Electric Roller Blades

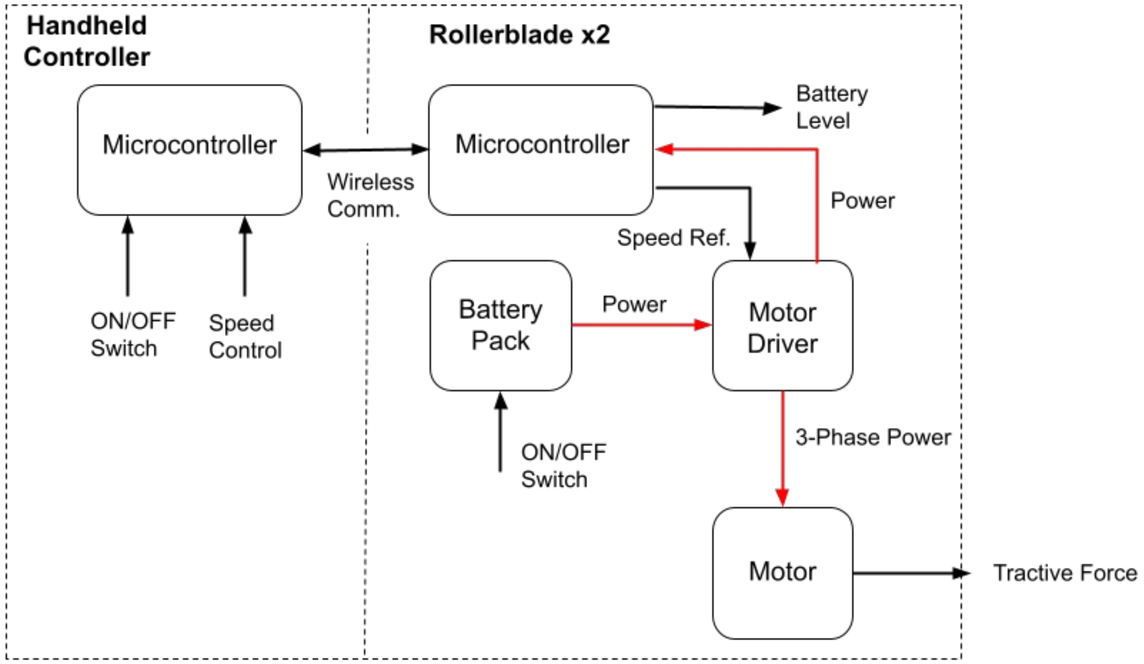
Project

Electric Roller Blades are designed to allow for fast and convenient transportation!

- The hope for the electric roller blades is to give college students and others walking through their city a way to quickly get from point A to B. Electric Skateboards and One Wheels are heavy and bulky. The Electric Roller Blades are meant to be a less cumbersome electric vehicle. As the majority of the time users will not be commuting, the electric roller blades are more convenient then One Wheels as they can be attached to a backpack.

- People traveling from one destination to another frequently, as many college students do, want to shorten their travel time. The less time spent walking the more time can be spent on assignments or projects. Electric Skateboards and One Wheels solve this problem, but they introduce another problem. What do you do with your electric vehicle when you do not need it? They are to expensive to be left outside, but are heavy and obtrusive to carry around. Electric Roller Blades solve this problem by being small enough to be attached to the sides of a backpack.

System



Methods

The Electric Roller Blades were designed by breaking the design into two parts. The subsystem needed for powering the roller blades and what would be needed for the hand controller subsystem.

- The battery pack, motor driver, and motor to be used in the roller blades were decided on by doing calculations for the speed and battery life of the system that was desired.
- The microcontrollers were chosen after considering what signals would need to be sent and received. This way a microcontroller could be chosen with the required number of pins and functions.
- Following the selection of components, the microcontroller was programmed to allow for the signals needed to be sent and received. All the hardware was then tested to interface with the microcontroller. CAD designs were then made and 3D printed to house the hardware.

Conclusion

- Electric Roller Blades were created as a different approach to travel.
- Designing the system proved feasible and worked.
- The wireless communication proved to be difficult and further work needs to be done for the communication to be effective.
- The end result shows that electric roller blades can be created, but our solution was not complete.
- Alternate designs with the motor under the skate and replacing a wheel could create a more compact system.

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