Programming Assignment 01: Electric Time

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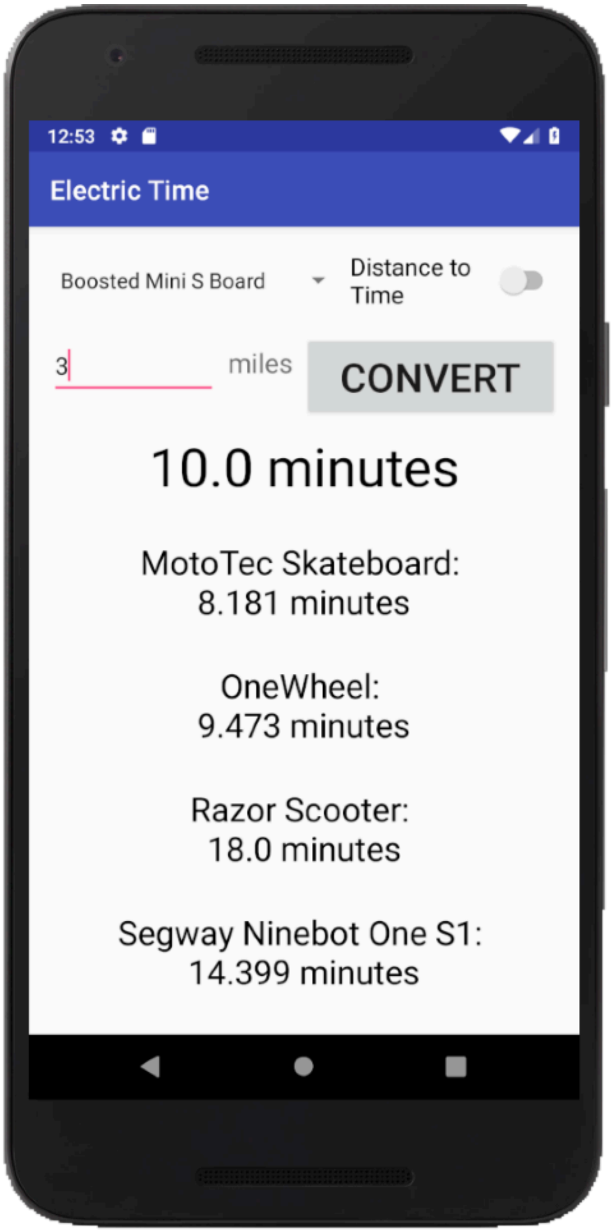
CS 160



