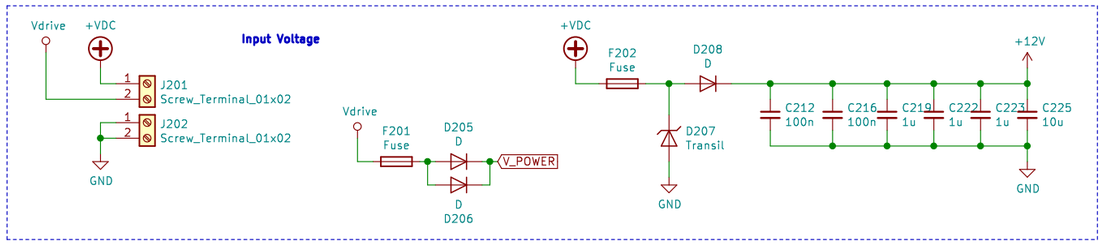
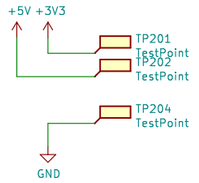
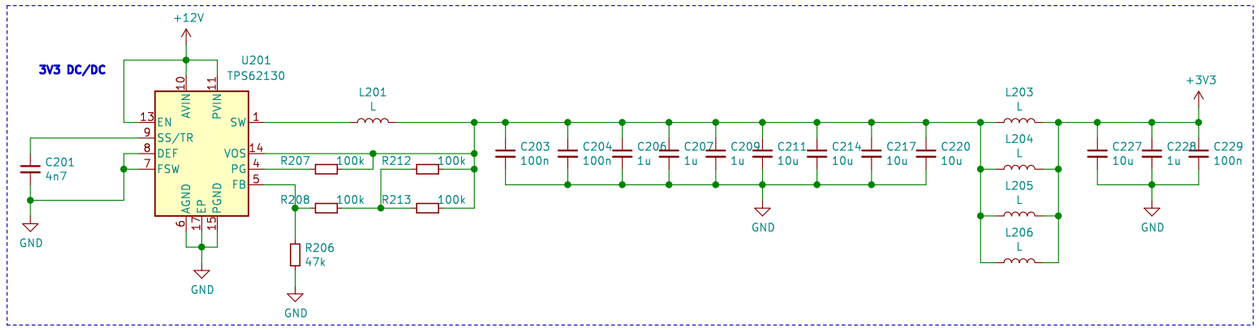
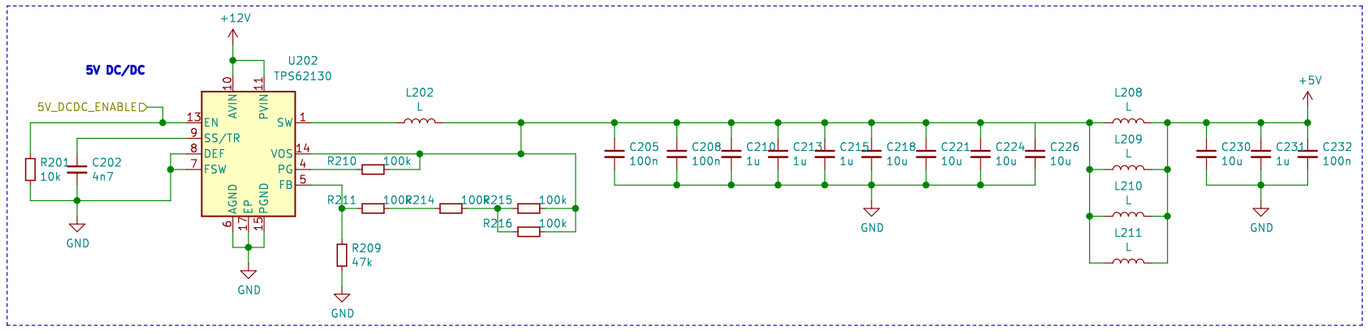
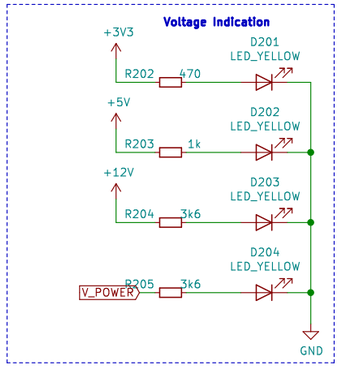

