IOWA STATE UNIVERSITY

AEROSPACE ENGINEERING DEPARTMENT

COMPUTATIONAL TECHNIQUES FOR AEROSPACE DESIGN

AERE 361

PROJECT PROPOSAL

TEAM NAME HERE

Team Member Names :
Last Name, First Name
Last Name, First Name
Last Name, First Name
Last Name, First Name
Last Name, First Name
Last Name, First Name

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I ABSTRACT

The abstract is a summary of your proposal. In general, your abstract should have enough information so that if I was to copy and paste your abstract into a web site, people would get the general idea of what your proposal is about. It should not go into any heavy detail, just the basics of what your project is about. The who, the what, and the why. You should keep your abstract to 200-400 words. Use this to "hook in" your reader.

II INTRODUCTION

While the abstract and introduction may seem like it is similar, remember that your abstract should have enough information to stand on its own. The introduction is really the actual start to your proposal. Here you should introduce the project, the people involved and give a short introduction to the why you are doing this. This should be 1-3 paragraphs.

III FEATURES

Your Features section must include a listing of at least three key features that makes your project unique. Each item needs to be backed up with a description of what it will do and why. A listing of just three items is not enough, you need to describe what those features are and why your group feels they are needed. For that reason your features should have a paragraph for each key item that describes what that key feature is. A key feature should be something that is significant to your project. For example, a key feature an autopilot system is the ability to be able to set an altitude and the autopilot will automatically set the airspeed. That is a significant feature that has a large impact on that system.

IV PROBLEM STATEMENT

Here you will go into more detail on what problem you hope to solve or address. You should discuss what the problem is and why it is important to solve it. In this section, you need to be clear on what the problem is, so do not think of this as a "light" section. It helps to define your project.

Your team needs to do some research into the problem at hand. Becuase of that, you should have around two to three references that you are pulling from. There are lots of places you can find references from including the ISU library and Google Scholar. I would also suggest looking at Adafruit's website, as you may find inspiration or looking to improve something already there. Remember to cite your sources though. If you find something online, that can often be citation.

When you create your "ref.bib" file, don't forget to follow the standards for a BiBTex file. Certain things like webistes requires certain keywords for it to render properly. There are lots of sources online to help with this and many places like the ISU Library and Google

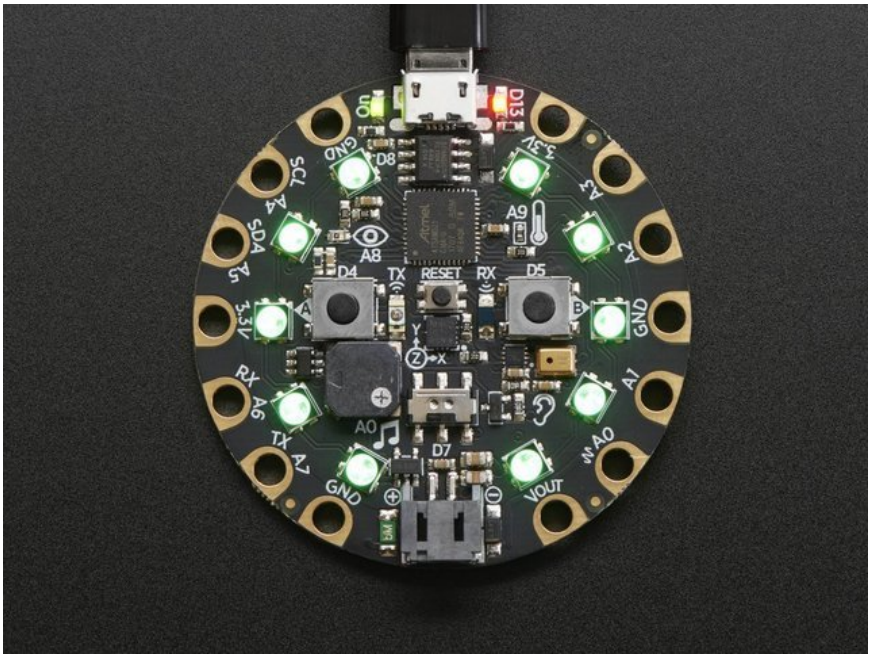

Figure 1: This is the Circuit Playground Express

Scholar can also generate text that is compatible with a BiBTex file. Once you have your Bib file ready, don't forget to cite your citations in your proposal like this [2] or this [1].

V PROBLEM SOLUTION

Here go over your approach to your solution and what your solution is. You must include at least one image that shows your concept. This image can be a sketch or drawing or some pictures that show your concept. Make sure you reference the image(s) like this - Figure 1. Finally, make sure you replace the stock image I included. You should also reference any sources you had from your problem statement as well.

You must also include a table that lists all the parts that you wish to have. As announced in class, you will have the parts listed in Table 1. We have plenty of two additional parts. Those are a conductive adhesive strip and a neopixel strip. I do have some other parts, such as arcade buttons and some additional sensors. You can certainly ask for something, and I will see what I can do. Change the table below to reflect the parts you are requesting.

Table 1: Parts available for teams

Part description	Qty
Adafruit Circuit Playground Express	1
AAA Battery Holder	1
USB Cable	1

Finally, you can also include any pseudo code or any code snippets you have gathered so far.

This is not required, but if you found some starter code or came up with some ideas for the code, put it here. If you want to embed code into LaTeX, you can use the example below on how to do this in LaTeX.

```
#include <Adafruit_CircuitPlayground.h>

void setup() {
  CircuitPlayground.begin();
}

void loop() {
  CircuitPlayground.clearPixels();

  delay(500);

  CircuitPlayground.setPixelColor(0, 255,   0,   0);
  CircuitPlayground.setPixelColor(1, 128, 128,   0);
  CircuitPlayground.setPixelColor(2,   0, 255,   0);
  CircuitPlayground.setPixelColor(3,   0, 128, 128);
  CircuitPlayground.setPixelColor(4,   0,   0, 255);

  CircuitPlayground.setPixelColor(5, 0xFF0000);
  CircuitPlayground.setPixelColor(6, 0x808000);
  CircuitPlayground.setPixelColor(7, 0x00FF00);
  CircuitPlayground.setPixelColor(8, 0x008080);
  CircuitPlayground.setPixelColor(9, 0x0000FF);

  delay(5000);
}
```

VI CONCLUSION

Finally, wrap up your proposal. This only needs to be one or two paragraphs, but it should conclude with what you plan to do and the why and how. Yes, this may seem repetitive, but that is intentional. Do not forget to update your references as those will appear below in a seperate page.

References

[1] Paul Adrien Maurice Dirac. *The Principles of Quantum Mechanics*. International series of monographs on physics. Clarendon Press, 1981. ISBN: 9780198520115.

[2] Albert Einstein. "Zur Elektrodynamik bewegter Körper. (German) [On the electrodynamics of moving bodies]". In: *Annalen der Physik* 322.10 (1905), pp. 891–921. DOI: http://dx.doi.org/10.1002/andp.19053221004.