

Tangent Board

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ABSTRACT

Through the years as a student living off campus, I started to realize that I was spending more time commuting to class than time I was actually spending in class. After some research I learned that many others shared the same problem. This lengthy commute lead to tardiness and also many decisions to skip class altogether rather than commuting over an hour for a 50 minute lecture. I decided to solve this problem by making a small electric vehicle (an electric skateboard) to be able to get me around quickly and be portable enough to bring with me into class. After building the Tangent Board, my commute time has been reduced by 57% and I am now also to get to close places like the grocery store without having to take my car. The tangent board saves you time, money, and helps preserve the environment.

INTRODUCTION

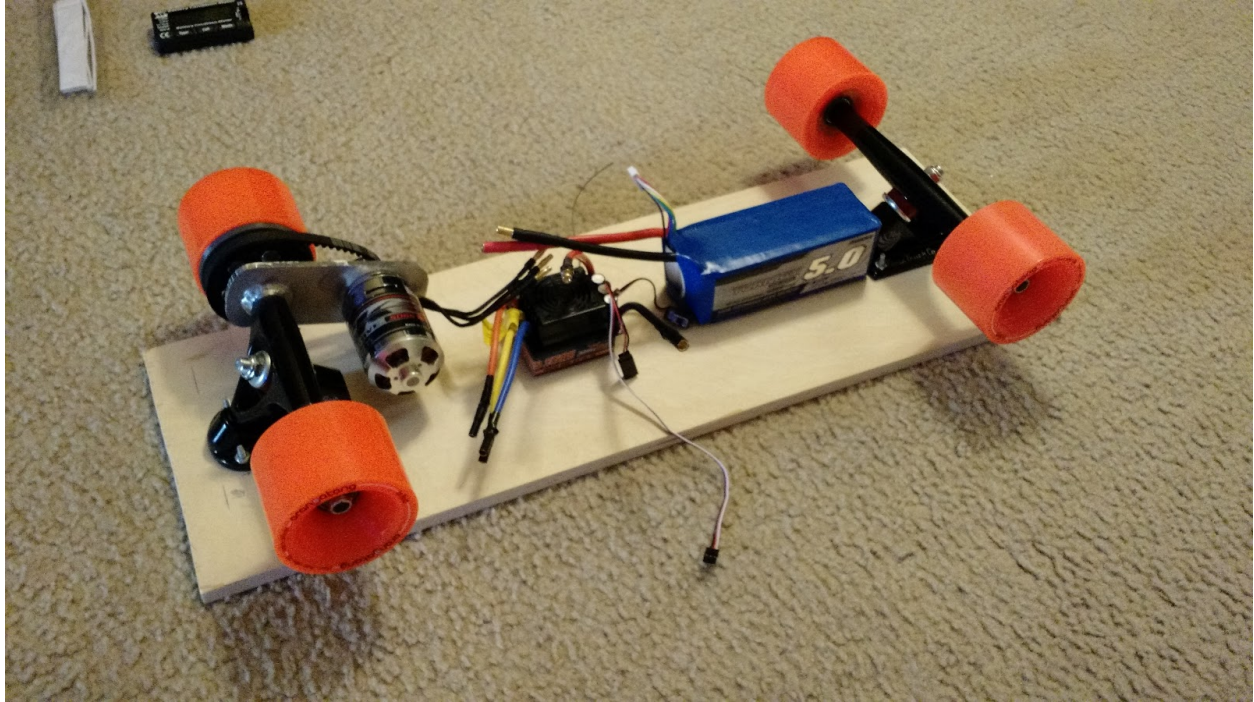
The Tangent Board is an electric skateboard that was built for those trips that are too far to walk but too close to require a car trip. Currently bikes and electric scooters are the closest competition that both fulfil some requirements of the said problem, yet fail to satisfy the problem entirely. The biggest problem with all other modes of transportation for these short distances is the inability to bring either the bike or scooter with you once you arrive at your destination. You instead have to look for a place to safely lock the bike or scooter outside of your destination which can be frustrating and time consuming. Also, you must be constantly worried about if your lock will truly keep your bike or scooter safe while you are away. Thefts of these transportation devices is extremely common. I wanted to make something that was powerful enough to get me around quickly, while still being small and portable enough to be able to be brought with me into any location (such as school/work/etc). The initial design requirement was to have the board small enough to fit directly at my feet while at my desk while not extending to another students desk. I wanted to be able to bring the Tangent board anywhere where I could currently bring my backpack. Having this small powerful transportation could save immense amounts of time during the average commute and small errands trips.

