

<h2 style="text-align: center;">Power Budget Team 201</h2>							
Team Number:	201						
Project Name:	BevRight						
Team Member Names:	Hunter Janisch, Harry Z, Erik A, Joseph P.						
Version:	1						

A. List ALL major components (active devices, integrated circuits, etc.) except for power sources, voltage regulators, resistors, capacitors, or

All Major Components		Component Name	Part Number	Supply	#	Absolute	Total	Unit
Temperature Sensor	DS18B20 OneWire Temperature	1528-2149-ND	3-5V	1	250	250	mA	
Humidity Sensor	SHT30-DIS-B2	1649-1009-2-ND	2.15-5.15V	1	1.5	1.5	mA	
LCD Display	Character Display Module Transflective	NHD-C0220BIZ	2.7-3.6V	1	1500	500	mA	
Heating Element	FIT0845	426-FIT0845	5V	1	500	500	mA	
Cooling Unit	Peltier Module 51.4W @ 27°C 6 A 90°C	345-1739-	-15.4V	1	6000	6000	mA	
Fan	Fan Tubeaxial 12VDC Square	603-1159-ND	7-12.6V	1	500	500	mA	
							mA	

B. Assign each major component above to ONE power rail below. Try to minimize the number of different power rails in the design.

+12V Power Rail		Component Name	Part Number	Supply	#	Absolute	Total	Unit
Fan	Fan Tubeaxial 12VDC Square	603-1159-ND	7-12.6V	1	500	500	mA	
Cooling Unit	Peltier Module 51.4W @ 27°C 6 A 90°C	345-1739-	-15.4V	1	6000	3000	mA	
						0	mA	
						0	mA	
						0	mA	
	Subtotal					3500	mA	
	Safety Margin					25%		
	Total Current Required on +12V Rail					4375	mA	
c1. Regulator or Source Choice	12V/6A AC/DC Power adapter				6000	6000	mA	
	Total Remaining Current Available on +12V Rail					1625	mA	
+5V Power Rail		Component Name	Part Number	Supply	#	Absolute	Total	Unit
Heating Element	FIT0845	426-FIT0845	5V	1		500	mA	
						0	mA	
						0	mA	
	Subtotal					500	mA	
	Safety Margin					25%		
	Total Current Required on +5V Rail					625	mA	

c2. Regulator or Source Choice	MIC4575WU-TR	576-1550-2-ND	4-24V	1	1000	1000	mA
Total Remaining Current Available on +5V Rail						375	mA
+3.6V Power Rail	Component Name	Part Number	Supply	#	Absolute	Total	Unit
Humidity Sensor	SHT30-DIS-B2	1649-1009-2-ND	2.15-5.15V	1	1.5	1.5	mA
LCD Display	Character Display Module Transflective	NHD-C0220BIZ	2.7-3.6V	1	1500	500	mA
Temperature Sensor	DS18B20 OneWire Temperature	1528-2149-ND	3-5V	1	350	250	mA
						0	mA
					Subtotal	751.5	mA
					Safety Margin	25%	
					Total Current Required on +3.3V Rail	939.375	mA
c4. Regulator or Source Choice	MIC4575WU-TR	576-1550-2-ND	4-24V	1	1000	1000	mA
Total Remaining Current Available on 3.3V Rail						60.625	mA
C. For each power rail above, select a specific voltage regulator using the same process as for major component selection. Confirm that the							
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							
External Power Source 1	Component Name	Part Number	Supply	Output	Absolute	Total	Unit
Power Source 1 Selection	Plug-in Wall Supply	(full part number)	110VAC	+12v	6000	6000	mA
						0	mA
Power Rails Connected to External Power Source 1	+5V Regulator	MIC4575WU-T	+4-24V	1	1000	1000	mA
	+3.6V Regulator	MIC4575WU-T	+4-24V	1	1000	1000	mA
	Total Remaining Current Available on External Power Source 1					4000	mA
E. Calculate Battery Life (if applicable). For each battery, also check the worst-case lifetime of the battery by							
	Component Name	Part Number	Supply		Capacity	Required	
	Plug In Wall Supply	(full part number)	+12V	1	6000	5939.375	
					Battery Life	1.010207303	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							