Boosted Mini S Board

Distance to Time

3 miles

CONVERT

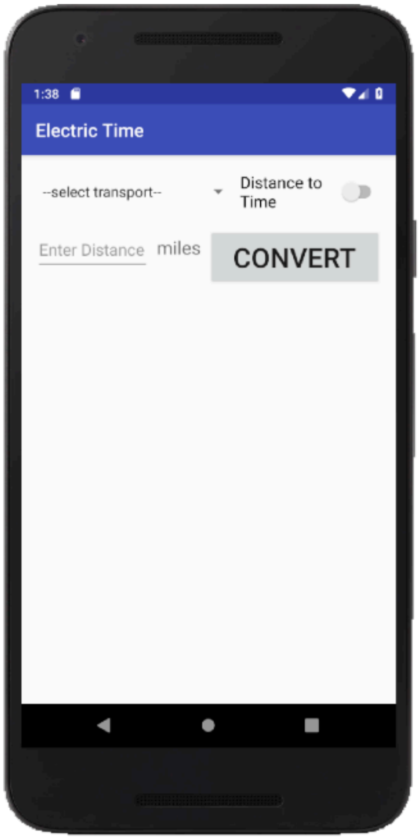
10.0 minutes

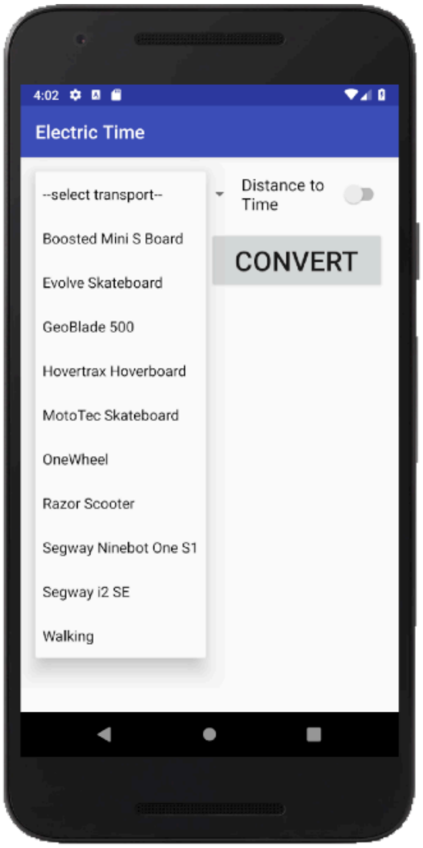
MotoTec Skateboard:
8.181 minutes

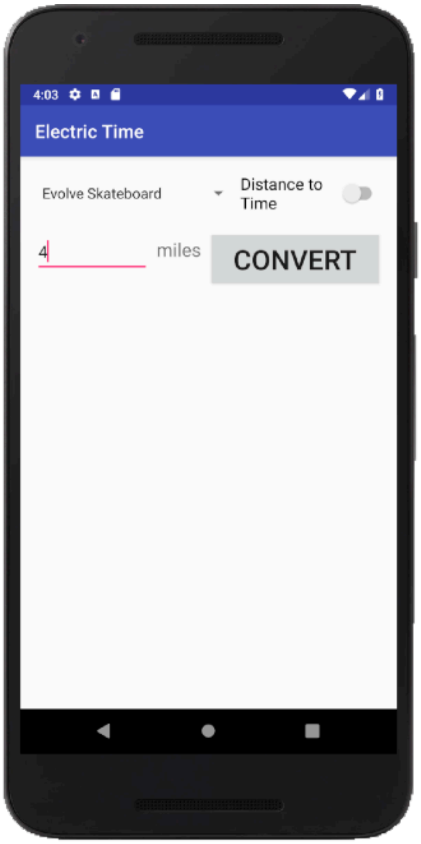
OneWheel:
9.473 minutes

Razor Scooter:
18.0 minutes

Segway Ninebot One S1:
14.399 minutes



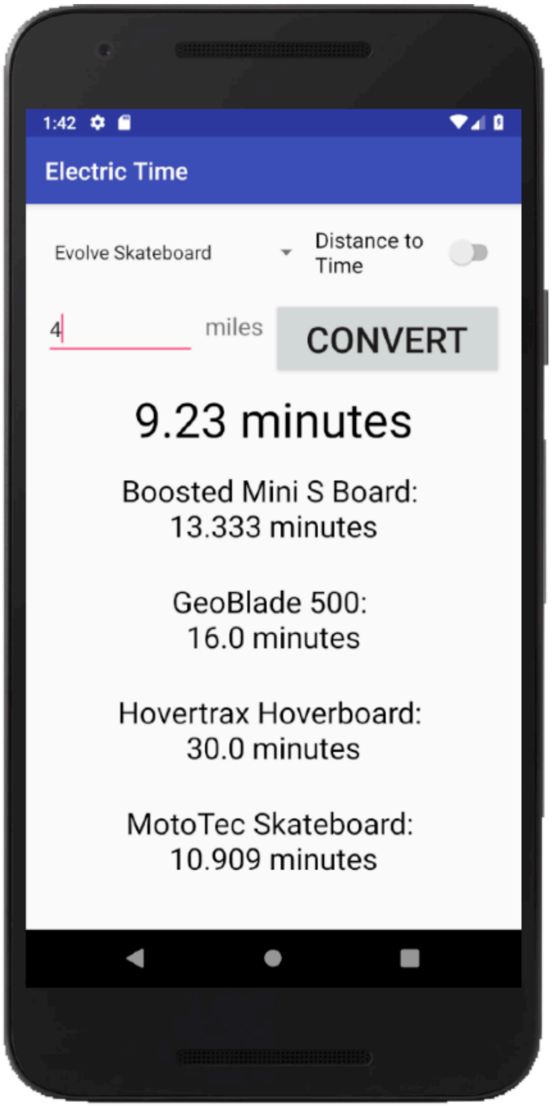




Evolve Skateboard

4 miles

For this assignment, I had to create an Android application that would allow the user to select a method of transport and enter the distance they want to travel, and which would output the time it would take that transport to travel that distance. The image on the left shows the screen after opening the application. The drop-down menu prompts the user to click and select a transport from the given list, with transport options listed in alphabetical order. The text box prompts the user to enter a distance in miles. The user can only enter positive real numbers into the box.