Sheet: CruiseControl
PowerOn_CRUISE_CONTROL
PWM_EN_ENGINE
IN1_ENGINE
IN2_ENGINE
EN_ELECTRO_CLUTCH
ENC1_BUTTON
ENC1_CH_A
ENC1_CH_B
ENC2_BUTTON
ENC2_CH_A
ENC2_CH_B
File: CruiseControl.sch
Sheet: MCU
POWER_ON_CRUISE_CONTROL
PWM_CRUISE_CTRL
IN1_CNTRL_ENGINE
IN2_CNTRL_ENGINE
EN_ELECTRO_CLUTCH
ENCODER_1_BUTTON
ENCODER_1_B
ENCODER_1_A
ENCODER_2_BUTTON
ENCODER_2_B
ENCODER_2_A
USART1_TX
USART1_RX
POWER_ON_GPS
BUZZER
USB_HS_P
USB_HS_N
NRST
POWER_ON_LCD
I2C2_SCL
I2C2_SDA
PWM_LCD_BACKLIGHT
USART6_TX_NODE
USART6_RX_NODE
POWER_ON_NODEMCU
USB_OTG_FS_P
USB_OTG_FS_N
USB_OTG_FS_ID
Sheet: Peripherals
RX_GPS
TX_GPS
PowerOn_GPS
BUZZER
USB_DP
USB_DN
RESET_BUTTON
PowerOn_LCD
SCL_LCD
SDA_LCD
PWM_BACKLIGHT_LCD
RX_NODEMCU
TX_NODEMCU
PowerOn_NODEMCU
USB_BTLD_DP
USB_BTLD_DN
USB_BTLD_ID
File: Peripherals.sch
Sheet: Measurements
ADC_LM35_1_N
ADC_LM35_1_P
ADC_LM35_2_P
ADC_LM35_2_N
ADC_LM35_3_P
ADC_LM35_3_N
ADC_LM35_4_P
ADC_LM35_4_N
ADC_LM35_5_P
ADC_LM35_5_N
ADC_RESISTANCE_SENS_1
ADC_RESISTANCE_SENS_2
ADC_POTENTIOMETER_1
ADC_POTENTIOMETER_2
ADC_ACC_POSITION
ADC_FUEL_POSITION
OIL_PRESSURE_BINARY
ALTERNATOR_CHARGING
ADC_MAIN_BATTERY
ADC_AUX_BATTERY
KEY_IGNITION
KEY_CRANKING
BRAKE_PEDAL
CLUTCH_PEDAL
RPM
SPEED
IN_BIN_1
IN_BIN_2
IN_BIN_3
IN_BIN_4
IN_BIN_5
IN_BIN_6
IN_BIN_7
IN_BIN_8
File: Measurements.sch
ADC_21
ADC_22
ADC_20
ADC_19
ADC_18
ADC_17
ADC_2
ADC_1
ADC_0
ADC_23
ADC_7
ADC_6
ADC_5
ADC_4
ADC_11
ADC_10
OIL_PRESSURE_BIN
ALTERNATOR_SIGNAL
ADC_16
ADC_15
KEY_IGNITION
KEY_CRANKING
BRAKE_PEDAL
CLUTCH_PEDAL
RPM_SIGNAL
SPEED_SIGNAL
IN_BINARY_8
IN_BINARY_7
IN_BINARY_6
IN_BINARY_5
IN_BINARY_4
IN_BINARY_3
IN_BINARY_2
IN_BINARY_1
Sheet: PowerSupply
DC_5V_ENABLE
ADC_12
ADC_13
ADC_14
ADC_9
ADC_8
ADC_3
5V_DCDC_ENABLE
ADC_BOARD_TEMP_1
ADC_BOARD_TEMP_2
ADC_BOARD_TEMP_3
ADC_3V3
ADC_5V
ADC_VIN
File: PowerSupply.sch
Sheet: Memory
I2C3_SDA
I2C3_SCL
EEPROM_WP1
EEPROM_WP2
POWER_ON_MICROSD
SDIO_D0
SDIO_D1
SDIO_D2
SDIO_D3
SDIO_CMD
SDIO_CLK
MICROSD_DETECT
I2C1_SDA
I2C1_SCL
FRAM_WP1
EEPROM_SCL
EEPROM_WP1
EEPROM_WP2
PowerOn_MICROSD
SDIO_DATA0
SDIO_DATA1
SDIO_DATA2
SDIO_DATA3
SDIO_CMD
SDIO_CLK
MICROSD_DETECT
FRAM_SDA
FRAM_SCL
FRAM_WP
File: Memory.sch
Sheet: Controls
PWM_MOS_P_ON_1
PWM_MOS_P_ON_2
PWM_MOS_P_ON_3
PWM_MOS_P_ON_4
PWM_MOS_N_ON_1
PWM_MOS_N_ON_2
PWM_MOS_N_ON_3
PWM_MOS_N_ON_4
PWM_MOS_N_ON_5
PWM_MOS_N_ON_6
PWM_MOS_N_ON_7
PWM_MOS_N_ON_8
PWM_MOS_N_ON_9
RELAY_ON_1
RELAY_ON_2
RELAY_ON_3
RELAY_ON_4
WIPERS_SIG2_ON
WIPERS_SIG3_ON
WIPERS_SIG5_ON
IN_WIPERS_ON
IN_WIPERS_SLOW
IN_WIPERS_FAST
MOS_P_ON_5
MOS_P_ON_6
MOS_P_ON_7
MOS_P_ON_8
File: Controls.sch
PWM_TIM8_4
MOS_P_ON_7
MOS_P_ON_6
MOS_P_ON_5
PWM_TIM4_3
PWM_TIM4_4
PWM_TIM4_2
PWM_TIM4_1
PWM_TIM5_2
PWM_TIM5_1
PWM_TIM5_3
PWM_TIM12_1
PWM_TIM12_2
RELAY_ON_4
RELAY_ON_3
RELAY_ON_2
RELAY_ON_1
WIPERS_SIG2_ON
WIPERS_SIG3_ON
WIPERS_SIG5_ON
IN_WIPERS_ON
IN_WIPERS_SLOW
IN_WIPERS_FAST
File: MCU.sch
Sheet: AdditionalSignals
IN_BIN_17
IN_BIN_16
IN_BIN_15
IN_BIN_14
IN_BIN_13
IN_BIN_12
IN_BIN_11
IN_BIN_10
IN_BIN_9
IN_BIN_9
IN_BIN_10
IN_BIN_11
IN_BIN_12
IN_BIN_13
IN_BIN_14
IN_BIN_15
IN_BIN_16
IN_BIN_17
File: AdditionalSignals.sch
PWM_TIM8_1
PWM_TIM8_2
MOS_P_ON_8
PWM_TIM5_4
Wojciech Grzeliński
Sheet: /
File: BodyComputer_v2.sch
Title: Body Computer V2.0
Size: A3
Date: 2021-02-18
Rev: V2.0
KiCad E.D.A. kicad (5.1.5)-3
Id: 1/9

