



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY**

Name(s) Samanya Girish	Project Number J1711
Project Title Autonomous Linear Accelerator with a Precise Measurement Technique	
Abstract Objectives The objective of this experiment is to determine how the variability in the number of magnets affects the linear accelerator. After my research my hypothesis was, if the number of magnets is increased then the amount of time taken for the metal ball to reach the end of the linear accelerator will decrease. Methods One 109cm base board, two 90cm dowels, three rare earth magnets, seven metal balls, NXT (brick, lego pieces, cables, touch sensor, motor), glue, bubble wrap, and a laptop. I measured the time of three magnets, two magnets, and one magnet in the linear accelerator. I ran each trial five times. Results The trial with three magnets had the fastest time because of the greatest kinetic energy build up. I repeated each trial five times for accurate results. The time for each trial varied directly with the number of stages of magnets. Conclusions The performance of the three magnets for the linear accelerator was the most effective out of all trials. This means three magnets had the greatest effect on the linear accelerator.	
Summary Statement I showed that the time for each of the trials directly varies upon the number of magnets.	
Help Received I designed and performed this experiment on my own. My parents helped me understand the NXT programming.	