Evolve Skateboard

4 miles

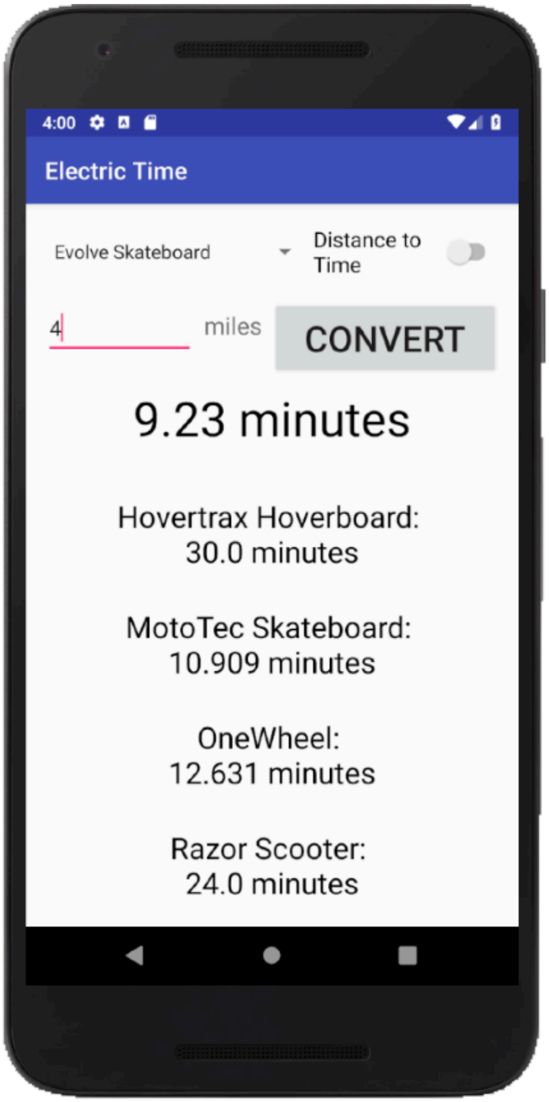
9.23 minutes

Boosted Mini S Board:
13.333 minutes

GeoBlade 500:
16.0 minutes

Hovertrax Hoverboard:
30.0 minutes

MotoTec Skateboard:
10.909 minutes



Evolve Skateboard

4 miles

9.23 minutes

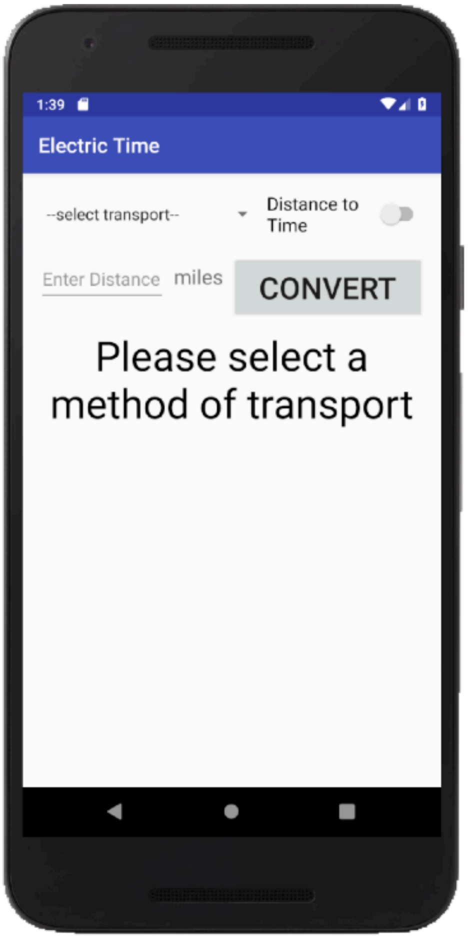
Hovertrax Hoverboard:
30.0 minutes

MotoTec Skateboard:
10.909 minutes

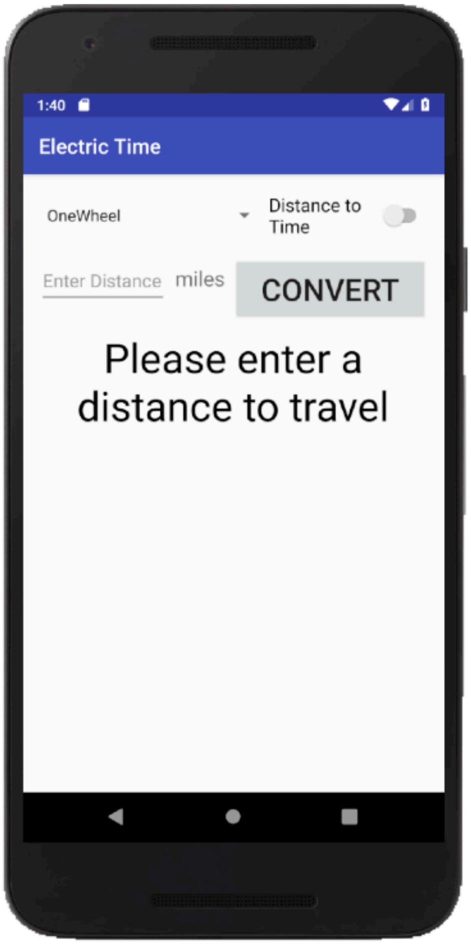
OneWheel:
12.631 minutes

Razor Scooter:
24.0 minutes

Pressing the “convert” button calculates the time it will take the user to travel the input number of miles on the given transport. For example, since the Evolve Skateboard travels at 26 MPH, it will take 9.23 minutes to travel 4 miles. The app also calculates and