Power Budget

Team Number:	Team 209
Project Name:	**Smart Door Sensor**
Team Member Names:	**Bryce, Mathew, Andrew, Dylan**
Version:	**01**

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	SupplyVoltageRange	Qty.	AbsoluteMaximumCurrent (mA)	TotalCurrent(mA)	Unit
	PIC18F57Q43 Curiosity Nano	DM164150	+1.8V - 5.1V	1	100	100	mA
	IR Emitter Detector	OPB732	+5v	1	100	100	mA
	Op-Amp	MCP6004-I/P	+1.8V - 6V	1	0.1	0.1	mA

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

+5V Power Rail	Component Name	Part Number	SupplyVoltageRange	Qty.	AbsoluteMaximumCurrent (mA)	TotalCurrent(mA)	Unit
	PIC18F57Q43 Curiosity Nano	DM164150	+1.8V - 5.1V	1	100	100	mA
	IR Emitter Detector	OPB732	+5v	1	100	100	mA
	Op-Amp	MCP6004-I/P	+1.8V - 6V	1	0.1	0.1	mA
					Subtotal	200.1	mA
					Safety Margin	25%	
					Total Current Required on +5V Rail	250.125	mA
c2. Regulator or Source Cho	+5V Regulator	L7805CV	+5V - 18V	1	1500	1500	mA
					Total Remaining Current Available on +5V Rail	1249.875	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

External Power Source 1	Component Name	Part Number	SupplyVoltageRange	Output Voltage	AbsoluteMaximumCurrent (mA)	TotalCurrent(mA)	Unit
Power Source 1 Selection	Plug-in Wall Supply	L6R36-090	264VAC	+9V - 36V	3000	3000	mA
Power Rails Connected to External Power Source 1	+5V Regulator	L7805CV	+5V - 18V	1	1500	1500	mA
					Total Remaining Current Available on External Power Source 1	1500	mA

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