

Power Budget											
Team Number:		202									
Project Name:		AutoCan									
Team Member Names:		Mohammed ,Veeda,Lia,Damian									
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				
DC Motor (FT0492-A)	M1	+6V to +12V	1	1200	1200	mA					
Curiosity Nano (PIC18F57Q43)	(board PN)	+5V	1	120	120	mA					
Op-Amp LM324	LM324	+5V	1	5	5	mA					
LM7805 5V Regulator	LM7805	+7V to +35V	1	1000	1000	mA					
Discrete H-Bridge	FAN8100N	+9V & +5V	1	10	10	mA					
Connector J2 (Header)	Conn_02x04	N/A	1	0	0	mA					
B. Assign each major component above to ONE power rail below. Try to minimize the number of different power rails in the design.											
+9V Power Rail	Component Name	Part Number	SupplyVoltageRange	Qty	AbsoluteMaximumCurrent (mA)	TotalCurrent(mA)	Unit				
DC Motor (stall)	(M1)	+9V	1	1200	1200	mA					
LM7805 Input (from 5V loads)	reflected	+9V	1	100	100	mA					
H-Bridge Overhead	gate losses	+9V	1	5	5	mA					
					0	0	mA				
					0	0	mA				
	Subtotal					1305	mA				
	Safety Margin					0.25					
	Total Current Required on +9V Rail					1631.2	mA				
c1. Regulator or Source Choice	c1. Regulator or Source Choice	+9V Adapter	+12V - 35V	1	2000	2000	mA				
	Total Remaining Current Available on +12V Rail					0	mA				
+5V Power Rail	Component Name	Part Number	SupplyVoltageRange	Qty	AbsoluteMaximumCurrent (mA)	TotalCurrent(mA)	Unit				
Curiosity Nano (max)	PIC18F57Q43	+5V	1	120	120	mA					
Op-Amp LM324	LM324	+5V	1	5	5	mA					
H-Bridge Gate Drive	gate charge	+5V	1	5	5	mA					
External 5V (reserve)		+5V	1	0	0	mA					
					0	0	mA				
					0	0.25	mA				
	Subtotal					130	mA				
	Total Current Required on +5V Rail					162.5	mA				
c2. Regulator or Source Choice	c2. Regulator or Source Choice	LM7805 5V Regulator	(range)	1	1000	234	mA				
	Total Remaining Current Available on +5V Rail					375	mA				
-5V Power Rail	Component Name	Part Number	SupplyVoltageRange	Qty	AbsoluteMaximumCurrent (mA)	TotalCurrent(mA)	Unit				
Opamp	(full part number)	(range)	1	100	100	mA					
					0	0	mA				
					0	0	mA				
	Subtotal					100	mA				
	Safety Margin					0.25					
	Total Current Required on -5V Rail					125	mA				
c3. Regulator or Source Choice	-5V Regulator	(full part number)	(range)	1	500	500	mA				
	Total Remaining Current Available on -5V Rail					375	mA				
+3.3V Power Rail	Component Name	Part Number	SupplyVoltageRange	Qty	AbsoluteMaximumCurrent (mA)	TotalCurrent(mA)	Unit				
Wifi transceiver	(full part number)	+1.8 - 3.3V	1	350	350	mA					
					0	0	mA				
					0	0	mA				
	Subtotal					350	mA				
	Safety Margin					0.25					
	Total Current Required on +3.3V Rail					437.5	mA				
c4. Regulator or Source Choice	+3.3V low-dropout regulator	KA78RM33RTF	+5V - 20V	1	500	500	mA				
	Total Remaining Current Available on 3.3V Rail					62.5	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											
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											
External Power Source 1	Component Name	Part Number	SupplyVoltageRange	Output Voltage	AbsoluteMaximumCurrent (mA)	TotalCurrent(mA)	Unit				
Power Source 1 Selection	Plug-in Wall Supply	(full part number)	110VAC	+24V	5000	5000	mA				
Power Rails Connected to External Pow	+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				

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