Use this page to submit a proposal for your **Independent Study Project**. You have read the underlying philosophy of the activity (<http://darcy.rsgc.on.ca/ACES/ISPs/Hardware.html>), explored various topics of pursuit and have understood the assessment criteria (<http://darcy.rsgc.on.ca/ACES/ISPs/ISPEvaluation.docx>).

**1. Your Name:**

**2. Project Title:**

**3. Provide a brief description of the project, including DESIGN (EAGLE and/or CAD) :**

**4. What Communication Protocol(s) will you incorporate (tick boxes on reverse)?**

**5. Where did your inspiration for this project come from?**

**6. List Two Additional concepts, skills, and/or techniques you hope to improve/acquire in completing this project.**

 a)

 b)

 c) Computer Assisted Design and Fabrication (EAGLE PCB, 2D Laser Cut and/or 3D Print)

**7. For each of the criteria below, indicate a position on the range scale and add a comment if appropriate.**

 **Feature Range (mark a position) Comment**

 **a) Risk L H \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **b) Research L H \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **c) Originality L H \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **D) Collaboration L H \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

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□ proximity sensor□ IR (infrared)□ Radio Frequency (RF)□ Bluetooth□ OpAmps□ voltage regulators□ MOSFETs□ surface mount parts□ Logic ICs (40xx)□ shift registers□ Specialty ICs (555, MSGEQ7, H-Bridge, LM3914, 24LC256, OpAmps, etc.)□ Real Time Clock (RTC)□ ATtiny85□ LEDs (single, Bi, RGB)□ 7-segment display□ Alphanumeric display□ Bargraph□ LED Matrix□ LCD Panel□ Graphics Panel□ DC motor□ servo motor□ stepper motor□ 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 |
| **Engineering Fields**  |
| □ electrical□ computer□ mechanical□ software□ design□ OTHER |