BAT_IN

BAT_IN

Q1
AO3401

BAT

R3
20K

BAT_DET

R4
20K

R5
20K

GND

Q2
AON3400

GND

D2
1N4148

D3
1N4148

EC_KEY_DET

D4
1N4148

USB_VCC

EC_KEY

D5
1N4148

PWR_EN

R6
20K

GND

GND

USB_VCC

C3
4.7UF

GND

D1
red

R2
1K

BAT_CHG_DET

U1
VDD   VBAT
PROG
STAT   VSS
MCP73831

R1
2K

C1
4.7UF

C2
104

GND

GND

BAT_IN

BAT

GND

C4
104

C5
106

U2
IN   OUT
GND
EN   NC
LP5907-3.3

3V3

C6
22uF

C7
104

GND

GND

Title			
Size	Number		Revision
A4			
Date:	2021/3/20		Sheet of
File:	G:\DESIGN\..\xLocate_Power.SchDoc		Drawn By:

U3 — AT32F403ACGU7

Left side pins:

Pin	Name	Net
1	VBAT	VBAT
2	PC13/TAMPER-RTC	
3	PC14/OSC32_IN	OSC32_IN
4	PC15/OSC32_OUT	OSC32_OUT
5	OSC_IN	
6	OSC_OUT	
7	NRST	RST
8	VSSA	GND
9	VDDA	MCU_VCC
10	PA0/ADC123_IN0/TMR2_CH1/TMR5_CH1/WKUP/USART2_CTS/TMR2_ETR/TMR8_ETR	BUZZ
11	PA1/ADC123_IN1/TMR2_CH2/TMR5_CH2/USART2_RTS	BAT_DET
12	PA2/ADC123_IN2/TMR2_CH3/TMR5_CH3/TMR9_CH1/USART2_TX	GPS_RX
13	PA3/ADC123_IN3/TMR2_CH4/TMR5_CH4/TMR9_CH2/USART2_RX	GPS_TX
14	PA4/DAC_OUT1/ADC12_IN4/USART2_CK/SPI1_NSS/I2S1_WS/SDIO2_D4	SCR_DC
15	PA5/DAC_OUT2/ADC12_IN5/SPI1_SCK/I2S1_CK/SDIO2_D5	SCR_SCL
16	PA6/ADC12_IN6/TMR3_CH1/TMR13_CH1/SPI1_MISO/SDIO2_D6/TMR8_BKIN	SCR_RES
17	PA7/ADC12_IN7/TMR3_CH2/TMR8_CH1N/TMR14_CH1/SPI1_MOSI/I2S1_SD/SDIO2_D7	SCR_SDA
18	PB0/ADC12_IN8/TMR3_CH3/TMR8_CH2N/I2S1_MCK	SCR_CS
19	PB1/ADC12_IN9/TMR3_CH4/TMR8_CH3N/SPIM_SCK	SCR_BLK
20	PB2/BOOT1	
21	PB10/I2C2_SCL/USART3_TX	IMU_INT1
22	PB11/I2C2_SDA/USART3_RX	IMU_INT2
23	VSS_1	GND
24	VDD_1	MCU_VCC

Right side pins:

Pin	Name	Net
48	VDD_3	MCU_VCC
47	VSS_3	GND
46	SDIO1_D5/TMR11_CH1/TMR4_CH4/PB9	
45	SDIO1_D4/TMR10_CH1/TMR4_CH3/PB8	
44	BOOT0	GND
43	SPIM_IO2/XMC_NADV/I2C1_SDA/TMR4_CH2/PB7	MCU_SDA
42	SPIM_IO3/I2C1_SCL/TMR4_CH1/PB6	MCU_SCL
41	I2S3_SD/SPI3_MOSI/I2C1_SMBA/PB5	EC_B
40	SPI3_MISO/NJTRST/PB4	EC_A
39	I2S3_CK/SPI3_SCK/JTDO/PB3	EC_KEY_DET
38	I2S3_WS/SPI3_NSS/JTDI/PA15	
37	JTCK-SWCLK/PA14	SWCLK
36	VDD_2	MCU_VCC
35	VSS_2	GND
34	JTMS-SWDIO/PA13	SWDIO
33	TMR1_ETR/SPIM_IO1/USART1_RTS/CAN_TX/USB_DP/PA12	PWR_EN
32	CAN_RX/USART1_CTS/SPIM_IO0/TMR1_CH4/USB_DM/PA11	BAT_CHG_DET
31	USART1_RX/TMR1_CH3/PA10	MCU_RX
30	I2C3_SMBA/USART1_TX/TMR1_CH2/PA9	MCU_TX
29	SPIM_NSS/I2C3_SCL/USART1_CK/CLKOUT/TMR1_CH1/PA8	SD_CD
28	I2S2_SD/SPI2_MOSI/TMR12_CH2/TMR1_CH3N/PB15	SD_MOSI
27	SPI2_MISO/USART3_RTS/TMR12_CH1/TMR1_CH2N/PB14	SD_MISO
26	USART3_CTS/I2S2_CK/SPI2_SCK/TMR1_CH1N/PB13	SD_SCK
25	TMR1_BKIN/I2S2_WS/SPI2_NSS/I2C2_SMBA/USART3_CK/PB12	SD_CS

Reset / Oscillator / Decoupling

- MCU_VCC — R7 10K — RST
- K1 — C13 104 — GND
- Y1 32.768K; C14 22pf, C15 22pf; OSC32_IN, OSC32_OUT; GND
- C9 105, C10 105, C11 105, C12 105; MCU_VCC / 3V3; GND

