



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Junho Park	Project Number S0319
Project Title Exploration of Charging Cable Durability	
<p style="text-align: center;">Abstract</p> <p>Objectives Sometimes the price of an authentic product may cost a lot more than the quality and design of the product, but consumers feel more comfortable in trusting name brands by paying the premium on finished goods. There is a deep curiosity in understanding if the product does last longer than the cheaper generic charging cables. By testing the durability of the charging cables, the quality of generic brands will last longer than the quality of the name brand since generic brands comprise of PVC materials.</p> <p>Methods 1 plank wood, 2 2x4 plywoods, 1 1 x 3 plywood, 6 screws, bolts, nuts, 2 small sized brackets, 8 normal sized brackets, 2 big sized brackets, 2 expanded brackets, 2 usb type c receptacle, 2 lightning usb receptacle, 6 Ax-12A servo motors, 1 main processor, 1 battery, 6 cables, 8 OEM Samsung usb type c, 8 OEM Apple lightning usb, 8 generic usb type c, 8 generic lightning usb, 1 styrofoam, 1 power supply</p> <p>Build a Testing Platform by following the steps below:</p> <ol style="list-style-type: none">1. Install 2 2x4 plywoods in each side of the 7/32 x 23-3/4 x 23-3/4 plank wood.2. Pre-drill holes on the plank wood for installation of servo motors.3. Screw mid big sized bracket into servo motor for the flexing motion.4. Repeat the previous step for another motor. Setting motors for the feeling 5. motion are done.6. Install receptacle into the mid part of the small-sized bracket by melting the hole with solder stick.7. Screw the bracket that was done in the previous step into the servo motor and attach the servo motor on to the mid-sized bracket using a spacer between the motor and bracket.8. Repeat the previous 2 steps for another motor. Setting motors for the twisting motion are done.9. Attach small sized bracket into the outer part of the big sized bracket.10. Screw the bracket that was finished in the previous step into the servo motor and install servo motor into the expanded bracket using a spacer between.11. Repeat the previous 2 steps for another motor. Setting motors for the combination are completed.12. Install all 6 motors into the corresponding places.13. Install mid-sized bracket onto the plywood. It should be parallel with the motor.14. Repeat the previous step for the flexing motion and repeat 2 times for the combination motion.16. Screw the main processor on to the bracket and screw bracket onto the plank wood.	
Summary Statement Comparing quality of name brand charging cable and generic brand charging cable by mechanical manipulation.	
Help Received Mr. Anthony Pham	