



CALIFORNIA SCIENCE & ENGINEERING FAIR 2018 PROJECT SUMMARY

Name(s) Michael A. Danielian	Project Number 38602
Project Title The Effect of Friction Drag on the Speed of a Roller Hockey Puck	
Abstract Objectives/Goals The goal of this project is to find the material that best moves hockey pucks like they were on a roller hockey rink. This will be done by comparing the speed of the puck moving over different surfaces. Methods/Materials The way this was done was by building a machine, that with two DC motors, shoots a roller hockey puck in a straight line. On the floor are two strips of aluminum foil hooked to a Makey Makey that, when passed over, sent a signal to the laptop to start a code that measured the amount of time the puck took to go from the first to the second strip. With the code, an algorithm is used to display how fast the puck was going in kilometers per hour. The speed would then be recorded in a table, and compared to the other materials to compare the friction of the materials. As a preliminary test, the machine was shot over the surface that is actually used for roller hockey. This experiment was done twenty times for five different types of materials; concrete, wood, marble, asphalt, and fabric. Results The results showed that concrete was the fastest surface for the pucks to move over, with a mean speed of 5.4 kph. Then it was marble, with a mean of 4.1, then asphalt with a mean of 3.6 kph. The fourth was wood with a mean of 2.1 kph, then fabric, which had no successful trials. These values were compared to the speed of the preliminary test, which was the puck traveling over the roller hockey surface. Conclusions/Discussion From this project, it can be concluded that concrete was the best material. This project should help hockey players know that the best material to practice on that feels the most like the surface used in roller hockey is concrete since it has the least amount of friction of all of these different surfaces	
Summary Statement By using a self designed sensory and propulsion system, I tested and compared the speeds of roller hockey pucks over different materials.	
Help Received I constructed the measuring system and coded the program myself. My parents helped me buy the materials needed to complete this project. My teacher, Michael Lim helped me with any question I had for him.	