displays, in a smaller font, the amount of time it will take to travel the same distance with every other transport. The user can scroll through this list to see more options.



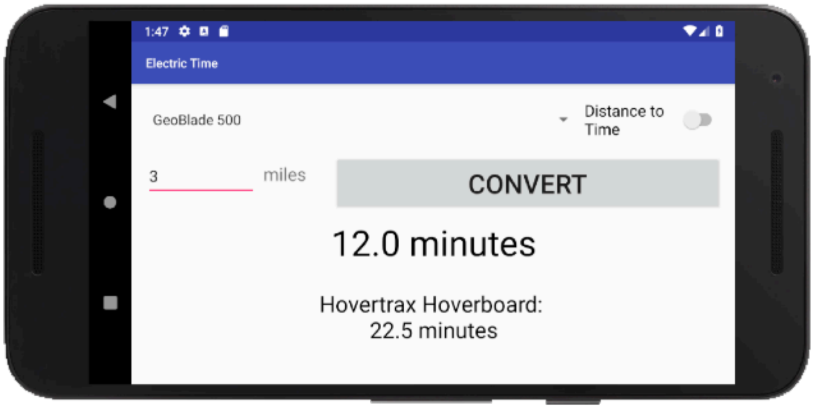
Please select a method of transport



OneWheel

Please enter a distance to travel

Pressing the “convert” button without a type of transport selected will clear any previous results from the screen and tell the user to select a transport. Pressing the “convert” button without entering a distance will the also clear any previous results and tell the user to enter a distance to travel. If neither input has been filled, the app defaults to the transport prompt. The exact same functionality exists in landscape mode.