P2 Header 4

Pin	Net
1	3V3
2	SWDIO
3	SWCLK
4	GND

D6 1N4007

- BAT_IN — D6 1N4007 — VBAT
- C8 104 — GND

P3 Micro_SD

Pin	Name	Net
	DAT2	SD_CS
	CD/DAT3	SD_MOSI
	CMD	CMD
	VDD	3V3
	CLK	SD_SCK
	VSS	GND
	DAT0	SD_MISO
	DAT1	
	CD	SD_CD

- C18 104 — 3V3 / GND

U5 HT1818Z3G5L

Name	Net
GND	GND
VCC	3V3
TXD	GPS_TX
RXD	GPS_RX

- C16 105 — 3V3 / GND
- R8 10K — 3V3 — MCU_SCL
- R11 10K — 3V3 — MCU_SDA

P4 MICRO USB / U4 CH340E

P4 MICRO USB:
Pin	Name	Net
5	GND	GND
4	D+	
3	D-	
1	VCC	USB_VCC

U4 CH340E:
Pin	Name		Pin	Name	Net
1	UD+		10	V3	3V3
2	UD-		9	RXD	MCU_TX
3	GND		8	TXD	MCU_RX
4	RTS#		7	VCC	3V3
5	CTS#		6	TNOW	

- R9 100R, R10 100R
- C17 105 — 3V3 / GND

U6 LIS3MDL

Left	Net	Right	Net
SCL/SPC	MCU_SCL	RES	GND
RES	GND	SDA/SDI/SDO	MCU_SDA
GND	GND	CS	3V3
C1		SDO/SA1	GND
VDD	3V3	DRDY	
VDD_IO	3V3	INT	

- C19 104 — 3V3 / GND
- C20 104

U7 LSM6DSM

Left	Net	Right	Net
SDO/SA0	GND	SDA	MCU_SDA
SDx	GND	SCL	MCU_SCL
SCx	GND	INT1	3V3
INT1	IMU_INT1	SDO_AUX	
VDDIO	3V3	OCS_AUX	
GND	GND	INT2	IMU_INT2
GND	GND	VDD	3V3

- C21 104 — 3V3 / GND

Buzzer

- BAT — BZ1 Buzzer
- Q4 AO3400
- BUZZ — R16 10K — GND

U8 IPS154-12

Name	Net
GND1	GND
LEDK	SCR_LEDK
LEDA	3V3
VDD	3V3
GND2	GND
GND3	GND
D/C	SCR_DC
CS	SCR_CS
SCL	SCR_SCL
SDA	SCR_SDA
RES	SCR_RES
GND4	GND

- SCR_LEDK — R12 10R — Q3 AO3400
- SCR_BLK — Q3; R15 10K — GND
- C22 104 — 3V3 / GND

Rotary Encoder U9

- 3V3 — R13 10K, R14 10K
- EC_A, EC_B
- C23 104, C24 104 — GND

Name	Net
A	EC_A
PUSH	EC_KEY
COM	GND
B	EC_B
GND	GND

Title Block

Bill of Materials

Parameter Title not found

Source Data From:	**xLocate.PrjPcb**	
Project:	**xLocate.PrjPcb**	
Variant:	**None**	

Creation Date:	2021/3/20	1:02:46
Print Date:	20-Mar-21	1:03:00 AM

Footprint	Comment	LibRef	Designator	Description	Quantity
Pad_B	BAT_IN	Pad	BAT+		1
Pad_B	GND	Pad	BAT-		1
蜂鸣器_SMD5020	Buzzer	BZ	BZ1		1
电容_C0805	4.7UF	cap	C1, C3		2
电容_C0603	104	cap	C2, C4, C7, C8, C13, C18, C19, C20, C21, C22, C23, C24		12
电容_C0603	106	cap	C5		1
电容_C1206	22uF	cap	C6		1
电容_C0603	105	cap	C9, C10, C11, C12, C16, C17		6
电容_C0603	22pf	cap	C14, C15		2
LED_0603	red	LED	D1		1
二极管_SOD-323	1N4148	Diode	D2, D3, D4, D5		4
二极管_SOD-323	1N4007	Diode	D6		1
开关按键_SKRP	SKRP	SW-PB	K1		1
HDR1X4H	Header 4	Header 4	P2	Header, 4-Pin	1
接插件_Micro_SD	Micro_SD	Micro_SD	P3		1
接插件_MICRO牛角插座USB直边	MICRO USB	MICRO USB 5PIN	P4		1
MOS_SOT-23	AO3401	MOSFET-P	Q1		1
MOS_SOT-23	AON3400	MOSFET-N	Q2		1
MOS_SOT-23	AO3400	MOSFET-N	Q3, Q4		2
电阻_R0603	2K	Res	R1		1
电阻_R0603	1K	Res	R2		1
电阻_R0603	20K	Res	R3, R4, R5, R6		4
电阻_R0603	10K	Res	R7, R8, R11, R13, R14, R15, R16		7
电阻_R0603	100R	Res	R9, R10		2
电阻_R0603	10R	Res	R12		1
SOT23-5	MCP73831	MCP73831	U1	线性充电管理控制器	1
SOT23-5	LP5907-3.3	LP5907	U2	LDO	1
AT主控_QFN48(6X6)	AT32F403ACGU7	AT32F403CGU6	U3		1
串口_MSOP10	CH340E	CH340E	U4		1
GPS-HTZN	HT1818Z3G5L	HT1818Z3G5L	U5		1
LGA-12_L2.0-W2.0-P0.50-BL	LIS3MDL	LIS3DMDL	U6		1
LGA-14_L3.0-W2.5-P0.50-BL	LSM6DSM	LSM6DSM	U7		1
ZJY154T-PG04 FPC 0.7mm	IPS154-12	IPS154-12	U8		1
SIQ-02FVS3	Rotary Encoder	Rotary Encoder	U9		1
晶振_3215	32.768K	XTAL_A	Y1		1
					67

Approved	Notes