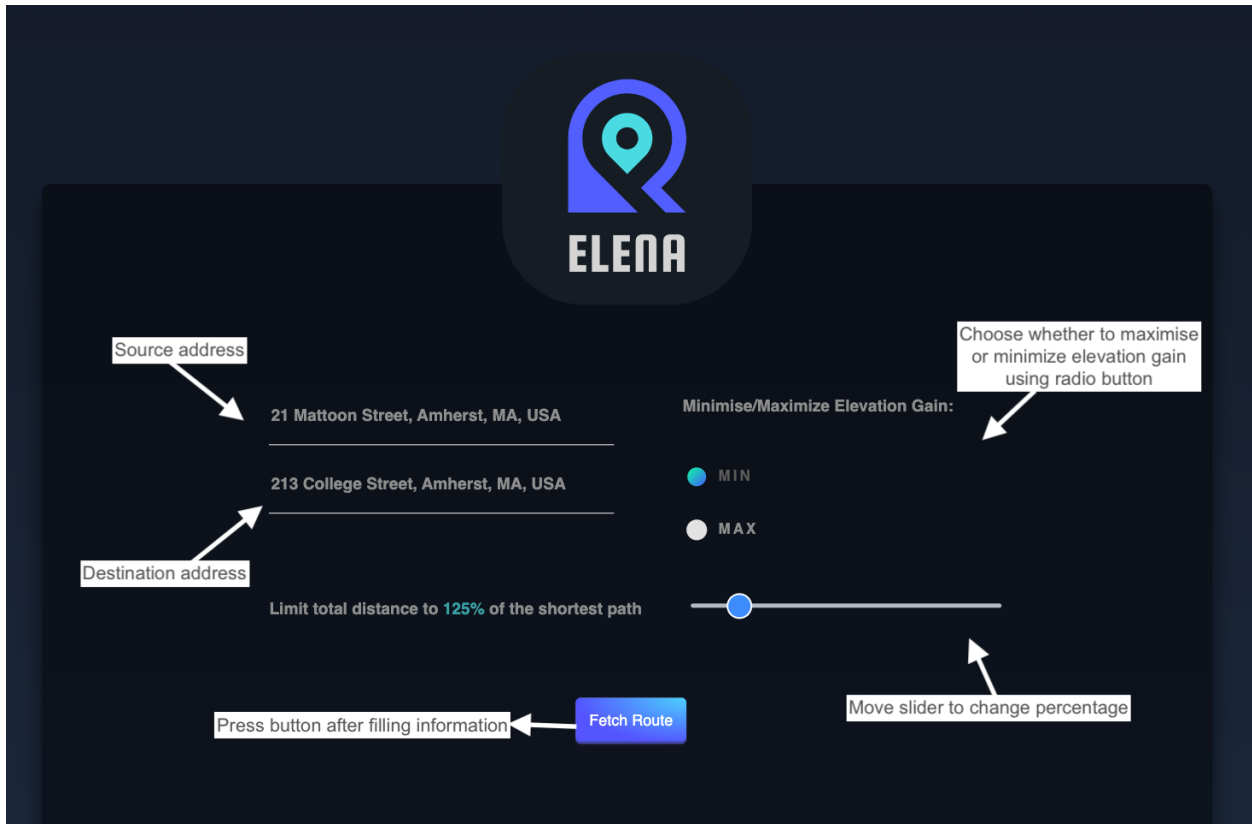
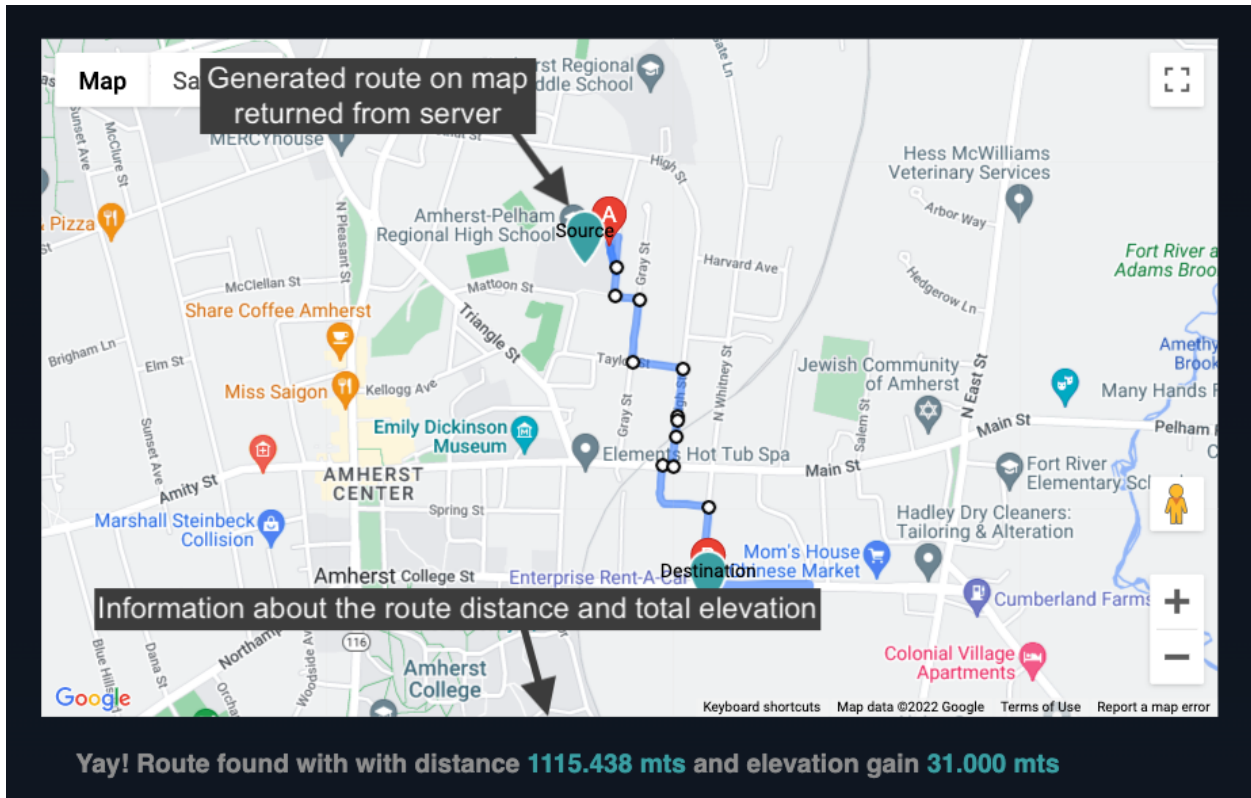


