CS320-103: Software Engineering, Spring Semester 2022
Individual Project Proposal
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Robotic Cat Toy

Summary: For my project, I would like to make a 3D-printed robotic cat toy. This project will be scalable with various levels of development. My project will contain different functions such as having three different speeds, automatic patterns such as a figure eight and a circle. If I have time, I would like to create a web-based application to remote control the toy allowing it to be manually driven by the user as well as select the different speed and pattern functions for automatic use.

Technologies: To make this project come to life I would have to experiment with solid works to make a 3D model of the mouse and any components of the mouse shell. I would have to work with an Arduino and learn how to use its IDE. I would like to use visual studio code to develop the website for the remote-control using HTML, CSS, and JavaScript. I would also have to learn how to host a website from my laptop.

Development Plan:

My intermediate steps for the project would be:

1. Make a 3D model for the mouse and its components and print it
2. Construct the mouse
3. Research Arduino and how to program it
4. Program the mouse to move at one speed in a straight line
5. Program it to move in a circle
6. Program it to move in a figure eight
7. Implement different speed functions
8. Research JavaScript

9. Develop website for remote control

10. Implement remote functionality

The sources I would like to use are:

- YouTube Videos
  - This would be to help me get basic understanding of JavaScript and how to use an Arduino and its IDE
- Stack Overflow
  - I want to use this to refine my code or to guide me in the right direction whenever I may run into a problem
- Mark, Ian, and Braden
  - My fellow CS teammates contain knowledge in various corners of our field and can help provide guidance

Challenges: I think my biggest challenge in this project would be creating the website for the remote control because I have very little experience with JavaScript and hosting websites. Some smaller issues I could deal with could be if the mouse doesn't print right, figuring out the how to program a decent figure eight, understanding the communication between the mouse and the website.