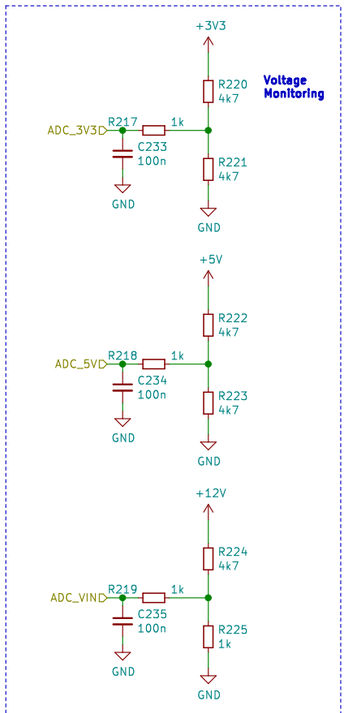


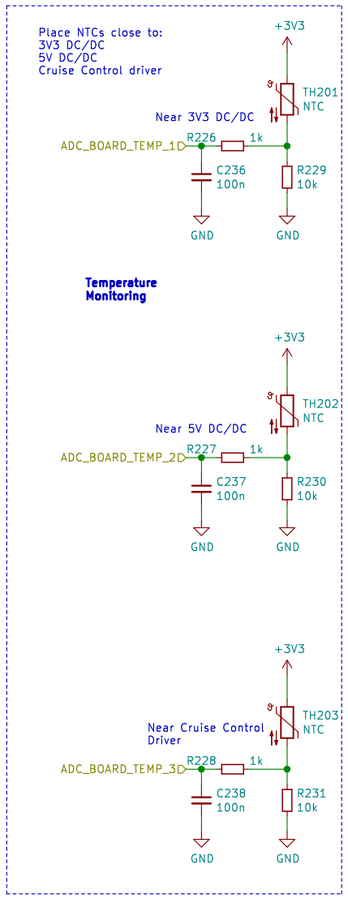










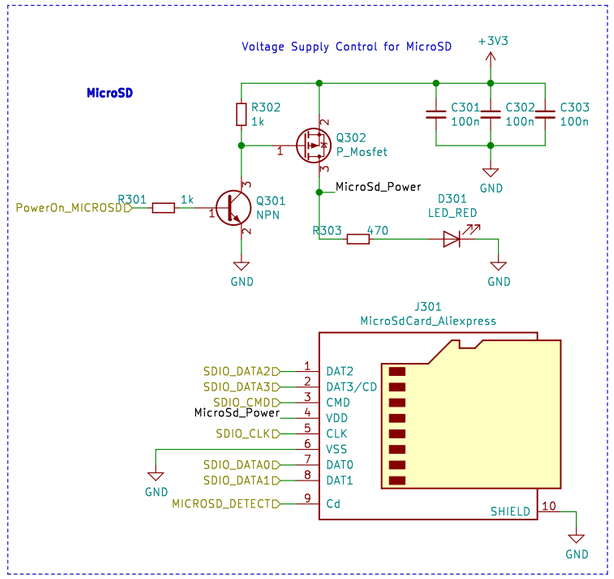


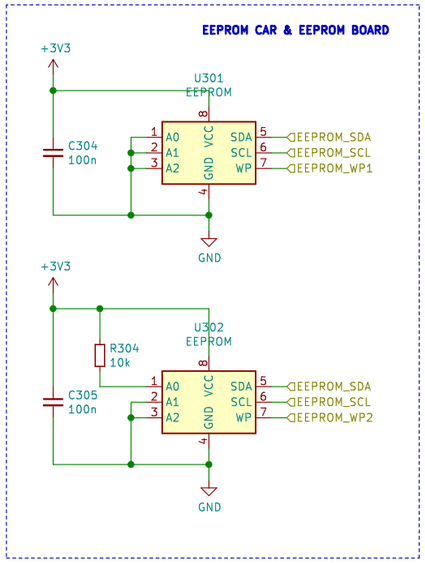
Wojciech Grzeliński

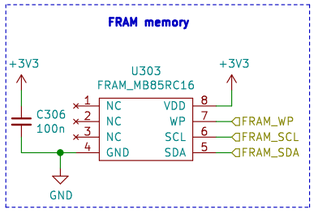
Sheet: /PowerSupply/
File: PowerSupply.sch

Title: Body Computer V2.0

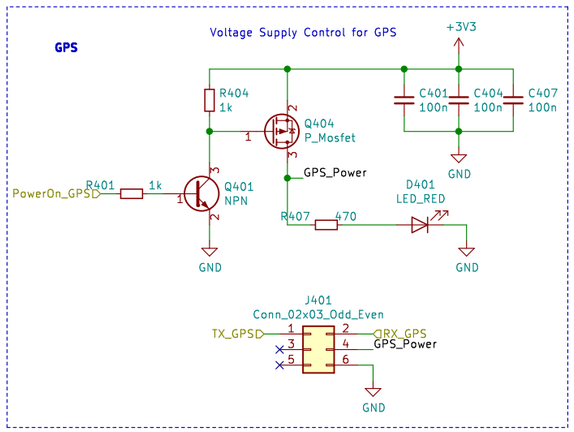
Size: A3	Date: 2021-02-18	**Rev: V2.0**
KiCad E.D.A. kicad (5.1.5)-3		Id: 2/9

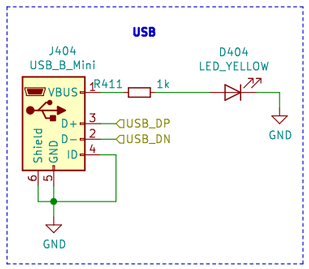


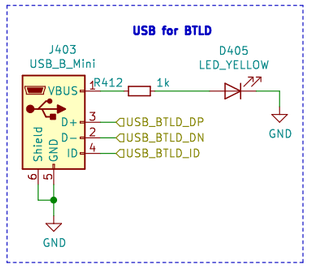


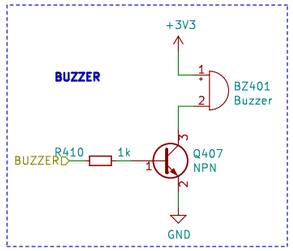


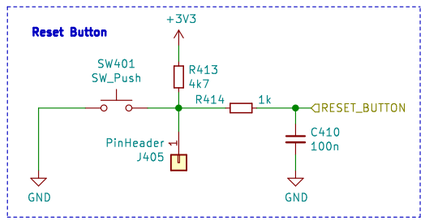
Wojciech Grzeliński		
Sheet: /Memory/ File: Memory.sch		
Title: Body Computer V2.0		
Size: A3	Date: 2021-02-18	**Rev: V2.0**
KiCad E.D.A. kicad (5.1.5)-3		Id: 3/9

