Power Budget

| Team Number: | 202 | Project Name: | Hydroelectric Dam | | Frank Wade |
|--------------|-----|---------------|-------------------|--|------------|
|--------------|-----|---------------|-------------------|--|------------|

| LIOCHEE III | <mark>ajor components</mark> | | | <u> </u> | <u> </u> | <u> </u> | |
|---------------|----------------------------------|---------------------------------|------------|--------------------------|------------------------|---------------------------------|----------------------------|
| | | | Supply | | Absolute | Total | |
| All Major | Component | | Voltage | | Maximum | Current | |
| Components | Name | Part Number | Range | # | Current (mA) | (mA) | Unit |
| | Motor Driver | IFX9201SGAUMA | 5V to 36V | 2 | 13 | 26 | mA |
| | 3.3V Regulator | LM2575D2T | 4.75V-40V | 1 | 1000 | 1000 | mΑ |
| | Microcontroller | PIC18F47Q10 | 1.8V-5.5V | 1 | 50 | 50 | mA |
| | Stepper Motor | 17HS08-1004S | 5V-12V | 1 | 1000 | 1000 | mA |
| | | | | | | | |
| B. Assign eac | <mark>th major compor</mark> | n <mark>ent above to ONE</mark> | • | <mark>/. Try to ı</mark> | minimize the number | | er rails |
| | | | Supply | | Absolute | Total | |
| +5V Power | Component | | Voltage | | Maximum | Current | |
| Rail | Name | Part Number | Range | # | Current (mA) | (mA) | Unit |
| | le. sa . | 4=11000 40040 | EV / 40V / | | | | _ |
| | Stepper Motor | 17HS08-1004S | 5V-12V | 1 1 | 1 | 1000 | mA |
| | Stepper Motor | 17HS08-1004S | 5V-12V | 1 | 1 | | mA mA |
| | Stepper Motor | 17HS08-1004S | 5V-12V | 1 | 1 | 0 | |
| | Stepper Motor | 17HS08-1004S | 5V-12V | 1 | 1 | 0 | mA |
| | Stepper Motor | 17HS08-1004S | 5V-12V | 1 | 1 | 0 0 0 | mA mA |
| | Stepper Motor | 17HS08-1004S | 5V-12V | 1 | 1 Subtotal | 0 0 0 | mA mA mA mA |
| | Stepper Motor | 17HS08-1004S | 5V-12V | 1 | Subtotal Safety Margin | 0 0 0 | mA mA mA mA |
| | Stepper Motor | 17HS08-1004S | | | | 0 0 0 0 1000 | mA mA mA mA mA |
| c2. Regulator | (+)3.3V Regulator | | | | Safety Margin | 0 0 0 0 1000 25% | mA mA mA mA mA |

