Power Budget Example

Team Number: ###
Project Name: EGR 304 Thing
Team Member Names: Tom, Sam, John, Jane
Version: ##

All Major Components	Component Name	Part Number	Supply Voltage Range	Qty.	Absolute Maximum Current (mA)	Total Current (mA)	Unit
	Solenoid	(full part number)	+12 - 24V	1	500	500	mA
	Stepper motor	(full part number)	+12 - 24V	1	300	300	mA
	PSoC™ 4 BLE Module	(full part number)	(range)	2	200	400	mA
	Opamp	(full part number)	+5 to -5	1	100	100	mA
	5V regulator	(full part number)	+5V - 35V	1	1000	1000	mA
	Wifi transceiver	(full part number)	+1.8 - 3V	1	350	350	mA

+12V Power Rail	Component Name	Part Number	Supply Voltage Range	Qty.	Absolute Maximum Current (mA)	Total Current (mA)	Unit
	Solenoid	(full part number)	+12 - 24V	1	500	500	mA
	Stepper motor	(full part number)	+12 - 24V	1	300	300	mA
						0	mA
					Subtotal	800	mA
					Safety Margin	25%	
					Total Current Required on +12V Rail	1000	mA
Regulator	+12V regulator	LM7812	+12V - 35V	1	1000	1000	mA
					Total Remaining Current Available on +12V Rail	0	mA

+5V Power Rail	Component Name	Part Number	Supply Voltage Range	Qty.	Absolute Maximum Current (mA)	Total Current (mA)	Unit
	PSoC™ 4 BLE Module	(full part number)	(range)	2	200	400	mA
	Opamp	(full part number)	(range)	1	100	100	mA
						0	mA
					Subtotal	500	mA
					Safety Margin	25%	
					Total Current Required on +5V Rail	625	mA
Regulator	+5V Regulator	LM7805	(range)	1	1000	1000	mA
					Total Remaining Current Available on +5V Rail	375	mA

+3.3V Power Rail	Component Name	Part Number	Supply Voltage Range	Qty.	Absolute Maximum Current (mA)	Total Current (mA)	Unit
	Wi-Fi transceiver	(full part number)	+1.8 - 3.3V	1	350	350	mA
						0	mA
					Subtotal	350	mA
					Safety Margin	25%	
					Total Current Required on +3.3V Rail	437.5	mA
Regulator	+3.3V low-dropout regulator	KA78RM33RTF	+5V - 20V	1	500	500	mA
					Total Remaining Current Available on 3.3V Rail	62.5	mA

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	Plug-in Wall Supply	(full part number)	110VAC	+24V	5000	5000	mA
Power Rails Connected to External Power Source 1	+12V regulator	LM7812	+12V - 35V	1	1000	1000	mA
	+5V Regulator	LM7805	(range)	1	1000	1000	mA
	+3.3V low-dropout regulator	KA78RM33RTF	+5V - 20V	1	500	500	mA
					Total Remaining Current Available on External Power Source 1	2500	mA

External Power Source 2	Component Name	Part Number	Supply Voltage Range	Output Voltage	Absolute Maximum Current (mA)	Total Current (mA)	Unit
Power Source 2 Selection	Battery	(full part number)	+9V	-9V	500	500	mA
Power Rails Connected to External Power Source 2	-5V Regulator	(full part number)	(range)	1	500	500	mA
					Total Remaining Current Available on External Power Source 2	0	mA

Calculated Battery Life							
	Component Name	**Part Number**	**Supply Voltage Range**		**Capacity (mAh)**	**Required By Regulators**	
	Battery	(full part number)	+12V		500	500	
					Battery Life	1	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