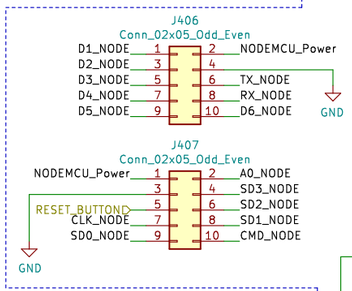


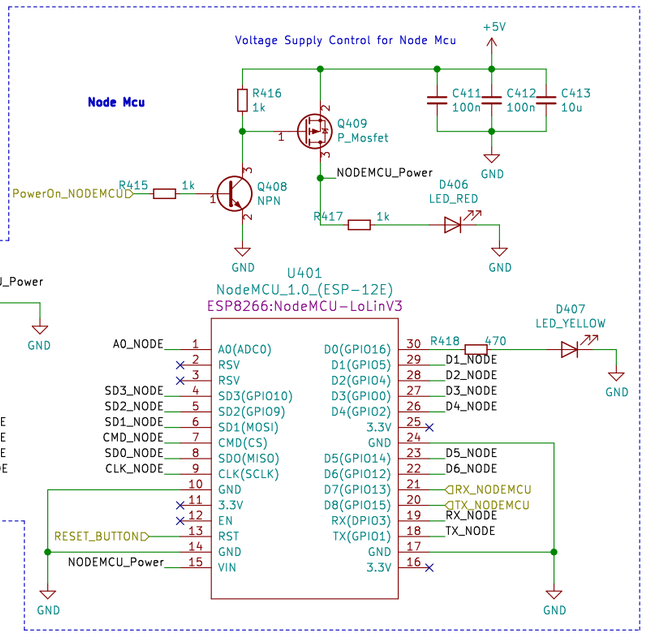


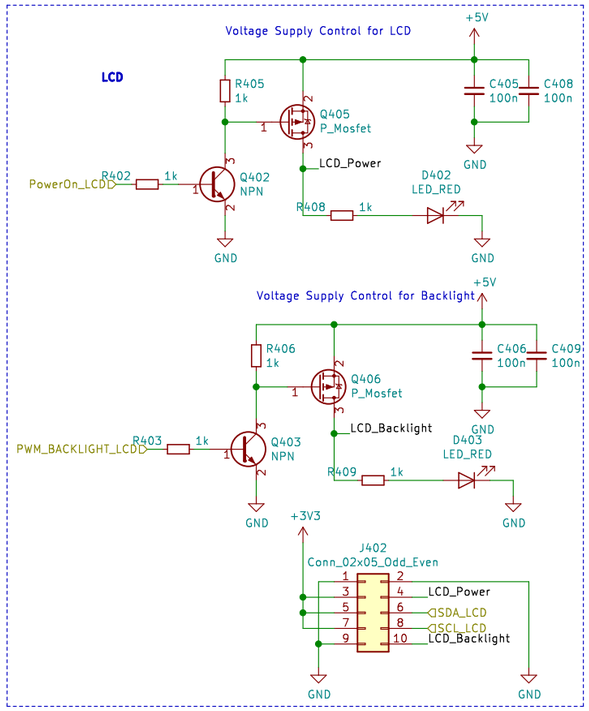










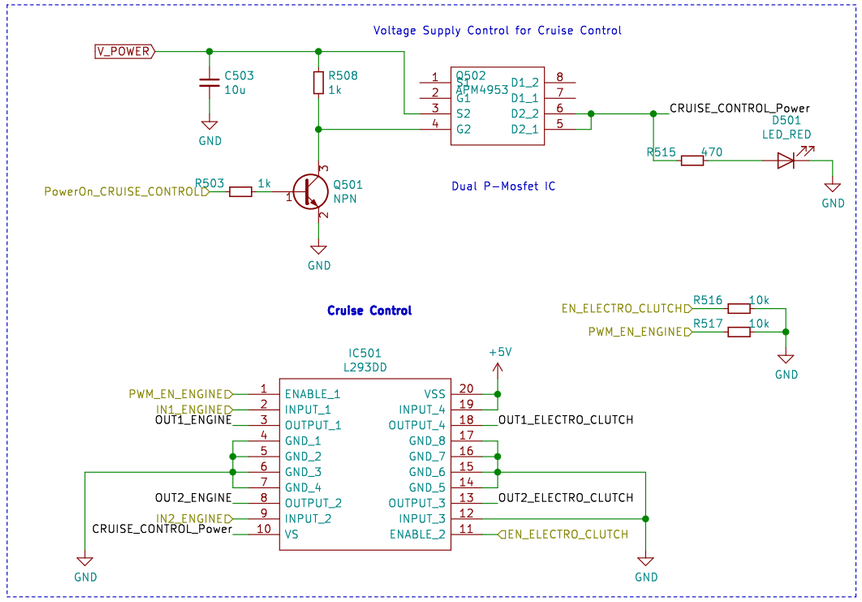


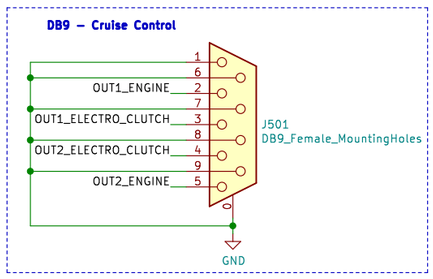
Wojciech Grzeliński

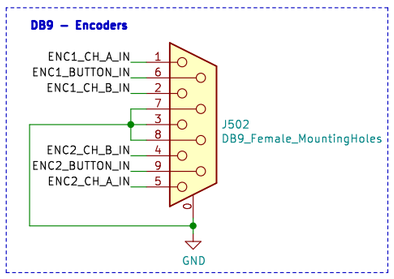
Sheet: /Peripherals/
File: Peripherals.sch