| +3.3V Power | | | Supply Voltage | | Absolute Maximum | Total Current | |
|---|--|---|---|-------------------------------|--|---|----------------------------------|
| Rail | Name | Part Number | Range | # | Current (mA) | (mA) | Unit |
| | Motor Driver | IFX9201SGAUMA | | 2 | 13 | | mA |
| | Microcontroller | PIC18F47Q10 | 1.8V-5.5V | 1 | 50 | | mA |
| | | | | | | | mA |
| | | | | | | | mA |
| | | | | | Subtotal | | mA |
| | | | | | Safety Margin | 25% | |
| | | | Total Curre | nt Requ | uired on +3.3V Rail | 95 | mA |
| | <u> </u> | | . ==: / /0)/ | | | | |
| c4. Regulator | (+)3.3V Regulator | | 4.75V-40V | 1 | 1000 | 1000 | |
| | | | otal Remaining Curr | ent Ava | ilable on 3.3V Rau | 905 | mA |
| D. Select a sp | ecific external p | ower source (wa | all supply or battery) | for you | ur system, and conf | firm that it can sup | oply all |
| D. Select a sp | | ower source (wa | all supply or battery) | for you | | firm that it can sup | |
| <mark>D. Select a sp</mark> External Powe | ecific external p | ower source (wa | all supply or battery) | for you | ur system, and conf | firm that it can sup | oply all Unit |
| D. Select a sp External Powe Power Source | ecific external pe Component Name | ower source (wa | all supply or battery) ipplyVoltageRange | <mark>for yοι</mark> Outpu | ur system, and cont eMaximumCurrent | firm that it can supotalCurrent(mA) 27000 | oply all Unit mA |
| D. Select a sp External Powe Power Source Power Rails | ecific external po Component Name Plug-in Wall Sup | ower source (wa Part Number Model:0930 | all supply or battery) ipplyVoltageRange 100-240V | outpu | ur system, and cont eMaximumCurrent 3000 | firm that it can supotalCurrent(mA) 27000 | oply all Unit mA mA |
| D. Select a sp External Powe Power Source Power Rails Connected to | ecific external po Component Name Plug-in Wall Sup | ower source (wa | all supply or battery) ipplyVoltageRange | <mark>for yοι</mark> Outpu | ur system, and cont eMaximumCurrent | firm that it can supotalCurrent(mA) 27000 0 1000 | mA mA |
| D. Select a sp External Power Power Source Power Rails Connected to | Component Name Plug-in Wall Sup 3.3V Regulator | ower source (was Part Number Discourse) Model:0930 | all supply or battery) ipplyVoltageRange 100-240V 4.75V-40 | Outpu 9 | ur system, and content eMaximumCurrent 3000 | firm that it can supotalCurrent(mA) 27000 0 1000 | mA mA mA mA |
| D. Select a sp External Power Power Source Power Rails Connected to | Component Name Plug-in Wall Sup 3.3V Regulator | ower source (was Part Number Discourse) Model:0930 | all supply or battery) ipplyVoltageRange 100-240V 4.75V-40 Current Available on | Outpu 9 1 Extern | ur system, and contended and c | firm that it can supotalCurrent(mA) 27000 0 1000 0 26000 | mA mA mA mA |
| D. Select a sp External Power Power Source Power Rails Connected to External | Component Name Plug-in Wall Sup 3.3V Regulator | ower source (was Part Number Description Model:0930 LM2575D2T Description of the International Control | all supply or battery) IpplyVoltageRange 100-240V 4.75V-40 Current Available on IpplyVoltageRange | Outpu 1 Extern Outpu | eMaximumCurrent 1000 al Power Source 1 eMaximumCurrent | otalCurrent(mA) 27000 0 1000 0 26000 otalCurrent(mA) | mA mA mA mA mA mA |
| D. Select a sp External Power Power Source Power Rails Connected to External | Component Name Plug-in Wall Sup 3.3V Regulator | ower source (was Part Number Description Model:0930 LM2575D2T Description of the International Control | all supply or battery) ipplyVoltageRange 100-240V 4.75V-40 Current Available on | Outpu 9 1 Extern | ur system, and contended and c | firm that it can supotalCurrent(mA) 27000 0 1000 0 26000 | mA mA mA mA mA mA |
| D. Select a sp External Power Power Source Power Rails Connected to External | Component Name Plug-in Wall Sup 3.3V Regulator | ower source (was Part Number Description Model:0930 LM2575D2T Description of the International Control | all supply or battery) IpplyVoltageRange 100-240V 4.75V-40 Current Available on IpplyVoltageRange | Outpu 1 Extern Outpu | eMaximumCurrent 1000 al Power Source 1 eMaximumCurrent | firm that it can supotalCurrent(mA) 27000 0 1000 0 26000 otalCurrent(mA) 9900 | mA mA mA mA mA mA |
| D. Select a sp External Power Power Source Power Rails Connected to External | Component Name Plug-in Wall Sup 3.3V Regulator | ower source (was Part Number Description Model:0930 LM2575D2T Description of the International Control | all supply or battery) IpplyVoltageRange 100-240V 4.75V-40 Current Available on IpplyVoltageRange | Outpu 1 Extern Outpu | eMaximumCurrent 1000 al Power Source 1 eMaximumCurrent | firm that it can supotalCurrent(mA) 27000 0 1000 0 26000 otalCurrent(mA) 9900 | mA mA mA mA mA mA |
| D. Select a sp External Power Power Source Power Rails Connected to External | Component Name Plug-in Wall Sup 3.3V Regulator | ower source (was Part Number Description Model:0930 LM2575D2T Description of the International Control | all supply or battery) IpplyVoltageRange 100-240V 4.75V-40 Current Available on IpplyVoltageRange | Outpu 1 Extern Outpu | eMaximumCurrent 1000 al Power Source 1 eMaximumCurrent | firm that it can supotalCurrent(mA) 27000 0 1000 0 26000 otalCurrent(mA) 9900 | mA mA mA mA mA mA |

| Notes | | |
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External Supply Voltage should be determined by the dropout voltage for highest-voltage regulator (e.g., +14V for a +12V 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