TECHNICAL MATERIAL

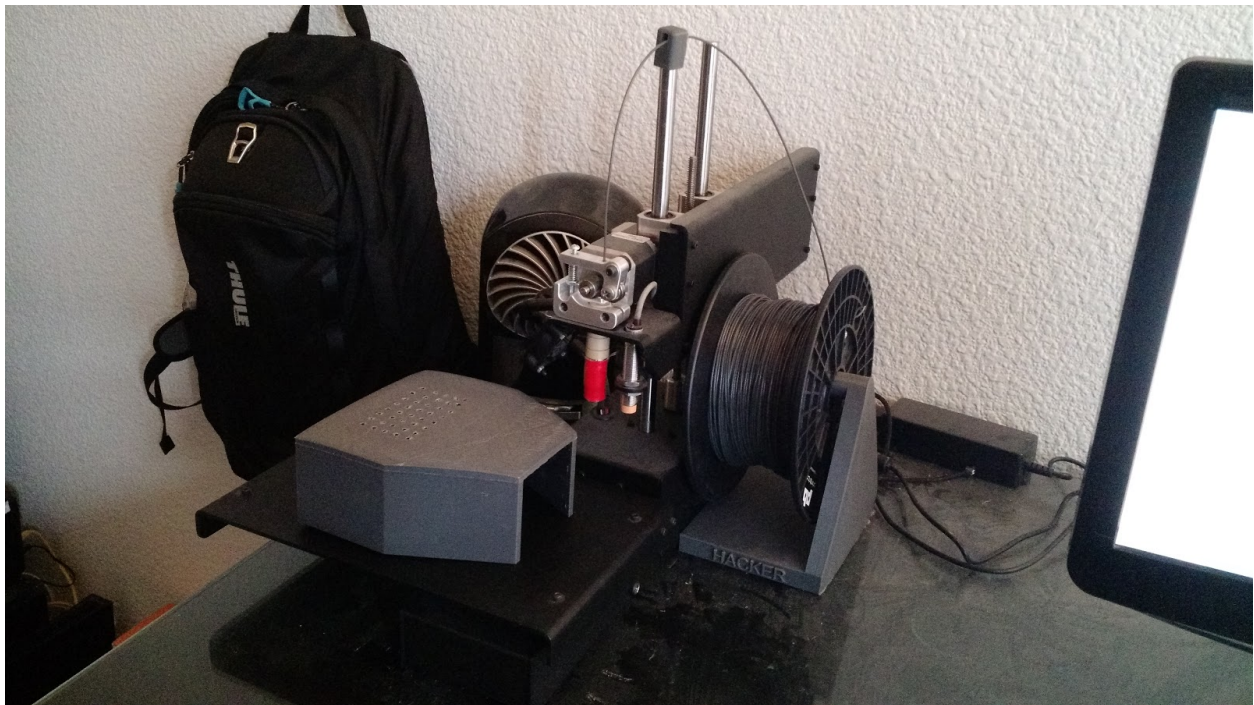
A lot of research had to be done prior to even ordering the parts needed to build the board. I had to find out which electronics worked together and also would fit together well on the board.

The parts included:

- 280Kv Brushless DC Motor
- 150 Amp Electronic Speed Control
- 5000mAh Lipo Battery
- Lipo Battery Charger
- 2.4GHz Wireless Remote
- Miscellaneous gears/pulleys/screws
- Plywood sculpted deck
- Skateboard grip tape
- 3D printed electronics housing
- Skateboard trucks
- 4 longboard wheels with bearings



3D print an enclosure to keep the electronics safe. (Done: 5/4/2015)

