Block	Component	Description/Conditions	Supply voltage (V)	Current consumption per unit (µA)		Units	Total dissipated power (µW)		Notes
				Typical	Maximum		Typical	Maximum	
MCU	ESP32-WROOM-32D	MCU + wireless comm. Module	3.3	70 mA *	500 mA **	1	231 mW	1.7 W	* Average, measured, running demo ** Current spikes during wireless TX
Power rails	AP3429	DC/DC Buck converter IC	4.2	90 µA		1	378 µW		
	NCP562SQ18T1G	Low-Dropout regulator IC	3.3	3 µA		1	9.9 µW		
	150 kΩ + 33 kΩ voltage divider	FB pin feedback. Fixed consumption	3.3	18 µA		1	59.4 µW		
	[Optional] bypass voltage divider	Assuming 3V3/2 with 10 kΩ resistors	3.3	165 µA		1	544.5 µW		Consider only if populated
	Generic 0805 LED	Assuming Vf = 2V & 1 kΩ series resistor	3.3	1.3 mA		1	4.3 mW		Consider only if populated
Battery & current sense	INA219	Voltage & current sense IC	4.2	0.7 mA	1 mA	1	3 mW	4.2 mW	
	Generic 0805 LED	Assuming Vf = 2V & 1 kΩ series resistor	5.5	1.3 mA		2	8.6 mW		Consider only if populated
	I2C pull-up resistor	Assuming line level is LOW, with 4.7kΩ resistors	3.3	0.7 mA		2	4.6 mW		
[Optional] NiMH charger	LTC4060EFE	NiMH/NiCd charger IC	5.5	2.9 mA	4.3 mA	1	16 mW	23.7 mW	Consider only the populated charger variant. For charging ICs and BJT: consider only when charging the battery (else they are off). **In this case, power consumption comes from external supply not from the internal battery.**
	MDJ201	Power PNP BJT. Ice=0.95 A, Ibe=120mA, Vce=1.8V, Vbe=0.7 V	--	--		1	1.71 W + 84 mW ≈ 1.8 W		
	4.42 kΩ + NTC voltage divider	NTC pin. Assuming NTC at 50°C (3.54 kΩ)	5.5	691 µA		1	3.8 mW		
[Optional] Li-Ion/Li-Po charger	TP4056	Li-Ion/LiPo charger IC, Vbus-Vbat=1.8 V, Ibat=1 A	5.5	150 µA	500 µA	1	1.8W + 2.8 mW ≈ 1.8 W		
	DW01A	Battery protection IC	4.2	3 µA	6 µA	1	12.6 µW	25.6 µW	
	FS825A	Dual power NMOS, Rds(on)=25 mΩ, Ibat=1 A	--	--		1	50 mW (both NMOS)		
USB connector	USBLC6-2SC6	USB ESD protection IC	5.5	10 nA	150 nA	1	55 nW	825 nW	**Consider only when USB is plugged**
Programming	CH340C	USB to UART converter IC	3.3	12 mA	30 mA	1	39.6 mW	99 mW	Worst case when programming
	2N7002	G.P. NMOS. Ib=0 A, Vds=3.3 V, Ids=330 µA (during conmutation)	--	--		2	1 mW		Consider only when programming
	Generic 0805 LED	Assuming Vf = 2V & 1 kΩ series resistor	3.3	1.3 mA		4	17.2 mW		Consider only if populated
Buttons	Pull-up resistors	Assuming line level is LOW, 10kΩ resistors	3.3	330 µA		5	5.4 mW		Worst case: all pressed at once
Power-up button	BSS84AK	G.P. PMOS. Rsd(on) = 7.5 Ω, Ib=0, Isd = 77 µA	--	--		1	45 nW		
	1N4148W	Small signal diode. Vf=0.7 V, If=26 µA	--	--		2	36.4 µW		Worst case: both ON
	100 kΩ pull-up resistor	100 kΩ pull-up resistor	4.2	42 µA		1	176.4 µW		
TFT LCD display	LCD TFT ILI9341 module	320x240p LCD (Measured)	3.3	45 mA *	120 mA **	1	148.5 mW	396 mW	* Average, **maximum spike measured, running demo program
Signal conditioning	LMV358DGKR	General purpose dual OpAmp, with no load	3.3	140 µA	340 µA	1	462 µW	1.1 mW	Both OpAmps, high Z load
	1N4148W	Small signal diode. Vf=0.7 V, If= ? A	--	--		4	--		Unknown
Load cell amplifier	HX711	Load cell amplifier & ADC IC	3.3	1.4 mA		1	4.6 mW		Enters sleep if the data clock stops
	BC858	General purpose PNP BJT. Vce=1.8V, Ice=? A	--	--		1	--		Unknown
	22 kΩ + 10 kΩ voltage divider	VFB pin feedback for AVDD=1.82 V regulation.	1.82	57 µA		1	103.7 µW		Consider only when HX711 is awake

NiMH charger worst-case efficiency		
Power in	**Dissipated power**	**Efficiency**
5.225 W	1.822 W	65.10%

Lithium charger worst-case efficiency		
Power in	**Dissipated power**	**Efficiency**
5.5 W	1.878 W	65.85%

Sum of total current consumption (battery only, not charging)			Sum of total dissipated power (battery power only, not charging)	
Typical	**Maximum**		**Typical**	**Maximum**
134.5 mA	**658.7 mA**	**3.7 V**	**469.6 mW**	**2.25 W**

Capacidad batería		1400 mAh		5.2 Wh
Horas de batería	10.4 horas	2.1 horas	11.1 horas	2.3 horas