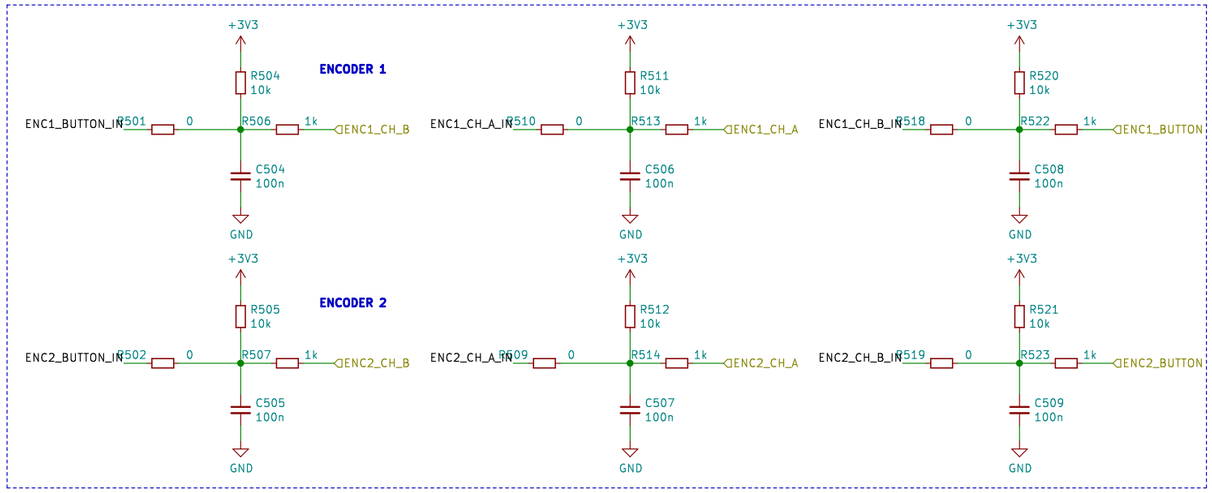
Title: Body Computer V2.0

Size: A3	Date: 2021-02-18	**Rev: V2.0**
KiCad E.D.A. kicad (5.1.5)-3		Id: 4/9







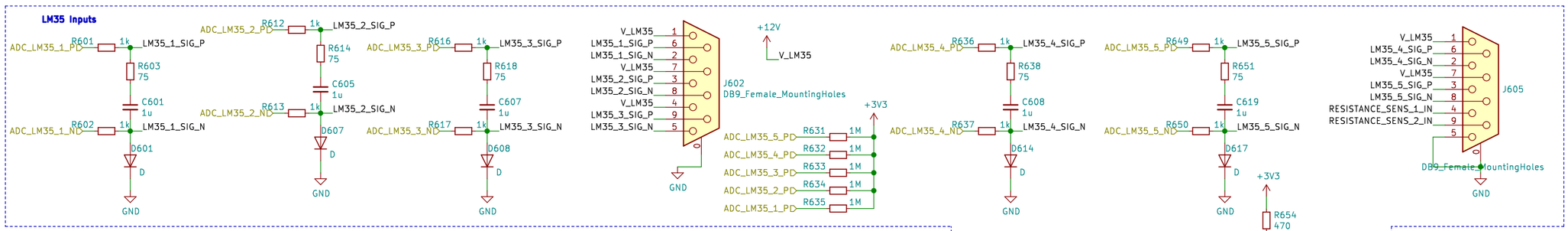


Wojciech Grzeliński

Sheet: /CruiseControl/
File: CruiseControl.sch

Title: Body Computer V2.0

Size: A3	Date: 2021-02-18	**Rev: V2.0**
KiCad E.D.A. kicad (5.1.5)-3		Id: 5/9

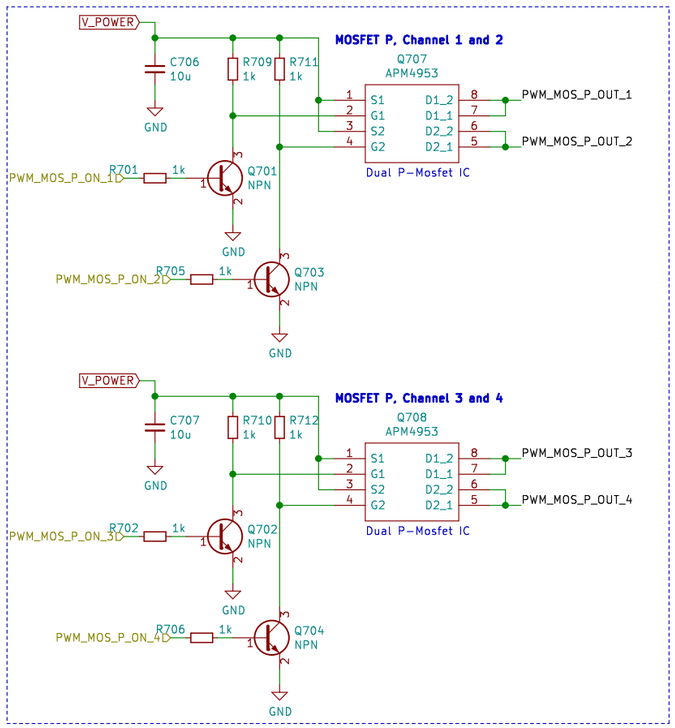


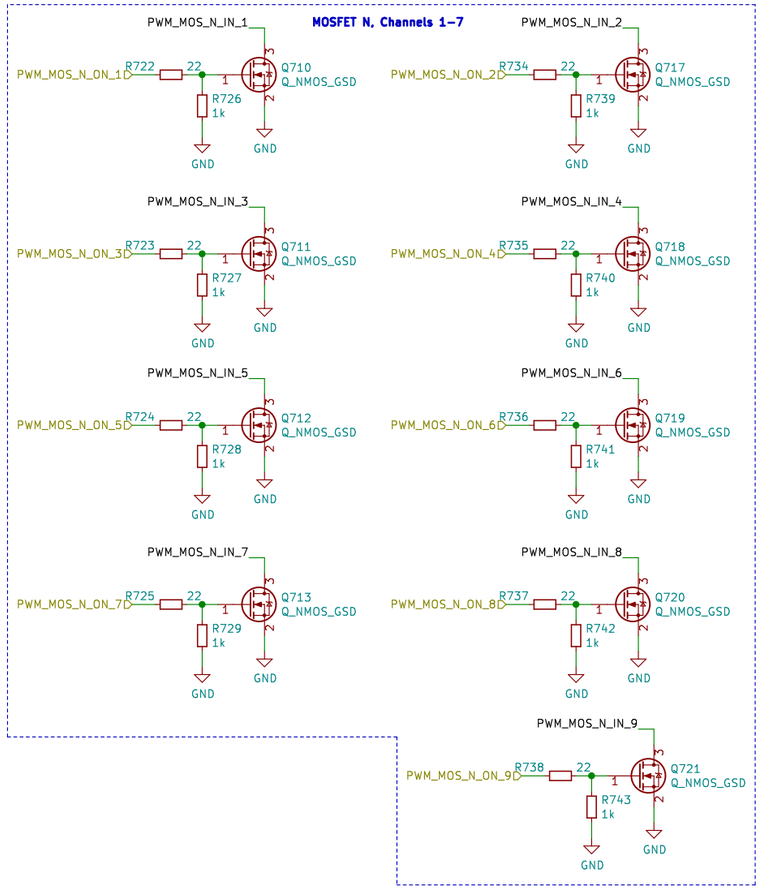
Wojciech Grzeliński

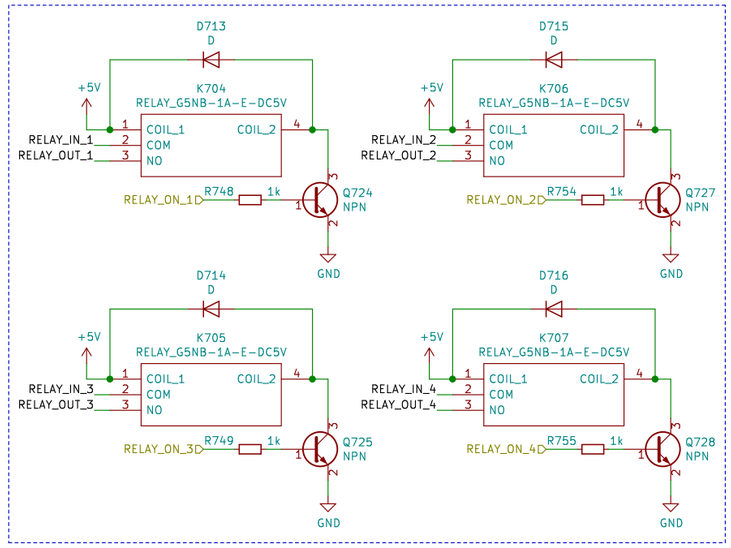
Sheet: /Measurements/
File: Measurements.sch