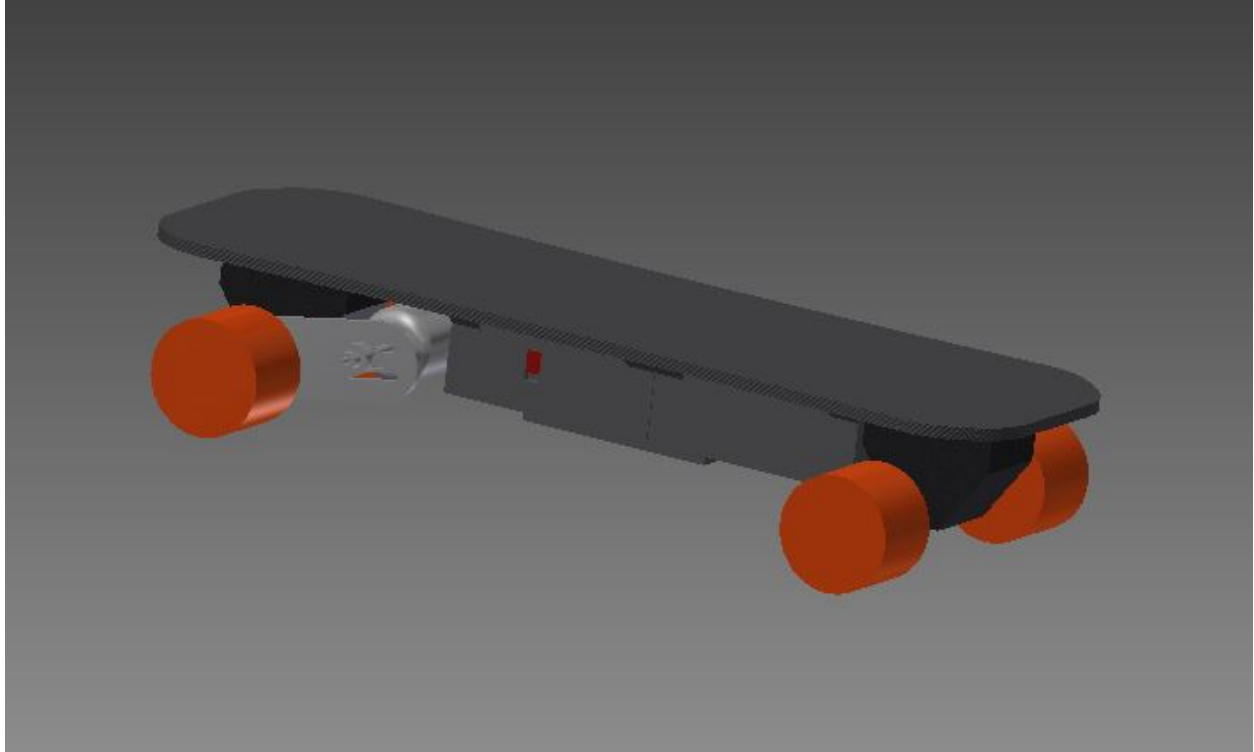


Actually be able to ride this thing!. (Done: 5/1/2015)

- <https://www.youtube.com/watch?v=IxHjY9PralU>

Add grip tape to deck. (Done: 5/17/2015)

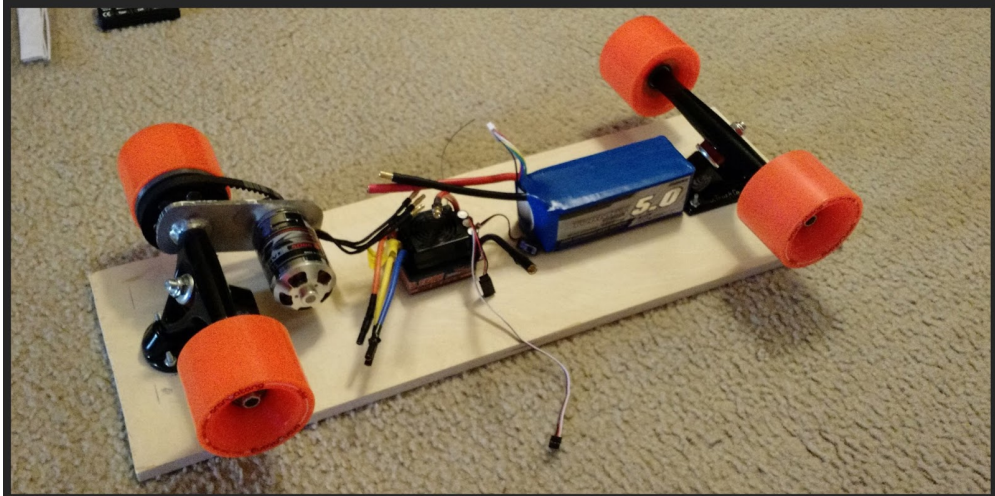
Secure electronics in a much better 3D printed housing. (Done: 5/19/2015)

