

Learning Module #6 Final Write-Up

Summary: Chris and An learned how roombas generally work. They got to take it apart and explore what is inside of a roomba and see how it all worked together. They had some ideas on what to do with the roomba, but it was limited by how much time they had and how much they knew about the roomba itself. By the end, they were able to connect an Arduino to the roomba and its switches to play sound from an SD card.

What We Learned: This was an interesting project because it was a good opportunity to learn what is inside of a roomba (at least in general), and take time to explore the purpose of each part and piece. In addition, Chris and An also learn a bit of how to play audio with the Arduino using an SD card.

Problems/Issues We Encountered + How We Solved Them: The first problem they encountered was the batteries. The battery the roomba came with turned out to be dead with no voltage left. They needed to replace it with another battery that had 14 volts and 2600 milliamps but all of the batteries that were available to them were only 9 volts with 240 milliamps. They were able to get around this problem by connecting those smaller batteries in a series. After doing some research on how to increase voltage / amperage of batteries, they learned that they could connect the batteries. By connecting two of the batteries in a series-parallel (a combination of the series and parallel method), they were able to increase both the voltage and amperage with just the two smaller batteries. The other problems that Chris and An encountered were towards the end of the learning module when they started using the Arduino to play audio. The files on the SD were all .wav files but only one file would play and it was the test file from a tutorial video. Any other file would either sound static or be heavily muffled for whatever reason. They were never able to figure out why they couldn't play the other .wav files.

Recommendations for Future Learning Modules: With knowledge of what is inside of this bobSweep roomba, anyone could go off of what Chris and An have discovered and do some cool projects with it. The bumper has a lot of potential to be used for activating stuff with its switches and sensors.