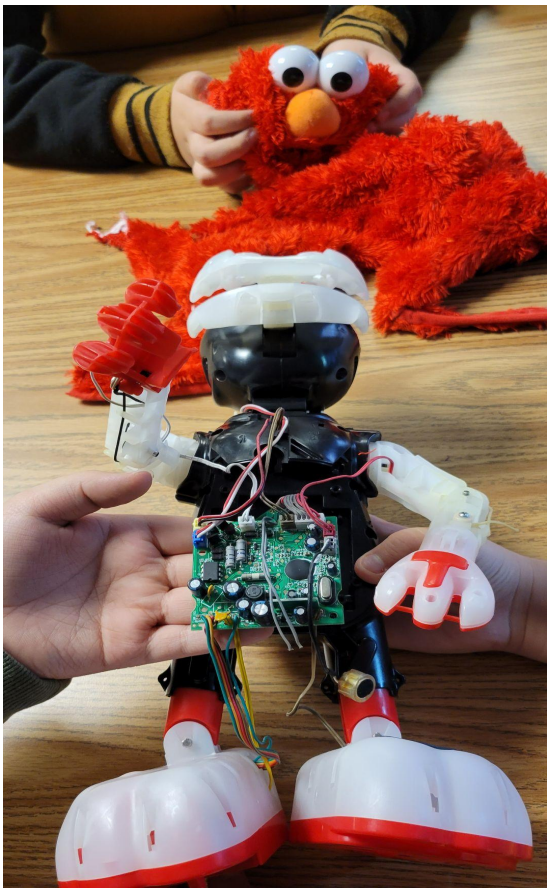
Reverse Engineering Elmo!

Christian, Logan, and Vincent

Team # 90873A

Kay Carl Elementary School, Las Vegas, NV



For this reverse engineering project our team decided to use the electronic device of a Tickle Me Elmo. This was chosen because we all know who Elmo is but we never heard of a Tickle Me Elmo. Also, when we felt his body under the fur it felt like a robot and we wanted to see what it looked like.

The first thing we decided to do was to carefully take all of the fur off Elmo. It was really hard to make the first cut but then it was easy to just rip the fur off. Wow, Elmo looks so cool on the inside. He is made of black, red and white pieces of plastic and there were wires everywhere.

Next we decided to try to figure out how Tickle Me Elmo works. We found a motherboard with circuit pieces on it, we found a speaker, and lots of wires. We also noticed that there were a lot of screws that were holding the pieces of plastic together. This Elmo doll also has parts that move. Its head moves forward and backward at the neck. Its arms move forward and backward at the shoulders and its arms move up and down at the elbows. We also observed that the feet move side to side. This was not what we expected because we thought the feet would move forward and backward like our feet. However, we decided they probably move side to side so Elmo could move by rocking back and forth like a robot might move.

Lastly we got out a chromebook so we could do a little research. We could tell that the robot was probably not made recently but we wanted to find out when it was first created. We found out the first Tickle Me Elmo was invented in 1996. Wow, that is old! We also found out that some of the Elmo dolls had voice recorders so Elmo could call kids by name and say different things (our research says these are called “catch phrases.”)