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TDJ3MR

Mr.Rattray

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Trigger ice cream scoop

**Executive Summary**

In this technical report I will be talking about how I came about and how I redesigned the product for this assignment. For this project, we were told to individually pick any product, and ‘reverse engineer’ it (take it apart, into its individual parts). After doing so, we were also told that after the reverse engineering process was done we would have to make it better in some way or form (making it more ergonomic, etc). The only constraint on this assignments was that, the product should have a minimum of thirteen parts, other than that this assignment was very open as to what we were able to do. For my reverse engineering, I took apart a traditional trigger ice cream scoop, I chose this product specifically because of the problem it causes when removing ice cream. When removing ice cream the ice cream cutter would normally get stuck within the ice cream, causing a mess and a waste of ice cream. After taking the ice cream scoop apart, I knew which part I could redesign and make better. This part was the metal within the round scoop that cuts the ice cream, my redesigned version of this was adding a metal coil to the ice cream cutter so that it would be able to cut the ice cream with ease and to eliminate the flaws in the original design.

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**Design Problems and Objectives**

The problem with the original design, was that it was inefficient with the process of removing ice cream, the original design caused a lot more mess and wasted more ice cream, because of the ice stuck within the scoop after removing with your hands. My objective was to redesign the trigger ice cream scoop so that it would be efficient in removing ice cream. To do this I added a coil and a battery pack, the coil would be attached to the ice cream cutter and would be powered by the battery. When the coil would turn on it would get hot and heat up the ice cream cutter, this heating of the metal would make it easy to cut through ice cream. Furthermore, I used a metal that has a high heat conductivity, after doing research, copper has the highest heat conductivity, and I used this because it would allow the coil to heat up a lot quicker.

**Detailed design Documentation**

I redesigned the trigger ice cream scoop in this specific way because, I saw adding a coil would have made this design a lot better, in terms of efficiency in removing ice cream. For real life situations, when removing cold ice cream, into cones of bowls, it normally has the consistency to be really hard, this cause more pain to the user, so adding this coil would cut ice cream and remove the unneeded problems.

**Bill of Materials**

For this assignment we did not construct a prototype or any tangible object, the only purchase that was made, was to buy the product. In my case it was the trigger ice cream scoop. The ice cream scoop costed about four – three dollars plus tax.

**Ethical Consideration**

If my redesigned version of the original design were to be mass produced I would make a couple more changes to make this product more user friendly. First I would make the entire product water tight, so that it is dish washer safe, this would open the product to a larger consumer base. Also I would add a child lock feature, a type of lock only mature kids, teens and adults would be able to use, I would make a similar lock to medicine bottles (push down and turn). This feature would ensure fewer injury cases involving the heated coil. Furthermore, I would add certain resistors to only allow a certain amount of current to pass through the coil (causing it to heat up), I would do this so that the coil doesn’t get too hot, cutting down the possible injuries even more.

**Conclusion**

To conclude, we were assigned to individually reverse engineer any product, after picking any desired product, we were to take the product apart, into its separate pieces. My reverse engineering project was a trigger ice cream scoop. After I took it all apart, I measured the pieces and CADed each one. Then I went on to make the redesigned improved model, this resulted in a coil that would heat up the ice cream cutter making it a lot easier to cut ice cream.

**Appendix**