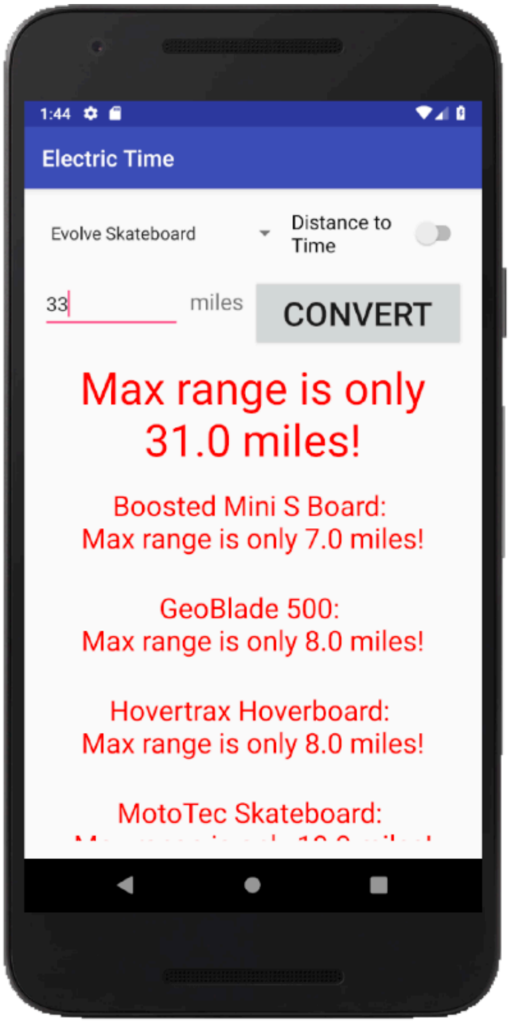


GeoBlade 500

3

12.0 minutes

Hovertrax Hoverboard:
22.5 minutes



1:44

Electric Time

Evolve Skateboard ▾ Distance to Time

33 miles CONVERT

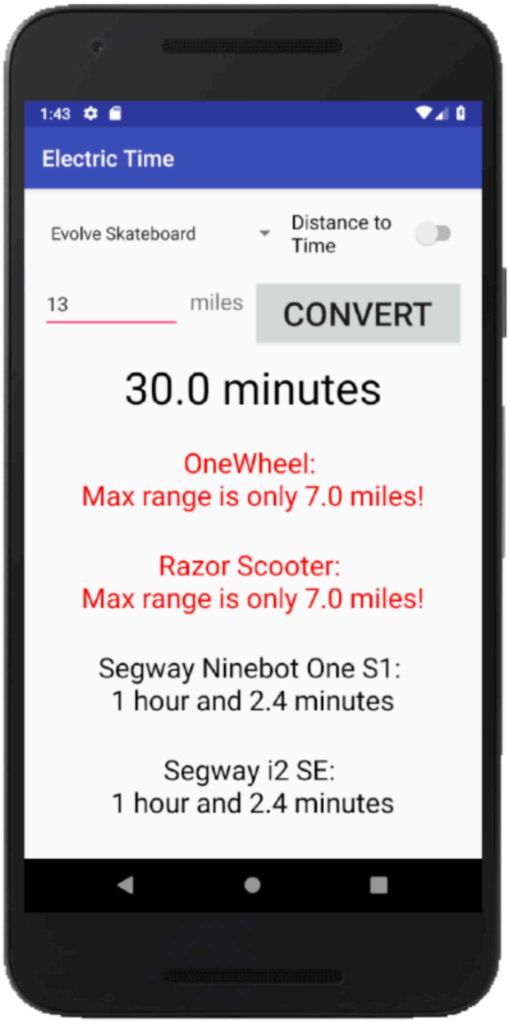
Max range is only 31.0 miles!

