

Power Budget Example

Team Number:	302
Project Name:	Micro Greenhouse
Team Member Names:	Damien D, Rishik A, Kyle C, Enrique C
Version:	2

A. List ALL major components (active devices, integrated circuits, etc.) except for power sources, voltage regulators, resistors, capacitors, or passive elements							
All Major Components	Component Name	Part Number	Supply	#	Absolute	Total	Unit
	MOTOR	F17FA-03MC	3.3V	1	70	70	mA
	MOTOR CONTROLLER	IFX92015GAUMA1	5V ~ 36V	1	13	13	mA
	HUMIDY SENSOR	HIH7130-000-001	2.3V ~ 5.5V	1	3.3	3.3	mA
	TEMPERATURE SENSOR	TMP1075DGKR	1.7V ~ 5.5V	1	0.04	0.04	mA
	ESP32	ESP32-DEVKITM-1	3.3V	1	240	240	mA
B. Assign each major component above to ONE power rail below. Try to minimize the number of different power rails in the design.							
+3.3V Power Rail	Component Name	Part Number	Supply	#	Absolute	Total	Unit
	MOTOR	F17FA-03MC	3.3V	1	70	70	mA
	MOTOR CONTROLLER	IFX92015GAUMA1	5V ~ 36V	1	13	13	mA
	HUMIDY SENSOR	HIH7130-000-001	2.3V ~ 5.5V	1	3.3	3.3	mA
	TEMPERATURE SENSOR	TMP1075DGKR	1.7V ~ 5.5V	1	0.04	0.04	mA
	ESP32	ESP32-DEVKITM-1	3.3V	1	240	240	mA
					Subtotal	326.34	mA
					Safety Margin	25%	
					Total Current Required on +3.3V Rail	407.925	mA
c4. Regulator or Source Choice	VOLTAGE REGULATOR 3.3V	AZ34063UMTR-G1	3V ~ 36V	1	1500	1500	mA
					Total Remaining Current Available on 3.3V Rail	1092.075	mA
D. Select a specific external power source (wall supply or battery) for your system, and confirm that it can supply all of the regulators for all of the power rails							
External Power Source 1	Component Name	Part Number	Supply	Output	Absolute	Total	Unit
Power Source 1 Selection	2 CELL BATTERY PACK AA	AA-NIMH-DURACELL	2.4V	2.4V	2400	2400	mA
Power Rails Connected to External Power Source 1	VOLTAGE REGULATOR 3.3V	AZ34063UMTR-G1	3V ~ 36V	1	1500	1500	mA
					Total Remaining Current Available on External Power Source 1	900	mA
E. Calculate Battery Life (if applicable). For each battery, also check the worst-case lifetime of the battery by indicating the capacity in mAh.							
	Component Name	Part Number	Supply		Capacity	Required	
	2 CELL BATTERY PACK AA	AA-NIMH-DURACELL	2.4V		2400	407.925	
					Battery Life	5.883434455	hours
Notes							

External Supply Voltage should be determined by the dropout voltage for highest-voltage regulator (e.g., +14V for a +12V regulator).
If you have multiple units in your design (e.g., a base unit and remote unit) then you need a separate power budget for each unit