Session 2: PROS and C Programming Basics

Basic Structure of a C program

- Explanation of the main function, and its significance in a C program. Most importantly, we will discuss how all program execution in C starts from main.
- Review how to properly indent, space, and format code properly for readability.
- Give basic explanation of header, i.e. what does #include <stdio.h> mean.

Discussion

- Where does the code execution begin in a C program?
- Why do we need a main function?

Demo

- Have students write setup for C program
- Some examples of incorrect C programs with common mistakes in syntax and formatting

Variables in C: Types and Operators

- We will provide an introduction to important variable types in C, such as void, int, char, and float.
- How to declare variables, and how to update variables

Discussion

- Imagine a robot is reading vision sensor data as input, and you want to store the data into a variable. How do you think the data is represented, and what should the type be of the variable?
- What are the different uses for int, char, and float variables?
- What is the difference between the /, //, and % operators?

Demo

- C program showing different types of variable assignments and operators, as well as snippet of PROS opcontrol function that makes use of void and int variables.

Compiling C Programs

- Basic introduction to the concept of compiling - i.e. transforming C code into executable format.
- Why compiling is necessary in C.

Demo

- Live demonstration of compiling a C program, from writing the code to execution of the compiled output.

Homework

- Within main(), write code that will compute area of a triangle by declaring variables, and using appropriate arithmetic operations. Try to experiment using float and int.