

IR Emitter/Detector Subsystem Power Budget

Team Number: 103

Project Name: Private-Use Door Automation

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Version: 1

| All Major Components | Component Name | Part Number | Supply Voltage Range | # | Absolute Maximum Current (mA) | Total Current (mA) | Total Current (mA) |
|---|-------------------------|-------------------|----------------------|----------------|-------------------------------|---|--------------------|
| | 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 |
| | | | | | | | |
| +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 | Plug-in Wall Supply | Model: 0930 | 100 - 240VAC | +9V | 3000 | 3000 | 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 | 1500 mA |