Boosted Mini S Board:
Max range is only 7.0 miles!

GeoBlade 500:
Max range is only 8.0 miles!

Hovertrax Hoverboard:
Max range is only 8.0 miles!

MotoTec Skateboard:



1:43

Electric Time

Evolve Skateboard ▾ Distance to Time

13 miles CONVERT

30.0 minutes

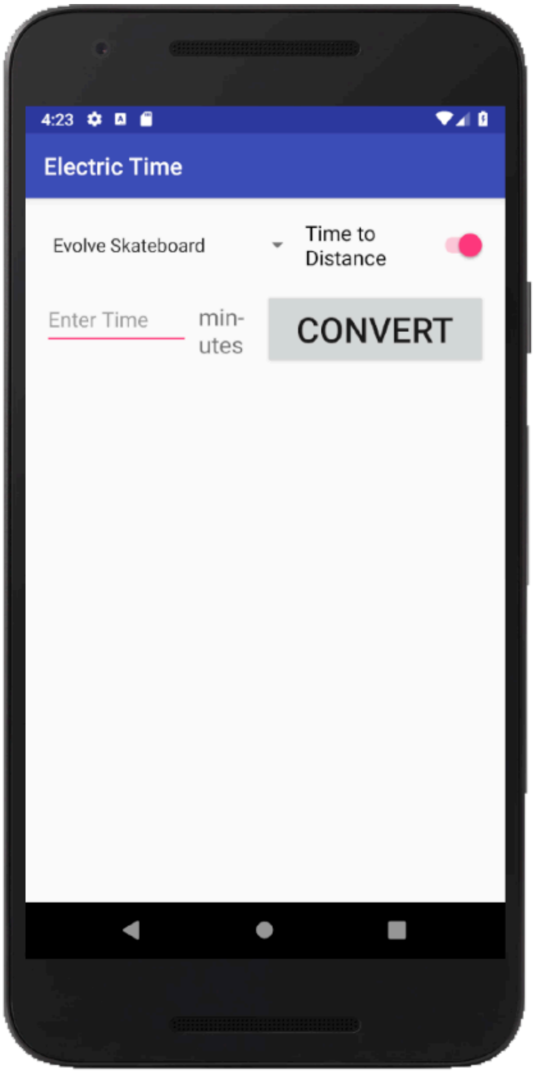
OneWheel:
Max range is only 7.0 miles!

Razor Scooter:
Max range is only 7.0 miles!

Segway Ninebot One S1:
1 hour and 2.4 minutes

Segway i2 SE:
1 hour and 2.4 minutes

Every type of transport has a maximum range, past which it cannot travel. If the user enters a distance that is beyond the transport’s range, the application warns that the maximum range is only a certain distance. This is printed in red and with an exclamation mark to further emphasize the problem. It’s possible that a distance can be within range of the selected transport but out of range of some other transport. Then the correct time will be given for the selected transport and the warning will appear in the list of other transports, again printed in red. We also see here that the output time is automatically split into minutes and hours, for example “1 hour and 2.4 minutes” rather than “62.4 minutes.”



