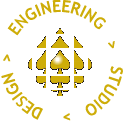
E

lectronic control over your final ACES ISP **must** be in the form of custom PCB populated with either *through hole* and/or *surface mount* components. In the case of the latter, you can consider taking your design to the next level, in the form of a Flex circuit that will be laminated into a page of your DER. If your circuit proves fully functional, a flexible [3.5V, 150 mA Powerfilm solar cell](http://darcy.rsgc.on.ca/ACES/TEI4M/images/PowerFilm-MPT3-6-150-2.png) will be included in the lamination Attach this completed document to an email ACESHandin by the deadline, under the Subject: **Long ISP Proposal**

|  |  |
| --- | --- |
| **1. Your Name** |  |
|  | |

|  |  |
| --- | --- |
| **2. Project Title** |  |
|  | |

|  |  |
| --- | --- |
| **3. General Description** |  |
|  | |

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| --- | --- |
| **4. PCB (Highlight One)** |  |
| Fixed | Flex with [3.6V 100mA Flexible Solar Film](https://www.digikey.ca/product-detail/en/powerfilm-inc/MPT3.6-150/1996-1013-ND/9559463) ([Video](https://www.youtube.com/embed/CGJohXZRcUM)) | |

|  |  |
| --- | --- |
| **5. ISP Strategy (Highlight One)** |  |
| [6 pin ISP](https://www.digikey.ca/product-detail/en/amphenol-icc-fci/67997-206HLF/609-3234-ND/1878491) | [Soldered SMT Connector](https://www.digikey.ca/product-detail/en/molex-llc/0522070660/WM10939CT-ND/5170941) | [Custom ISP ‘Finger’](http://darcy.rsgc.on.ca/ACES/PCBs/images/FlexPCBMorland.png) | PreFlashed | Other (Specify) | |

|  |  |
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| **6. Components (Highlight One or Both)** |  |
| Through Hole | Surface Mount | Both | |

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| --- | --- |
| **7. MCU (Highlight One)** |  |
| ATtiny84 | ATtiny85 | ATmega328P | Other (Specify) | |

|  |  |
| --- | --- |
| **8. CODE (Highlight)** |  |
| Arduino C | C | C with Ports/Registers | C with Inline Assembly | Pure AVR Assembly | |

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| **9. Design Details (PCB, Stripboard, PermaProto, Point-to-Point,Acrylic, 3D Design/Print, …)** |  |
|  | |

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| --- | --- |
| **10. Communication Details (Serial, SPI, I2C, RF, IR, Bluetooth, WiFi, etc.)** |  |
|  |  |

|  |  |
| --- | --- |
| **11. Mechanical Details (DC Motor, SErvo, Stepper, Solenoid, Etc.)** |  |
|  | |

|  |  |
| --- | --- |
| **12. Hand-Drawn Sketch of Your vision of the Final Prototype (For Site)** |  |
|  | |

**NOTE: Be sure to check ALL the applicable boxes on Page 3  
.**

Please check all **additional** boxes corresponding to the skills you intend to exploit in this project.

|  |  |  |  |
| --- | --- | --- | --- |
| **Hardware Components** | **Software Techniques** | **Power** | **Skills** |
| □ resistors  □ capacitors  □ potentiometers □ transistors □ diodes  □ push buttons  □ switches  □ LDRs □ thermistor  □ temperature sensor  □ IR proximity sensor □ Oper. Amp.  □ voltage regulators  □ MOSFETs  □ Logic ICs (40xx) □ shift registers  □ Specialty ICs (555, MSGEQ7, H-Bridge, LM3914, 24LC256, etc.)  □ Real Time Clock (RTC)  □ ATtiny84  □ ATtiny85 □ LEDs (single, Bi, RGB, neo)  □ 7-segment display □ Alphanumeric display  □ Bargraph  □ LED Matrix  □ LCD Panel  □ Graphics Panel  □ DC motor  □ servo motor  □ stepper motor  □ relay  □ solenoid  □ microphone  □ audio line in  □ speaker  □ magnets  □ point-to-point board  □ perma-proto board  □ custom PCB  □ OTHER | □ High-Level  □ Assembly  □ Arrays  □ Structs  □ bitwise operators  □ I2C (TWI)  □ Libraries  □ ADC  □ PWM  □ Serial Comm. (ISP)  □ Debouncing  □ LookUp Table  □ Polling □ Persistence of Vision  □ Interrupts  □ Recursion  □ ISP  □ EEPROM  □ Processing  □ Charlieplexing  □ Timing related □ UML Design  □ OTHER | □ Batteries  □ AC/DC Adapter  □ Transformers  □ coils/chokes  □ 12V  □ 24V  □ solar  □ manual  □ Peltier tiles  □ OTHER | □ reading a schematic  □ TH soldering  □ SM soldering  □ DMM Debugging  ☑ CAD  □ 3D printing  □ 2D acrylic fabrication  □ EAGLE PCB layout and manufacturing ☑ Word □ Excel ☑ Time-management □ Fritzing  □ Presentation Overview  ☑ video creation  ☑ technical writing  □ OTHER |
| **Communication** |
| □ (wired) Serial Comm.  □ (wired) SPI  □ (wired) I2C (aka. TWI)  □ (wireless) RF  □ (wireless) IR  □ (wireless) Bluetooth |
| **Design** |
| □ EAGLE (PCB)  □ FUSION 360  □ ViaCAD  □ OTHER |
| **Engineering Fields** |
| □ electrical  □ computer  □ mechanical  □ software □ design □ OTHER |