

System Parameters (defined by hardware) form the datasheets		Profiles (usage of each component mode - defined by software and usage)		
		"off"	"sensing"	"interactive"
Processor				
Active	1122 mW	0%	33%	0%
Idle	43.56 mW	0%	0%	8%
Sleep	26.4 mW	58%	0%	0%
LED				
On	1.25 mW	99%	5%	5%
Sensor MPU-6050				
On	12.87 mW	0%	33%	0%
Idle	4.587 mW	0%	0%	0%
Off	0.0066 mW	67%	0%	0%
x27 Stepper motor				
On	100 mW	0%	0%	0%
Off	0 mW	100%	0%	0%
		16	7	1 hours/day typical usage
Battery				
Capacity	1000 mAh			
Nominal Voltage	3.7 V			
Regulator Efficiency	90%			

REFLECTIONS : WHAT DID YOU LEARN FROM ANALYZING YOUR POWER. TALK ABOUT SOME POTENTIAL TRADEOFFS.

How did you determine your "days of use" metric ?

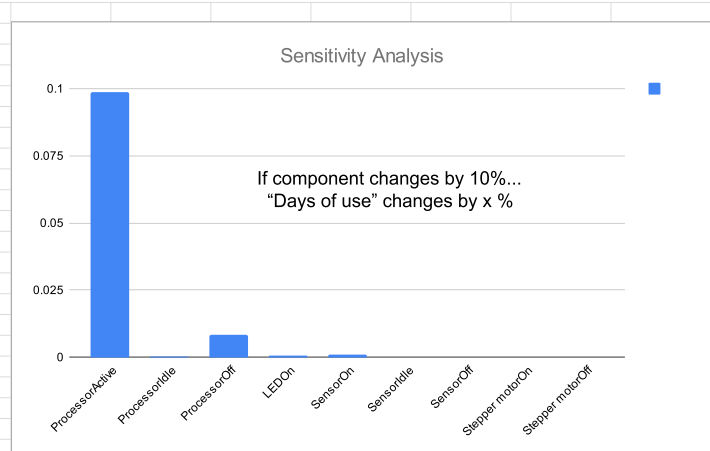
Calculate the daily power consumption based on the usage pattern. This includes power used in different modes (active, idle, sleep) and the duration of each mode. Knowing the battery capacity (in watt-hours or milliamperere-hours) helps in estimating how long the device can run on a single charge. Divide the total battery capacity by the estimated daily power consumption. This gives an approximate number of days the device can be used before needing a recharge.

What do you think is the optimum size for the battery in your device ?

Larger batteries provide longer usage but increase size, weight, and cost. The optimum size should balance these factors with the required days of use. Consider slightly higher capacity than current needs to account for battery degradation over time and possible future updates in device usage.

What hardware/software/cost/effort tradeoffs could you make to improve the user experience ?

Smaller devices are more portable but may have shorter battery life. More features can lead to higher power consumption. Balancing features with power-saving modes is key. Larger batteries provide more power but are more expensive. Bulk purchasing of components can reduce costs.



Total power in profile (mw)		Maximum Time	
"off"	16.644792 mW	200.1	hours
"sensing"	378.314671 mW	8.8	hours
"interactive"	3.899048 mW	854.1	hours
Effective Battery Capacity			
3330 mW*h			
Days of Use	1.14	days	
Hours of Use	27.38	hours	