

Team Number: 203
Project Name: Power Budget
Team Member Names: Brendan Keeter
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 Voltage Range	#	Absolute Maximum Current (mA)	Total Current (mA)	Unit
	ESP32-S3-WROOM-1	ESP32-S3-WROOM-1-N4	3.0-3.6V	1	355	355	mA
	LED Array	150060GS75000	0-5V	1	100	300	mA
B. Assign each major component above to ONE power rail below. Try to minimize the number of different power rails in the design. Add additional power rails or change the power rail voltages if needed.							
3.3V Power Rail	Component Name	Part Number	Supply Voltage Range	#	Absolute Maximum Current (mA)	Total Current (mA)	Unit
	ESP32-S3-WROOM-1	ESP32-S3-WROOM-1-N4	3.0-3.6V	1	355	355	mA
	LED Array	150060GS75000	0-5V	1	100	100	mA
						0	mA
	Subtotal					455	mA
	Safety Margin					25%	
	Total Current Required on +12V Rail					568.75	mA
Choice of regulator	+3.3V Regulator	TPS5403DR	4.5-28V	1	1700	1700	mA
	Total Remaining Current Available on 3.3V Rail					1131.25	mA
C. For each power rail above, select a specific voltage regulator using the same process as for major component selection. Confirm that the Total Remaining Current Available on each rail above is not negative.							
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 simultaneously. If you need multiple power sources, list each separately below and indicate which regulators will be connected to each supply. Confirm that the Total Remaining Current Available on each power source below is not negative.							
External Power Source 1	Component Name	Part Number	Supply Voltage Range	Output Voltage	Absolute Maximum Current (mA)	Total Current (mA)	Unit
Power Source 1 Selection	9.0V 3.0A AC Power Supply	B09ZTKTLGW	100-240VAC	+9V	3000	3000	mA
Power Rails Connected to External Power Source 1	+3.3V Regulator	TPS5403DR	4.5-28V	1	1700	1700	mA
	Total Remaining Current Available on External Power Source 1					1300	mA