IR Emitter/Detector Subsystem Power Budget

Team Number: 103
Project Name: Private-Use Door Automation
Team Member Names: Seth Merwin, Isaac Smith, Christo Joseph, Lakshanand Sugumar
Version: 1

All Major Components	Component Name	Part Number	Supply Voltage Range	#	Absolute Maximum Current (mA)	Total Current (mA)	Unit
	940nm IR Emitting Diode	TSAL6200	N/A	2	200	400	mA
	Microcontroller	PIC18F57Q43-CNANO	+1.8 - 5.5V	1	350	350	mA
	Op Amp	MCP6022-I/P	+2.5 - 5.5V	2	30	60	mA
					Subtotal	810	mA
					Safety Margin	25%	
					Total Current	1012.5	mA
SOURCE	12V 5A Switching Power Supply	352	110 - 220V	1	5000	5000	mA
					Total Remaining	3987.5	mA

+5V Power Rail	Component Name	Part Number	Supply Voltage Range	#	Absolute Maximum Current (mA)	Total Current (mA)	Unit
	940nm IR Emitting Diode	TSAL6200	N/A	2	200	400	mA
	Microcontroller	PIC18F57Q43-CNANO	+1.8 - 5.5V	1	350	350	mA
	Op Amp	MCP6022-I/P	+2.5 - 5.5V	2	30	60	mA
					Subtotal	810	mA
					Safety Margin	25%	
					Total Current Required on +5V Rail	1012.5	mA
Regulator	+5V Regulator	LM7805	+5 - 35V	1	1500	1500	mA
					Total Remaining Current Available on +5V Rail	487.5	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	12V 5A Switching Power Supply	352	110 - 220V	+12V	5000	5000	mA
Power Rails Connected to External Power Source 1	+5V Regulator	LM7805	+5 - 35V	1	1500	1500	mA
					Total Remaining Current Available on External Power Source 1	3500	mA