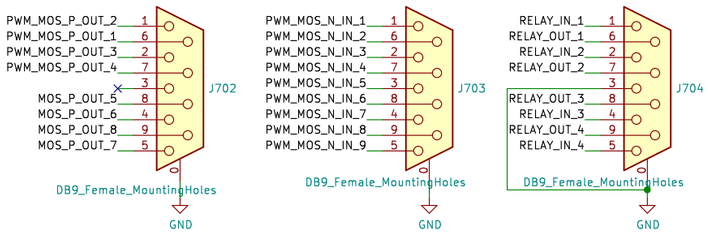
Title: Body Computer V2.0

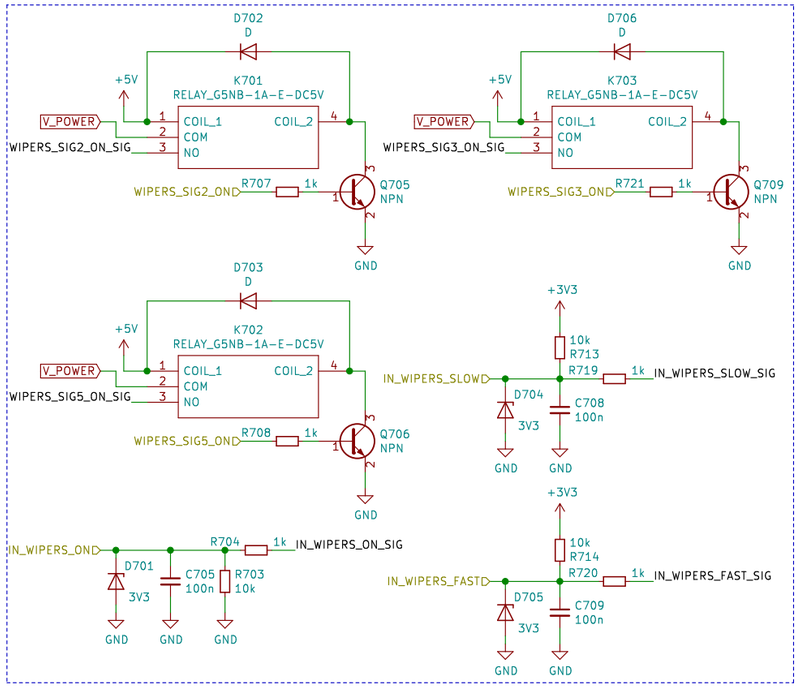
Size: A3	Date: 2021-02-18	Rev: V2.0
KiCad E.D.A. kicad (5.1.5)-3		Id: 6/9

