Power Estimation Report - BeePrecise BLE Sensor

Designed by Mahesh Prabhu

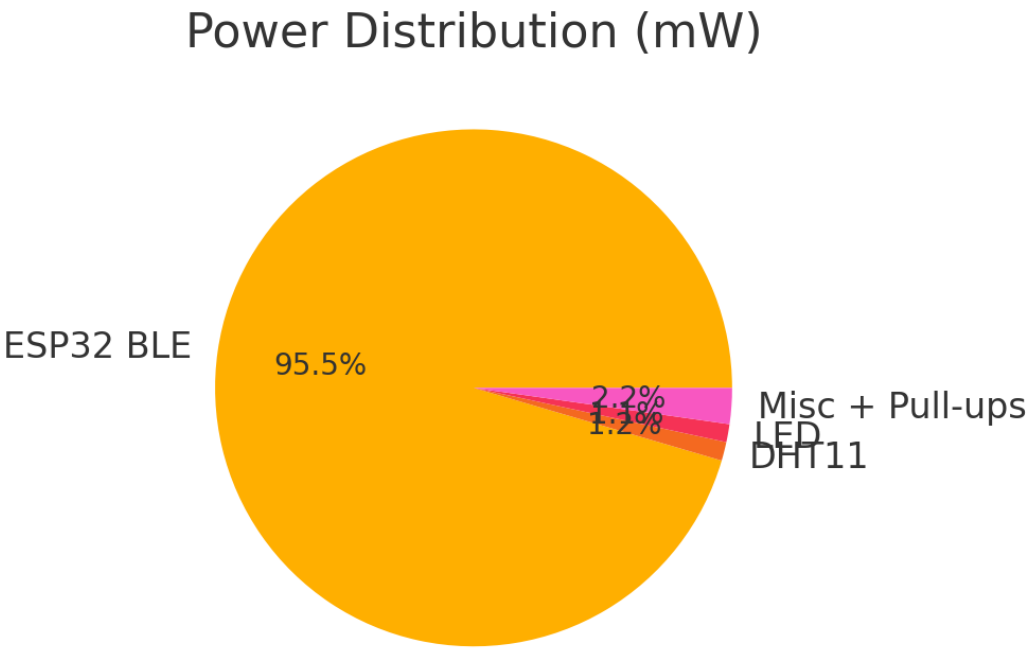
Component	Voltage (V)	Avg Current (mA)	Power (mW)	Duty Cycle (%)
ESP32 BLE	3.3	42.5	140.25	50
DHT11	3.3	0.52	1.72	20
LED	3.3	0.5	1.65	10
Misc + Pull-ups	3.3	1.0	3.3	100
Total Load	3.3	44.5	146.9	Total

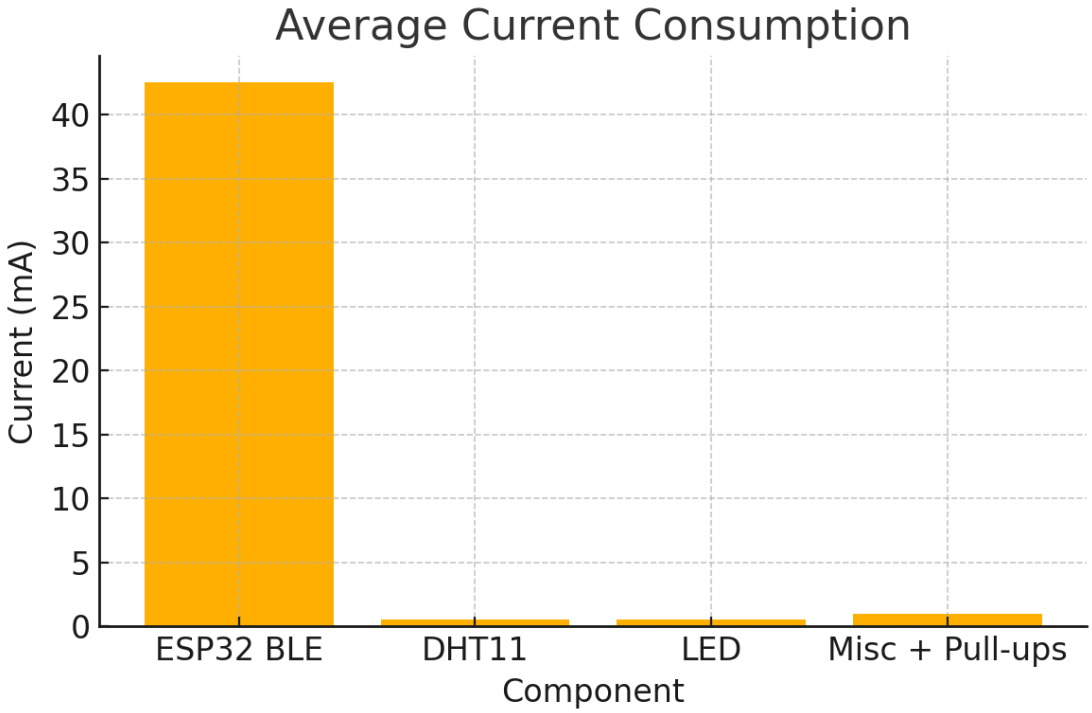
The BeePrecise BLE Sensor module operates at 3.3V derived from a 9V battery through an AMS1117-3.3 regulator.

The total average current consumption is approximately 44.5mA, giving an estimated battery life of about 11 hours on a standard 9V 500mAh source.

During BLE transmission, current peaks at about 80mA, while in deep sleep it drops to under 5mA.

The AMS1117 dissipates around 0.25W as heat, which is handled by the copper pour below the regulator.


Power Distribution (mW)
ESP32 BLE
95.5%
2.2%
Misc + Pull-ups
1.1%
LED
1.2%
DHT11


Average Current Consumption
Current (mA)
0
5
10
15
20
25
30
35
40
ESP32 BLE
DHT11
LED
Misc + Pull-ups
Component