

# THE SENIOR PROJECT

Written Report



By  
Ryan T. McNeely

## ***ABSTRACT***

The problem that I must solve is how to take an idea that I have for an invention and then turn it into my Senior Project so that it provides a strong learning stretch and challenges my abilities. I know that want to use my creativity in both visual and conceptual ways and really dig deep into the life of a creative person who takes product ideas and actually puts them on the market.

Introducing my solution to the problem, The Rubber Pencil Machine. When you take an ordinary pencil and place it between your index finger and thumb, and wave it up and down in a certain way, the pencil creates a rubber-like illusion. Well, The Rubber Pencil Machine will recreate this mesmerizing illusion. Just flip the switch and enjoy hours of mesmerizing pleasure. My invention idea is the perfect solution to my problem!

With my invention, I will be able to get a strong learning stretch and challenge my abilities and put my creativity to the test. I will begin my project by building a prototype, and then I will move on to learn about patents and copyrights by going through these processes. After that, can work on my advertising campaign, which will include a magazine ad, box design, and point of purchase display. This will definitely challenge my creativity! My marketing plan will be completed during the latter part of my project. I look forward to the learning experience I have created for missed

## ***IDENTIFY THE PROBLEM***

The problem that I must solve is how to take an idea that I have for an invention and turn it into my Senior Project so that it provides a strong learning stretch and challenges my abilities. I know that I want to use my creativity in both visual and conceptual ways and really dig deep

into the life of a creative person who takes product ideas and actually puts them on the market. There are many circumstances that may stand in the way of accomplishing the project to its fullest. For instance, time will definitely be a restraint. Though given a great deal of time to complete the project, I will face many personal problems that will interfere with working. Another great interfering circumstance is conflicting schedules between my mentors and I. I have a feeling that the "senioritis" phenomenon will get the best of me. Symptoms usually include laziness and carelessness. Fighting this reality is not easy, especially since I have a support group consisting of all seniors who work below the standard that I have held myself to throughout my high school years. On top of all these conflicts, I also will have to share my time with the extremely grueling process of applying for universities and scholarships.

## ***ANALYZE THE PROBLEM***

I know that I can solve this problem thoroughly. It will be difficult, but also challenging. There are many different aspects to my problem. There is the marketing aspect, the entrepreneur aspect, the advertising aspect, the graphic design aspect, and the research aspect. Particularly, the graphic design area I may have trouble doing by myself. Since I do not have training with the graphic design programs, I may have to have my mentors do some of it for me. My drawing skills may also be a problem, but my mentors will be able to help me with that too. The entrepreneur aspect is the new thing in the project that will act as my main learning stretch. I am confident that I will not have trouble completing the different parts to the project. Because my problem is pretty straight forward, I see my goal as solving my problem itself.

## ***IDENTIFY THE ALTERNATIVES***

I see my problem as having three specific solutions. In other words, I can turn my

invention idea into a senior project in three different ways. The first alternative involves making a prototype and then selling or licensing the idea to marketing company. Another alternative would be to make the prototype and then market it myself. The other alternative is to build the prototype and then sell or license the idea to a large toy or novelty company such as Spencer Gifts.

## ***IDENTIFY THE CRITERIA***

There are a few things that I wanted to learn about myself in my senior year of CIBACS. I am going to college next year, so I felt this year would be a great chance to explore my career options before choosing a major. During the previous year, I did an internship in advertising and enjoyed it thoroughly. Because of such a positive experience, it led me to think about pursuing a career in advertising someday; however, I wanted to know if the job was really right for me. Another career I could see pursuing lies somewhere in the field of marketing, and I have a tremendous amount of novelty ideas that I feel are worthy of marketing someday, wanted to discover first hand how realistic it would be for me to take those novelty ideas and make them available to consumers, I needed a solution that fit a certain set of criteria in order for it to solve my problem to its full extent. Ultimately, my criteria were based on the idea that I really wanted to learn how to put an invention idea on the market. In order to understand this process in its entirety, my project would have to involve a number of sub-criteria. The first sub-criterion was that I needed a project that would require an advertising campaign. Also, the project would have to involve me learning about patents and copyrights. In addition, it would have to challenge my marketing skills. Another main criterion was that my project should challenge my abilities as well as provide a strong learning stretch.

## **EVALUATE THE ALTERNATIVES**

I have three alternatives and now I must put each up to my set of criteria to see which is the best solution for my problem.

- Make prototype and sell/license the idea: If I did this, it would provide a learning stretch, but not a very strong one. Since this project requires very little ability to complete, I would not be challenged. I would get a sense of how marketing works by observing what the marketing firm does with my idea, but I would not get to experience the process. The marketing firm would control my advertising campaign so I would not experience that either. If patents were necessary for my novelty, the firm would also do that for me
- Make prototype and market it This would allow me to do my own advertising campaign as well as go through the patent process by myself I would get first hand experience from doing things with limited help from my mentors. My marketing skills would definitely be challenged along with my other skills. The learning stretch would be tremendous because I will have gone through a series of steps that people take to market their own idea
- Make prototype and sell/license to a novelty or toy company: This would be just as hard for me to get my own experience out of as the first alternative. A company like Spencer Gifts would do the advertising, patenting, and marketing for me. This would leave little room for a learning stretch, which would have to depend only on the building of my prototype. This project may present quite a challenge, but it would be more of a *research* challenge. I would be more focused on making contacts with prospective companies, filling out papers, and presenting my idea to prospective buyers.

