Water Pump Power Budget

Team Number:	106
Project Name:	**Automatic Plant Care**
Team Member Names:	**Garrett Wiebke**
Version:	**V1**

A. List ALL major components (active devices, integrated circuits, etc.) except for pow

All Major Components	Component Name	Part Number	yVoltageRan	#
	Water pump	Peristalic Pump	0-6V	1
	MOSFET	IRLZ44N	5-10V	1
	PIC microcontroller	PIC18F57Q43-CN	1.8-5.5V	1

B. Assign each major component above to ONE power rail below. Try to minimize the n

+9V Power Rail	Component Name	Part Number	yVoltageRan	#
	Water pump	Peristalic Pump	0-6V	1
	MOSFET	IRLZ44N	5-10V	1
			Total Current Required	
Source	9 VDC 1000mA	63	100-240V	1
			Total Remaining Current Available	

+5V Power Rail	Component Name	Part Number	yVoltageRan	#
	Microcontroller	PIC18F57Q43-CN	1.8-5.5V	1
			Total Current Required	
c2. Regulator or Source Ch	+5V Regulator	LM7805	5-35V	1
			Total Remaining Current Available	

D. Select a specific external power source (wall supply or battery) for your system, and

External Power Source 1	Component Name	Part Number	yVoltageRan	Outpu
Power Source 1 Selection	9 VDC 1000mA	63	100-240V	9V

Power Rails Connected to External Power Source 1	+9V regulator	LM7812	+12V - 35V	1
	+5V Regulator	LM7805	5-35V	1
	Total Remaining Current Available on External Pov			

er sources, voltage regulators,		
axiumCurre	alCurrent(mA)	Unit
500	500	mA
5	5	mA
350	350	mA
	subtotal	855
	safety margin	15%
	total current	983
	total remaining	**1838**
umber of different power rails in		
axiumCurre	alCurrent(mA)	Unit
500	500	mA
5	5	mA
	0	mA
	0	mA
	0	mA
Subtotal	505	mA
Safety Margin	25%	
l on +9V Rail	631.25	mA
1000	1000	mA
e on +9V Rail	368.75	mA
axiumCurre	alCurrent(mA)	Unit
350	350	mA
	0	mA
	0	mA
	0	mA
	0	mA
Subtotal	350	mA
Safety Margin	25%	
l on +5V Rail	437.5	mA
1500	1500	mA
e on +5V Rail	1062.5	mA
l confirm that it can supply all of		
axiumCurre	alCurrent(mA)	Unit
1000	5000	mA

1000	1000	mA
1000	1000	mA
	0	mA
ver Source 1	3000	mA