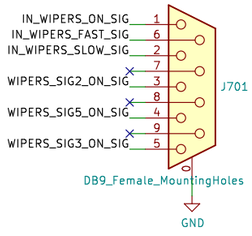


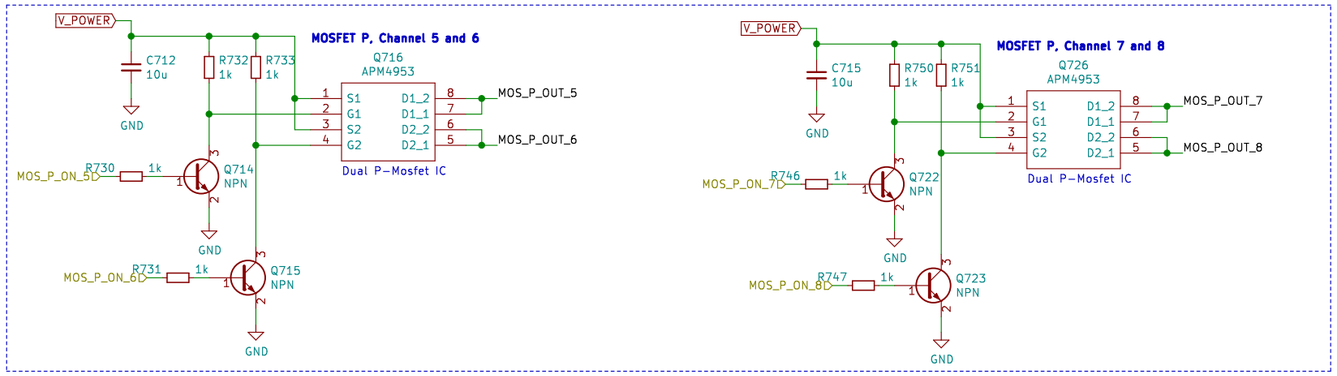










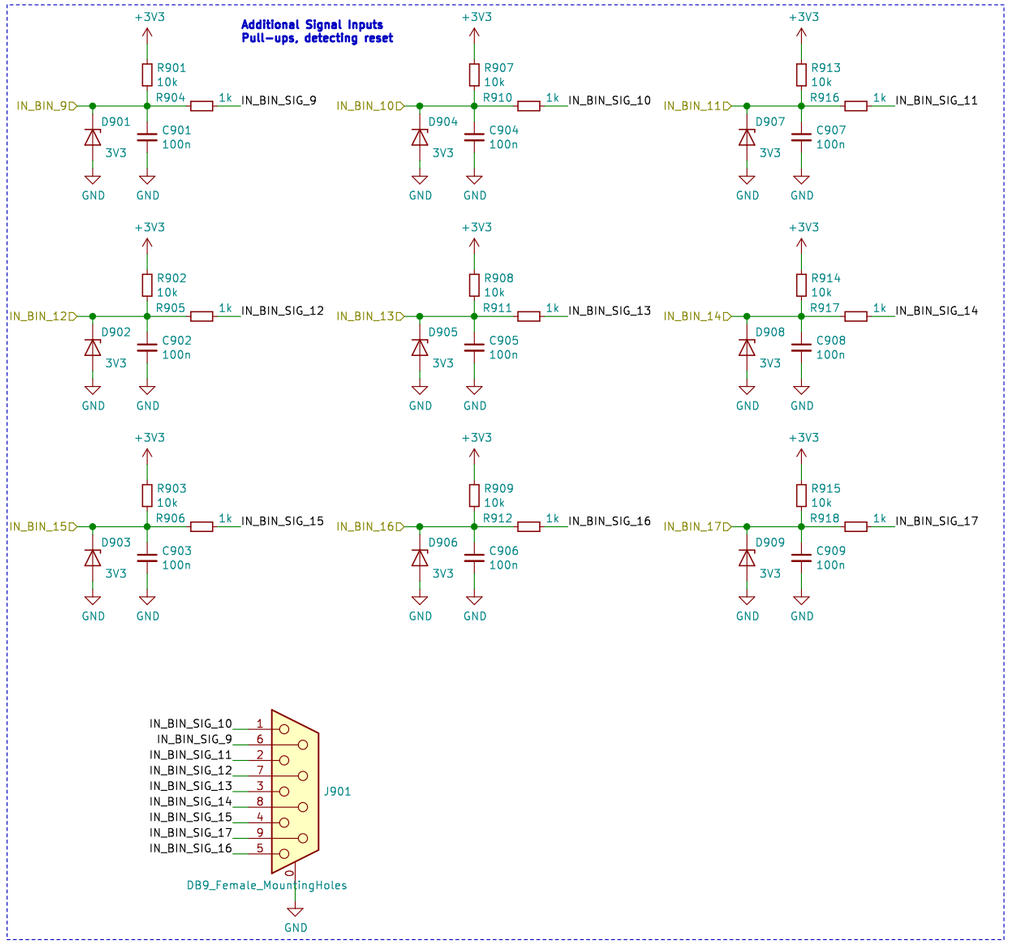


Wojciech Grzeliński

Sheet: /Controls/
File: Controls.sch

Title: Body Computer V2.0

Size: A3	Date: 2021-02-18	**Rev: V2.0**
KiCad E.D.A. kicad (5.1.5)-3		Id: 7/9

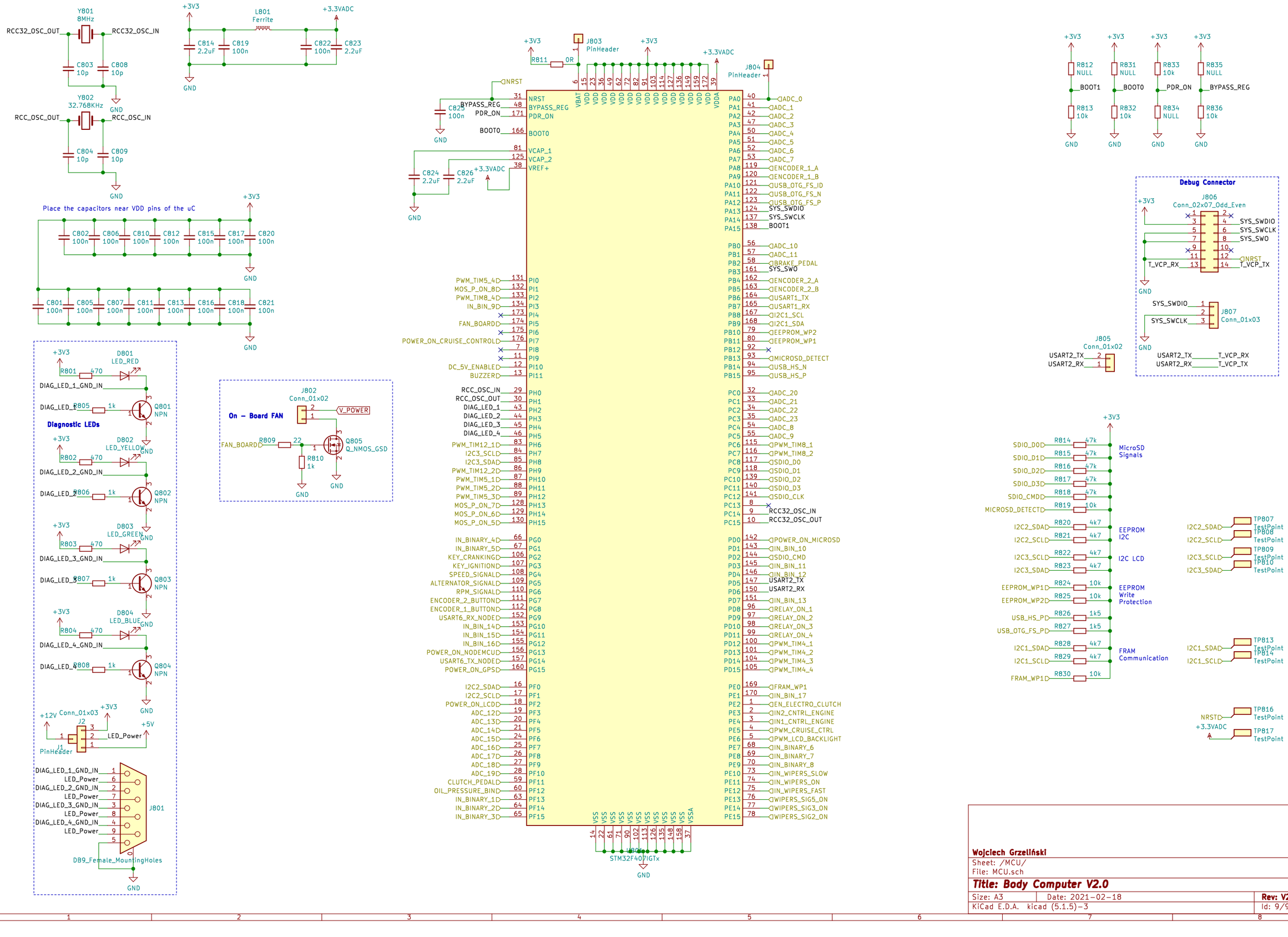


Wojciech Grzeliński

Sheet: /AdditionalSignals/
File: AdditionalSignals.sch

Title: Body Computer V2.0

Size: A3	Date: 2021-02-18	**Rev: V2.0**
KiCad E.D.A. kicad (5.1.5)-3		Id: 8/9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8MHz
RCC32_OSC_OUT
RCC32_OSC_IN
C803 10p
C808 10p
GND
Y802
32.768KHz
RCC_OSC_OUT
RCC_OSC_IN
C804 10p
C809 10p
+3V3
L801
Ferrite
+3.3VADC
C814 2.2uF
C819 100n
C822 100n
C823 2.2uF
Place the capacitors near VDD pins of the uC
C802 100n
C806 100n
C810 100n
C812 100n
C815 100n
C817 100n
C820 100n
C801 100n
C805 100n
C807 100n
C811 100n
C813 100n
C816 100n
C818 100n
C821 100n
Diagnostic LEDs
D801 LED_RED
R801 470
DIAG_LED_1_GND_IN
DIAG_LED_1
R805 1k
Q801 NPN
D802 LED_YELLOW
R802 470
DIAG_LED_2_GND_IN
DIAG_LED_2
R806 1k
Q802 NPN
D803 LED_GREEN
R803 470
DIAG_LED_3_GND_IN
DIAG_LED_3
R807 1k
Q803 NPN
D804 LED_BLUE
R804 470
DIAG_LED_4_GND_IN
DIAG_LED_4
R808 1k
Q804 NPN
+12V
J2 Conn_01x03
LED_Power
+5V
J1 PinHeader
J801
DB9_Female_MountingHoles
On - Board FAN
J802 Conn_01x02
V_POWER
FAN_BOARD
R809 22
Q805 Q_NMOS_GSD
R810 1k
J803 PinHeader
R811 0R
NRST
BYPASS_REG
PDR_ON
BOOT0
C825 100n
C824 2.2uF
C826 2.2uF
VBAT
VDD
VDDA
VCAP_1
VCAP_2
VREF+
PA0 ADC_0
PA1 ADC_1
PA2 ADC_2
PA3 ADC_3
PA4 ADC_4
PA5 ADC_5
PA6 ADC_6
PA7 ADC_7
PA8 ENCODER_1_A
PA9 ENCODER_1_B
PA10 USB_OTG_FS_ID
PA11 USB_OTG_FS_N
PA12 USB_OTG_FS_P
PA13 SYS_SWDIO
PA14 SYS_SWCLK
PA15 BOOT1
PB0 ADC_10
PB1 ADC_11
PB2 BRAKE_PEDAL
PB3 SYS_SWO
PB4 ENCODER_2_A
PB5 ENCODER_2_B
PB6 USART1_TX
PB7 USART1_RX
PB8 I2C1_SCL
PB9 I2C1_SDA
PB10 EEPROM_WP2
PB11 EEPROM_WP1
PB12
PB13 MICROSD_DETECT
PB14 USB_HS_N
PB15 USB_HS_P
PC0 ADC_20
PC1 ADC_21
PC2 ADC_22
PC3 ADC_23
PC4 ADC_8
PC5 ADC_9
PC6 PWM_TIM8_1
PC7 PWM_TIM8_2
PC8 SDIO_D0
PC9 SDIO_D1
PC10 SDIO_D2
PC11 SDIO_D3
PC12 SDIO_CLK
PC13
PC14 RCC32_OSC_IN
PC15 RCC32_OSC_OUT
PD0 POWER_ON_MICROSD
PD1 IN_BIN_10
PD2 SDIO_CMD
PD3 IN_BIN_11
PD4 IN_BIN_12
PD5 USART2_TX
PD6 USART2_RX
PD7 IN_BIN_13
PD8 RELAY_ON_1