## ***Implementation***

What the heck is a Rubber Pencil Machine? This is the question I got from many people when I told them my idea to build a machine that recreates the "rubber pencil trick." This certainly did not discourage me from going through with my idea, though. For my Senior Project I set out to prove to everyone that it could be done. Here is how I turned my invention idea into a Senior Project and got one step closer to putting my idea on the market.

I began my project by working on a prototype for The Rubber Pencil Machine. With the help of one of my mentors, Mr. Lee Willis, I started from square one in the building process. On our first meeting, the number one thing on the agenda was to sign a nondisclosure agreement form. This is a legally binding document that says that Mr. Willis cannot talk about my idea to anyone. Once that was done, I could then share my invention idea with him safely. We discussed how we might go about recreating the motion of the hand (as used for the "rubber pencil trick") with a machine. I told him my ideas for building the machine and he shared his thoughts. We used sketches to describe our ideas to one another. Then, we got down to building the machine. We started going through his garage, which is filled with what some may call "junk." He handed me a toy that he found lying in his piles of "junk" and told me to see how it worked. It seemed perfect because it had a lever that bounces up and down. We took the toy apart to see how it worked on the inside and we then decided that the pieces in this toy could be used for the prototype. We cut the toy apart with the band saw to separate the parts of the toy that we were going to use. I had my heart set on making a motor powered machine, so I took a trip to Radio Shack. I ended up spending about two hours with the manager there, trying to figure out how to connect a speed control, battery pack, and motor to the same circuit. Once we finally figured this out, I took the connection to Mr. Willis, and he showed me how to solder wires together and then

he left me to secure the connection with the solder on my own. Later, we decided that it would take much more time to, figure out the gear ratio to get the perfect motor torque and speed to accomplish the "rubber pencil" illusion. We then moved to a simpler design that would use a crank to move the lever up and down this was a quicker way to build a prototype that would still show that my idea was realistic. We built the frame from wood. I used a circular saw, drill press, nail gun, and glue to accomplish this. We screwed the toy parts onto the base and built a plastic casing around it using the nail gun (See Appendix #1 I & #12).

Once the prototype was complete, I then turned to the Internet to do research on how to sell my idea and how to patent it. I did a tremendous amount of searching the Internet for patent information. I was also looking for prices on patenting, which I was not able to find since prices vary with every invention. The websites of the U.S Copyright Office and the U.S. Patent and Trademark Office were very helpful (See Appendix #6). I turned to Mr. Willis for information on patenting and filing a fictitious business name since he is an experienced inventor. I had already come up with my company name, RYNOMAC industries, and wanted to protect it. Mr. Willis pointed me towards the local newspaper where I could accomplish this goal. I went to [www.ocregister.com](http://www.ocregister.com) where I found information on how to file a fictitious business name (See Appendix #5). I then found myself at [www.spencergifts.com](http://www.spencergifts.com), where I found a tremendous amount of information on novelty products. I printed out novelty products that Spencer Gifts sold in order to prove that The Rubber Pencil Machine could make money (See Appendix #7). Hey, if the pet rock sold, so will this!

Then it was time for my advertising campaign. I first contacted my other mentor, Mr. Chase Ramirez, in early April, expecting to get to work shortly; however, I found out that Mr. Ramirez was in the middle of moving offices. I was told to call back in a week and I did, but this

time he told me that he was working on something really important and that he could not meet with me yet. Spring Vacation rolled around, and unfortunately, I had to go snowboarding with my family. On vacation, I worked on "thumbnails" (sketches) of all the ideas that I had for a magazine ad. When I got home, I contacted Mr. Ramirez again, only to find out that he was in the middle of a huge commercial shoot with the Taco Bell campaign. He was extremely busy and would not be able to meet for a while. Though, I could not meet with him at work, talked to him on the phone at night to develop my ideas. Finally, about a week later, we found three hours in his busy work schedule to meet at his office. The first thing I showed him was my creative brief, which outlines what the customer wants for an advertising campaign. In this case, I am the client and advertiser. He had previously asked me to try using Dilbert, the cartoon strip that takes place in an office setting, for my campaign. I presented my Dilbert ideas to him, but I felt like some of my other ideas would be better. Being the boss and all, Mr. Ramirez persuaded me to think more about Dilbert for the campaign. I was actually much more excited about going with Dilbert after we brainstormed the idea together. He said that having a comic strip on my ad would be an instant eye-catcher. Since comics can be done in black and white, all of my campaign could be done in black and white for the most part, which would reduce printing costs. At the meeting we also discussed what the box design and point of purchase display might look like. It was now up to me to go home and work on the copy and design. I sent my work to Mr. Ramirez via the Internet, but he was unable to view it from his hotel room in Los Angeles where he was shooting the commercial with Taco Bell. Instead, described my design to him and read him the copy. He gave me suggestions on many things for me to change. I made the final touches to each part of the campaign, and it was ready for printing and mounting, which took an amazing amount of time to complete (See Appendix #9).