User Manual

This manual provides instructions to run EleNA, which is an elevation-based navigation system. The system is useful for hikers, bikers who consider the elevation gain or loss as a more important factor while determining a route than the distance.

Below is the screenshot of our application with instructions to run this application .





To use our application, the user needs to follow the following steps :

1. The user will have to select the source and destination in the fields using the autocomplete dropdown. The source and destination should be in the United States.
2. The user chooses whether to maximize or minimize the elevation gain using the radio buttons.
3. The user selects the percentage which they want to limit their shortest distance to using the slider input.
4. After the user is satisfied with the information filled, the user should press the Fetch Route button. A loading icon will provide the user with the progress of the application.
5. Once a valid response is received from the server, a map will be displayed on the UI showing the route following the constraints given by the user. You will also be able to see the total distance and elevation of the route shown.
6. If something goes wrong, an appropriate message will be displayed to the user.

Explanations :

- Minimum elevation gain means you want to know the route with minimum elevation.
- Maximum elevation gain means you want to know the route with maximum elevation. You would probably want to choose this option if you are hiking and love challenges :)
- Limiting distance to the shortest distance means how much more than the shortest route are you ready to travel to get the elevation you want. It ranges from 100-500, 100 being the shortest route and 500 being 5 times the shortest route.

Why choose our EleNa?

- We are calculating routes using two different algorithms, Dijkstra and A*, and then our algorithm picker chooses the most optimized route from the routes returned by the two algorithms.
- We have integrated Google's Place Autocomplete API to facilitate adding source and destination for the user and produce accurate results.
- Our application is completely deployed on cloud with server being deployed on Heroku and front end being deployed on Netlify which enables anyone to use our EleNa with almost no hassle of application setup. You can access the application here: [Application](#) , apart from running it on local machines.
- We have also deployed our application's detailed documentation here: [Documentation](#)
- The application is also containerized to make it machine independent and easier to set up. The image is available here: [Docker Image](#)
- Our application is tested on an exhaustive test suit with more than 90% test coverage which ensures that our application is robust and reliable.
- Our application is open source and code repository can be accessed here: [Github](#)