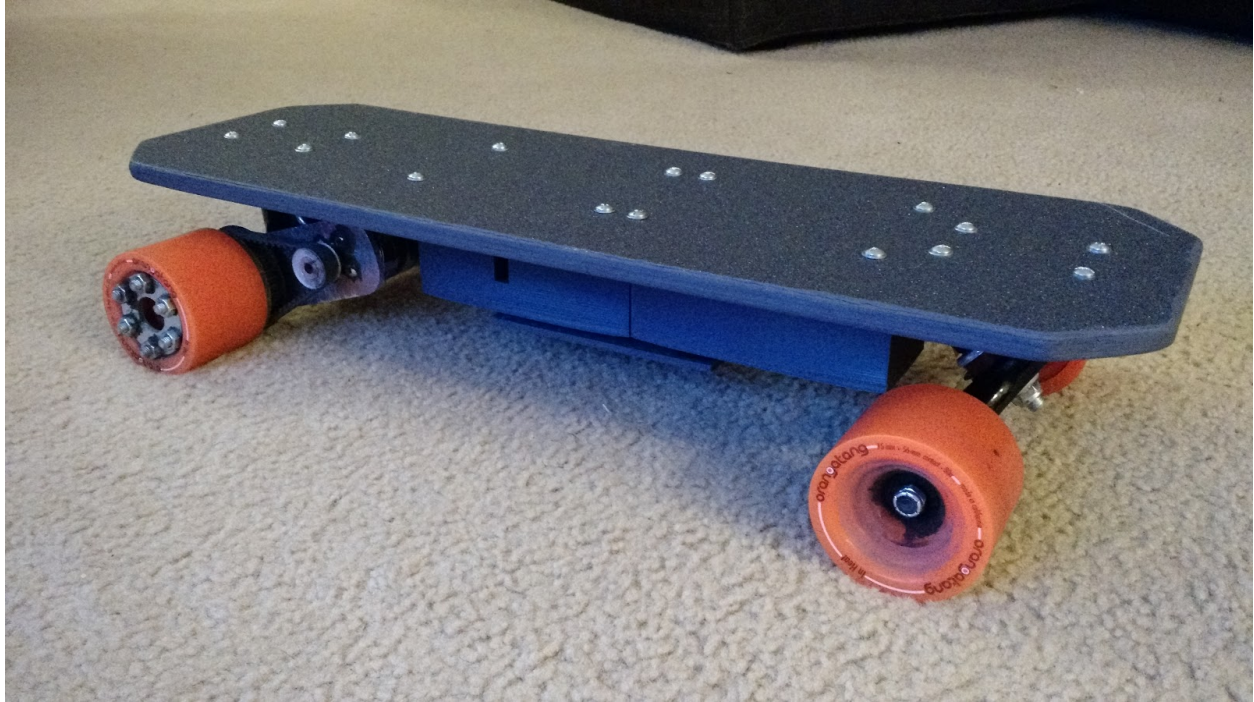


Cut, sand, and paint the deck. (Done: 5/18/2015)



Make it look like a real product!





CONCLUSION

In the end, after really starting to learn how much this type of short trip portable transportation, I exceeded my expectations in solving the problem. Everywhere I take the Tangent Board, I am constantly being stopped and asked what it is and am told how cool it is. Many people have approached me to build one for them! Seeing the amount of demand and the nice reactions from so many people, I am very glad to have made this project and feel like I will truly use this for many years to come. Overall, my commute time has been reduced by 57% and I am now also able to get to close places like the grocery store without having to take my car. The tangent board saves you time, money, and helps preserve the environment.