PD9 RELAY_ON_2
PD10 RELAY_ON_3
PD11 RELAY_ON_4
PD12 PWM_TIM4_1
PD13 PWM_TIM4_2
PD14 PWM_TIM4_3
PD15 PWM_TIM4_4
PE0 FRAM_WP1
PE1 IN_BIN_17
PE2 EN_ELECTRO_CLUTCH
PE3 IN2_CNTRL_ENGINE
PE4 IN1_CNTRL_ENGINE
PE5 PWM_CRUISE_CTRL
PE6 PWM_LCD_BACKLIGHT
PE7 IN_BINARY_6
PE8 IN_BINARY_7
PE9 IN_BINARY_8
PE10 IN_WIPERS_SLOW
PE11 IN_WIPERS_ON
PE12 IN_WIPERS_FAST
PE13 WIPERS_SIG5_ON
PE14 WIPERS_SIG3_ON
PE15 WIPERS_SIG2_ON
PWM_TIM5_4
MOS_P_ON_8
PWM_TIM8_4
IN_BIN_9
FAN_BOARD
POWER_ON_CRUISE_CONTROLD
DC_5V_ENABLED
BUZZER
RCC_OSC_IN
RCC_OSC_OUT
DIAG_LED_1
DIAG_LED_2
DIAG_LED_3
DIAG_LED_4
PWM_TIM12_1
I2C3_SCL
I2C3_SDA
PWM_TIM12_2
PWM_TIM5_1
PWM_TIM5_2
PWM_TIM5_3
MOS_P_ON_7
MOS_P_ON_6
MOS_P_ON_5
IN_BINARY_4
IN_BINARY_5
KEY_CRANKING
KEY_IGNITION
SPEED_SIGNALD
ALTERNATOR_SIGNALD
RPM_SIGNALD
ENCODER_2_BUTTON
ENCODER_1_BUTTON
USART6_RX_NODE
IN_BIN_14
IN_BIN_15
IN_BIN_16
POWER_ON_NODEMCU
USART6_TX_NODE
POWER_ON_GPS
I2C2_SDA
I2C2_SCL
POWER_ON_LCD
ADC_12
ADC_13
ADC_14
ADC_15
ADC_16
ADC_17
ADC_18
ADC_19
CLUTCH_PEDAL
OIL_PRESSURE_BIND
IN_BINARY_1
IN_BINARY_2
IN_BINARY_3
PI0
PI1
PI2
PI3
PI4
PI5
PI6
PI7
PI8
PI9
PI10
PI11
PH0
PH1
PH2
PH3
PH4
PH5
PH6
PH7
PH8
PH9
PH10
PH11
PH12
PH13
PH14
PH15
PG0
PG1
PG2
PG3
PG4
PG5
PG6
PG7
PG8
PG9
PG10
PG11
PG12
PG13
PG14
PG15
PF0
PF1
PF2
PF3
PF4
PF5
PF6
PF7
PF8
PF9
PF10
PF11
PF12
PF13
PF14
PF15
VSS
VSSA
U801
STM32F407IGTx
R812 NULL
R813 10k
R831 NULL
R832 10k
R833 10k
R834 NULL
R835 NULL
R836 10k
BOOT1
BOOT0
PDR_ON
BYPASS_REG
Debug Connector
J806 Conn_02x07_Odd_Even
SYS_SWDIO
SYS_SWCLK
SYS_SWO
NRST
T_VCP_RX
T_VCP_TX
J807 Conn_01x03
J805 Conn_01x02
USART2_TX
USART2_RX
SDIO_D0
SDIO_D1
SDIO_D2
SDIO_D3
SDIO_CMD
MICROSD_DETECT
R814 47k
R815 47k
R816 47k
R817 47k
R818 47k
R819 10k
MicroSD Signals
I2C2_SDA
I2C2_SCL
R820 4k7
R821 4k7
EEPROM I2C
I2C3_SCL
I2C3_SDA
R822 4k7
R823 4k7
I2C LCD
EEPROM_WP1
EEPROM_WP2
R824 10k
R825 10k
EEPROM Write Protection
USB_HS_P
USB_OTG_FS_P
R826 1k5
R827 1k5
I2C1_SDA
I2C1_SCL
R828 4k7
R829 4k7
FRAM Communication
FRAM_WP1
R830 10k
TP807 TestPoint
TP808 TestPoint
TP809 TestPoint
TP810 TestPoint
TP813 TestPoint
TP814 TestPoint
NRST
TP816 TestPoint
+3.3VADC
TP817 TestPoint
Wojciech Grzeliński
Sheet: /MCU/
File: MCU.sch
Title: Body Computer V2.0
Size: A3
Date: 2021-02-18
Rev: V2.0
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