



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Justin S. Endo</b>	<b>Project Number</b> <b>J0212</b>
<b>Project Title</b> <b>"Set-It-and-Forget-It" Automatic Fish Feeder</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my project was to invent a fish feeder to automatically feed fish once a day. I call it the #Set-it-and-forget-it# automatic fish feeder. I made it for people like me who have fish, yet who are either so forgetful or busy, they don't feed their fish. After my market research, I realized that there wasn't any fish feeder that was sold at the price range of \$15-\$25. A majority of the prices ranged from \$30 to \$200. My goal was to create a reasonably priced (\$15-\$30) fish feeder that would feed fish once a day for three weeks.</p> <p><b>Methods/Materials</b> I first brainstormed multiple designs for a fish feeder. Next I made a more detailed design of the three best but different concepts. I objectively selected the best of the three using a design review process and a trade-off analysis. I made a detailed the design and then made a prototype out of cardboard. I figured out what worked and didn't work. I had to make four iterations of my design. Three of them were fixing the scooper. The last one was adjusting the funnel. The materials I chose to make my product were inexpensive and looked good. The materials were 1/4 inch foam board, 1/2 inch diameter polypropylene pipe, plastic funnel, and 2 inch PVC pipe. I did a market survey of potential customers.</p> <p><b>Results</b> I tested the final product for three weeks. It dispensed 1/5 a teaspoon per day (about a pinch of food). I surveyed 16 people, ages from 10 to 60, married, retired, or in a family, to see if there is a market for my product. I took the total number of families and the total number of single people in San Carlos to be potential customers. Then I used ratios and cross-multiplying to get my final answer. I calculated that I could sell 9,389 units in San Carlos. After researching other competitors, I concluded that there isn't any other product like mine. All other products are a lot more expensive or don't feed as long. I tested it for three weeks on my aquarium tank.</p> <p><b>Conclusions/Discussion</b> My invention, the automatic fish feeder, is a success. I got it to meet all my requirements. I was also able to complete a market analysis too. I learned that if I did sell my product, I would be able to make \$126,375.94. I learned how to use AutoCAD and Solid Works successfully and learned a little more about engineering and the process of making and selling an invention.</p>	
<b>Summary Statement</b> My proect is about a mechanical automatic fish feeder.	
<b>Help Received</b> My dad helped me with the cutting of the PVC pipe and my mom helped the layout of my board.	