



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jennifer T. Nguyen</b>	<b>Project Number</b> <b>J0323</b>
<b>Project Title</b> <b>A 40% Cheaper Alternative to Robotic Feeding Aids</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The main objective of my goal was to create a robotic feeding aid prototype that was cheaper and easier to access. Many robotic feeding models in the market, such as HelloSpoon and Neater Eater, range from \$500-\$5000. HelloSpoon costs \$500, but is currently in development and not for sale (it failed a recent Indiegogo campaign). Those with mild limb problems could use my model without the hassle of buying an expensive model that could cost them thousands of dollars. I decided to utilize Lego Mindstorms as my building source. My goal was to use less than 500 Lego pieces while being able to perform its functions decently. Using Legos Mindstorms EV3 software, I planned to create a very basic program that could be understood easily by others. <b>Methods/Materials</b> -Lego Mindstorms EV3 Home Edition Set -Lego Mindstorms EV3 Software -Lego Technic pieces -One average rubber band <b>Results</b> After two weeks, I created a Lego robotic feeding aid prototype that costs roughly around \$300-\$375. An estimated amount of 450-600 Lego pieces were used. The robotic feeding aid prototype integrates a robotic feeding aid model run by two large servo motors and one medium servo motor. It only works with semi-liquids and a thicker consistency meant more power. Some downsides to my model is that a button is required to be pushed, the bowl would be moved, and the model would #jump# occasionally. I could fix this with a gyroscope and an ultrasonic sensor to control the motor power and indicate whether the individual is near the spoon. <b>Conclusions/Discussion</b> Though there were some errors regarding my Lego robotic feeding aid prototype, it met the basic requirements I expected and came out as cheaper and easier to access when compared to other models such as HelloSpoon and Neater Eater. To release my model to the public and fulfill the 'easy accessibility' goal of my project, I could put my model on Lego Cusoo and have the public vote for it to become a real model or to share building instructions and the program so that others could build the exact same model right in the comfort of their home (if they have the right materials).	
<b>Summary Statement</b> The goal of my project is to create a robotic feeding aid with Lego Mindstorms EV3 that is cheaper and easier to access.	
<b>Help Received</b> All done by myself.	