Once I had completed this project in its entirety, I felt a tremendous sense of accomplishment and confidence in myself I completed a prototype, researched deeply into the patent and copyright processes, and created a great advertising campaign. This project has provided me with a strong learning stretch, plenty of challenge, and it put my creativity to the test. Now that have experienced what it takes to build a prototype, and I understand what needs to be done to put it on the market, am confident that I can do this with any of my ideas. I definitely plan on using my newfound knowledge in the future

## ***EVALUATE THE OUTCOME***

What does it take to make a good senior project? Well, that was the question I set out to find an answer to when I first started this project in the beginning of the year. It is now time to evaluate the outcome of my project and discuss the success of my initial vision and the value of the project as an educational experience, have come up with a set of criteria to help me judge the overall outcome. These criteria include the following: does the machine work; did I learn new skills and concepts; and was the project challenging enough? Based on these criteria I can honestly say that I did a good job and got a lot out of the project

My first criterion is if the machine works or not. My machine was actually a pretty great success, especially since it had its doubts. Early in the year I decided to switch my senior project from working with the Special Presentations Team to building The Rubber Pencil Machine. When I asked Mr. Rhodes if I could switch, he was concerned that I may not be able to build such a thing. When the prototype was complete, I had proven to many people that it could be done. The only thing is that my prototype is different than what I really want my machine to look like. We made the prototype powered by hand with the use of a crank, as opposed to my original idea to use a motor. We went with the crank after I had spent about a week working with the

motor idea and still had not found the right speed and torque needed to create the illusion. Mr. Willis explained to me that prototypes are often not what the final product looks like anyway. AU that a prototype has to do is help people understand what I am trying to create and it proves that the rubber pencil illusion can be done by machine. Mr. Willis said that my manufacturer or the company I license my idea to would be responsible for coming up with the final design, motor and all.

Another criterion was whether or not I learned new concepts and skills. I was definitely successful here. From talking with Mr. Willis, I learned about the patent process. He gave me a copy of the patent for his invention and I found out that it cost him \$30,000. I got to see how the plans for the invention had to be drawn out in a certain way, which required the help of a later. Also, I learned that novelty items, such as The Rubber Pencil Machine, are usually not patented since they generally do not provide a large enough sales return. Mr. Willis pointed out that even if I were to get a national patent, my idea would not be protected internationally. To keep foreign nations from producing a generic rubber pencil machine, I would have to spend even more money for an international patent, which is even more expensive than the national patent. Thanks to [www.ocregister.com](http://www.ocregister.com) I learned quite a bit about how to file a fictitious business name. AU have to do is publish the statement once a week for four consecutive weeks. If no one responds to the statement in this time, saying that they already have that name, then it is legally mine. It was too bad that by the time I found this information, I had no time left to go through with the process. From the prototype, I learned how to use power tools I had never tried before. Most importantly, I got to see first hand how much trial and error it takes to come out with a prototype to be proud of. Also, when I was trying to figure out how to connect a speed control, battery pack, and motor together, I learned a little about how electronics work and how to connect wires with

solder. I was actually in Radio Shack with the manager for an hour while he helped me hook it all up. Then there is the advertising campaign, which taught me a lot. Designing a box and a point of purchase display was a new experience for me. This gave me the opportunity to experiment with different types of advertising, which I may pursue for a career someday. I got to practice writing copy for the whole campaign as well. Creating the advertising campaign at home actually forced me to learn a bit about Adobe Photoshop, just by using it

Finally, my last criterion has to do with whether the project was challenging enough. In the beginning, I set out to do way more than was humanly possible, if quality was an issue. Once I had narrowed my project down to what I really wanted to get out of it, I was presented with just the right amount of work, and still a definite challenge. Even though I decided to cut out parts of the project, my project did not lose any of its challenge. Cutting out those parts simply opened up more time to focus more on the parts of the project that I really did want to accomplish. Building the prototype and creating an advertising campaign were certainly not easy tasks. I had to learn new concepts and skills in order to complete both parts to the project. I spent a tremendous amount of time speaking with both mentors over the phone and meeting with them in person, which my time logs clearly show (See Appendix #3). Note that the log does not include every phone conversation. I was especially challenged when it came to time management, which was certainly not easy,

The criteria that I have chosen have helped me judge the overall outcome of my project. I have learned new skills and concepts, such as what it takes to obtain a patent. Also, my prototype was a success since it actually worked, and my project has provided me with great challenge that has encouraged me to put forth a great deal of effort. After reviewing my project with these criteria in mind, there is no doubt in my mind that I was successful.