Power Budget

Team Number:	202
Project Name:	**Light Switch**
Team Member Names:	**Carlos Chacon, Wyatte Ricks, Miguel Chacon, Lukas Severinghaus**
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 urrent (mA) [1	Total Current (mA)	Unit
PIC	PIC24 Microcontroller	PIC24FJ64GA702-I/	2V to 3.6V	1	200	200	
Temperature Sensor	Digital Temperature Sensor	TMP112BIDRLR	2.7V to 5.5V	1	0.35	0.35	mA
Humidity Sensor	Digital Humidity Sensor	HIH6030-021-001	2.3V to 5.5V	1	1	1	mA
Motor Driver	Digital Motor Driver	DRV8830GDQR	3.3V to 5V	1	2	2	mA
Fan	Fan	OD4010-05HB	5V	1	100	100	mA
Servo	RC Servomotor	2201	5V	1	800	800	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.

+5V Power Rail	Component Name	Part Number	Supply Voltage Range	#	Absolute Maximum Current (mA)	Total Current (mA)	Unit
							mA
Motor Driver	Digital Motor Driver	DRV8830GDQR	3.3V to 5V	1	2	2	mA
Fan	Fan	OD4010-05HB	5V	1	100	100	mA
Servo	RC Servomotor	2201	5V	1	800	800	mA
					Subtotal	902	mA
					Safety Margin	25%	
					Total Current Required on +5V Rail	1127.5	mA
						3000	mA
					Total Remaining Current Available on +5V Rail	1872.5	mA

+3.3V Power Rail	Component Name	Part Number	Supply Voltage Range	#	Absolute Maximum Current (mA)	Total Current (mA)	Unit
PIC	PIC24 Microcontroller	PIC24FJ64GA702-I/	2V to 3.6V	1	200	200	mA
Temperature Sensor	Digital Temperature Sensor	TMP112BIDRLR	2.7V to 5.5V	1	0.35	0.35	mA
Humidity Sensor	Digital Humidity Sensor	HIH6030-021-001	2.3V to 5.5V	1	1	1	mA
					Subtotal	201.35	mA
					Safety Margin	25%	
					Total Current Required on +3.3V Rail	251.6875	mA
						1000	mA
					Total Remaining Current Available on 3.3V Rail	748.3125	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	Component Name	Part Number	Supply Voltage Range	Output Voltage	Absolute Maximum Current (mA)	Total Current (mA)	Unit
USB Power	3.3V Switching Regulator	RT8059GJ5	2.8-5.5V	3.3V	1000	1000	mA
Power Rails Connected to External Power Source 1						251.6875	mA
					Total Remaining Current Available on External Power Source 1	748.3125	mA

External Power Source	Component Name	Part Number	Supply Voltage Range	Output Voltage	Absolute Maximum Current (mA)	Total Current (mA)	Unit
Power Source 2 Selectio	5V USB Power Supply	AQ15A-050A	120VAC	5	3000	3000	mA
Power Rails Connected to External Power Source 2						1127.5	mA
					Total Remaining Current Available on External Power Source 2	1872.5	mA