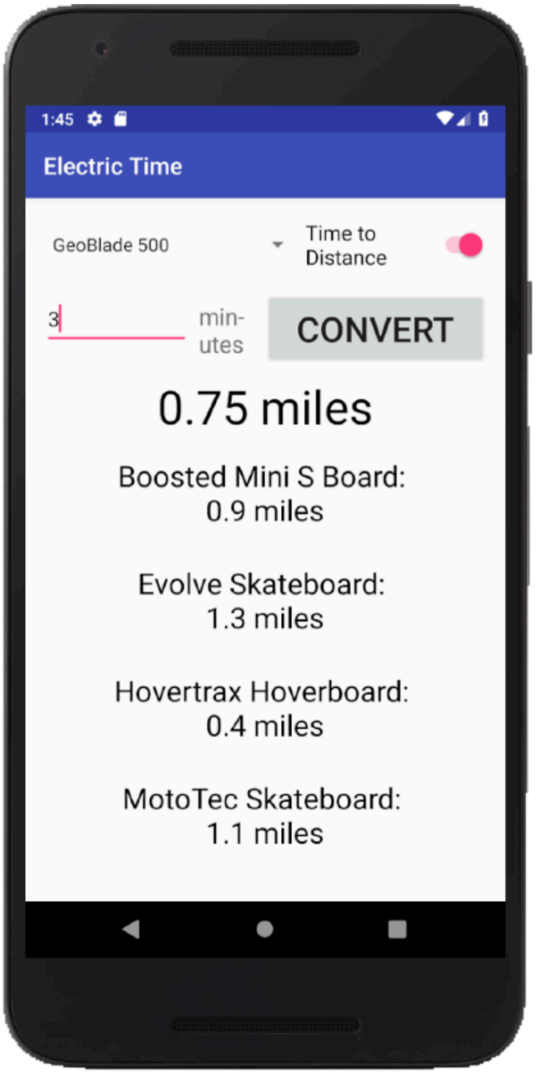
4:23

Electric Time

Evolve Skateboard

Time to Distance

Enter Time minutes



1:45

Electric Time

GeoBlade 500

Time to Distance

3 minutes

0.75 miles

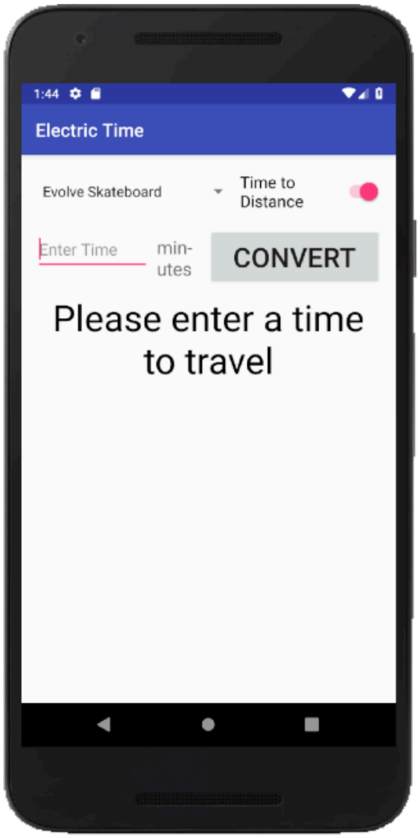
Boosted Mini S Board:
0.9 miles

Evolve Skateboard:
1.3 miles

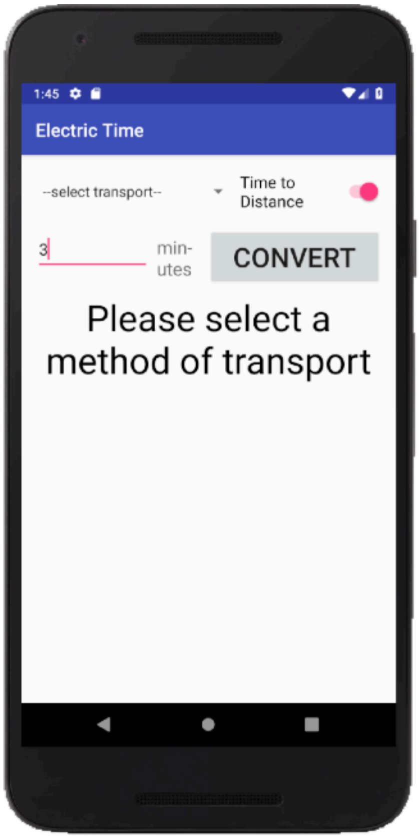
Hovertrax Hoverboard:
0.4 miles

MotoTec Skateboard:
1.1 miles

Pressing the switch in the top right corner changes the input from distance to time. The text box automatically clears and prompts the user to enter a time in minutes. As the switch tells us, the app will now convert an amount of time to how far each transport can travel in that time. So for example, the GeoBlade 500 travels at 15 MPH, so it can get 0.75 miles in 3 minutes. Like the distance to time mode, the selected output is printed in a larger font, while other outputs are printed in a list that the user can scroll through. Clicking the switch again will return the user to the previous mode.

