

Our task was to build a portable sumo robot that could be used in a competitive scenario. We started with a list of requirements, and began separating those into individual blocks we could work on remotely and independently. This planning stage was a large part of our project, since campus closure made working together more traditionally difficult. First, we focused on wiring the Arduino, and began to write simple test code, to ensure all of our components functioned properly .

This was one of our beginning block one checkoff accomplishments, we also tried to do the other most essential functions first, such as motor function and the enclosure for our parts. We did our best to make our design and build process inside out which helped us to continuously test, as well as show progress.. For our motors we decided to use hobby motors ordered off of Amazon. There were limited options available, (especially at the beginning of the Covid outbreak), so we modified our initial plan of using four motors and simplified it to using 2. This also helped to reduce our products electricity usage, therefore increasing operation time.

Moving into block two, first we decided the robot needed to be able to stay inside of a white ring, in order to avoid disqualifying. This was accomplished by integrating ultrasonic sensors, and using if sense then turn statements into our running code. This made our robot able to stay in the ring and escape, but not attack. We then implemented our infrared (if sense attack forward and if no sense turn) functions, in order to make our sumo bot both offensive, and defensive. Finally, we included some if (x) fail activate (0-9999) statements, to take full advantage of our defensive board. While it may seem counterintuitive to do our debug last, we needed working and non working systems in order to test the error code output.

Along the way, we learned that communication and completing small tasks regularly, were keys to our group's success. Big goals at the end of the term, are much less efficient and consistently motivating, than small checkpoints along the way.