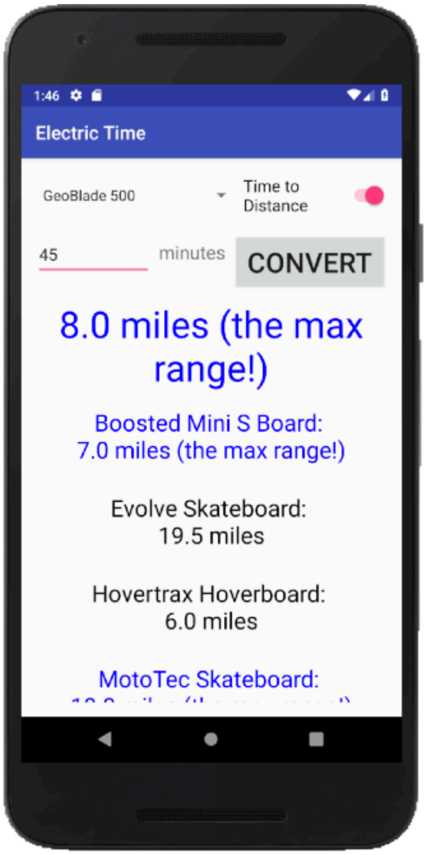


Please enter a time to travel



3

Please select a method of transport



45

8.0 miles (the max range!)

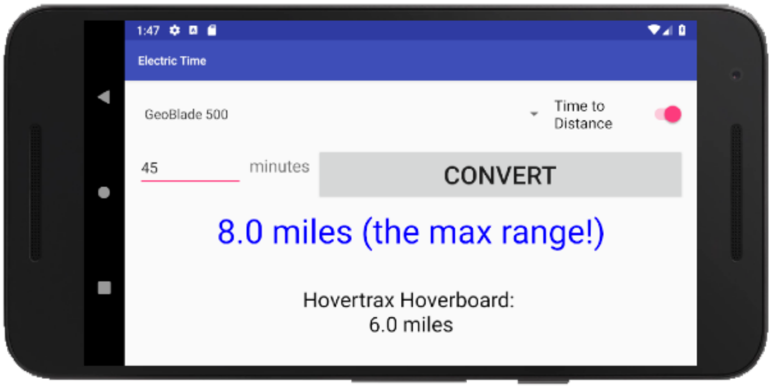
Boosted Mini S Board:
7.0 miles (the max range!)

Evolve Skateboard:
19.5 miles

Hovertrax Hoverboard:
6.0 miles

MotoTec Skateboard:

Like the default conversion mode, pressing the “convert” button without an amount of time input or a type of transport selected will output a statement telling the user to enter the time or select the transport, respectively. For a given time input, it is possible that the transport may be limited in how far it can travel by its range. For example, the GeoBlade 500 has a maximum range of 8 miles, so it can only travel 8.0 miles in 45 minutes, whereas it could go 11.25 miles without the range limit. Cases where the distance is limited warn the user that this is the maximum range and are printed in blue, since they are something the user should pay attention to but are still valid answers given the input. Finally, everything in time-to-distance mode works in landscape mode.



45

8.0 miles (the max range!)

Hovertrax Hoverboard:
6.0 miles

VIDEO: https://youtu.be/bTDQr4OfPBs
GITHUB: https://github.com/cs160-berkeley/prog01-fa18-nkriss001