

Prototyping

Bluetooth Low Energy Tracker (BLU)

Version 1.0

Fei Hoffman

CECS 491A Sec 02: Senior Project I

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The BLU Team:

Raquel Hernandez

John Pauly

Samantha Preciado

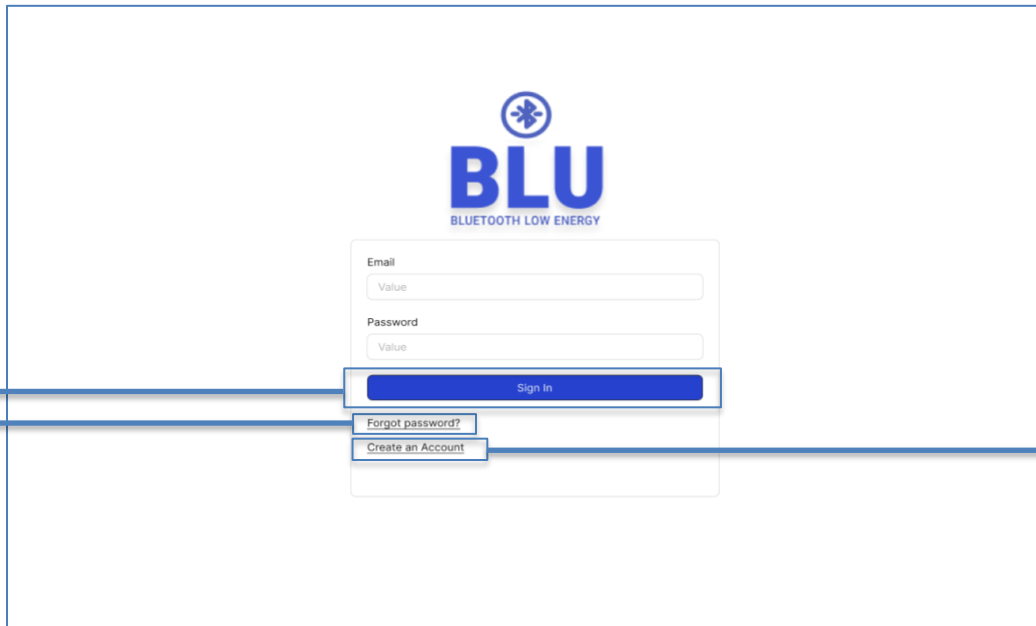
Luke Trinh

Nicholas Tsimerekis

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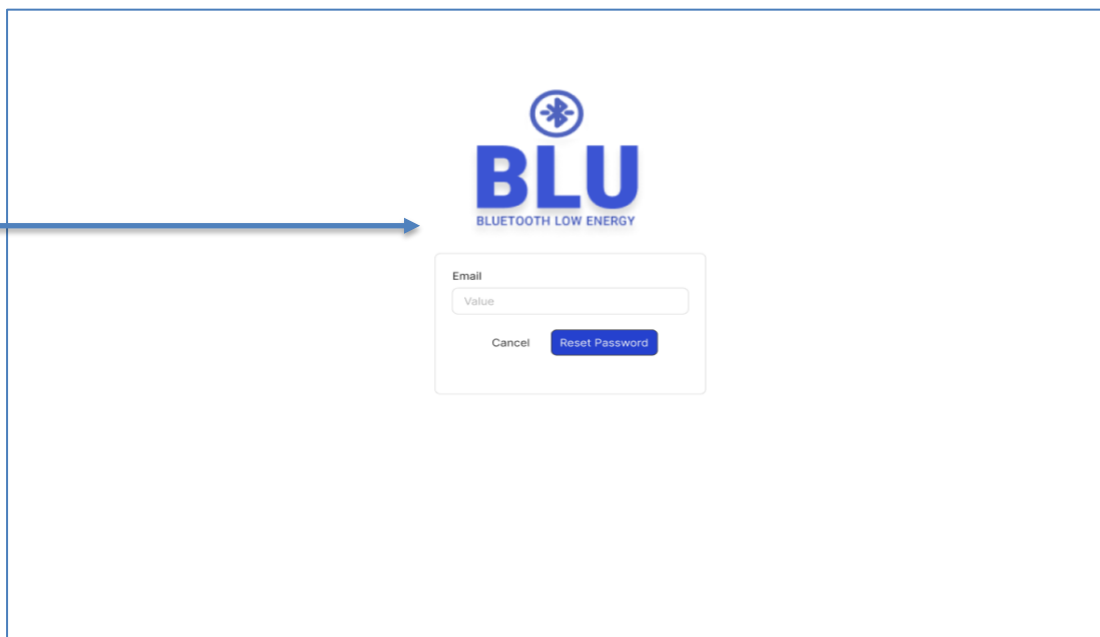
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User Login/Account Set-Up



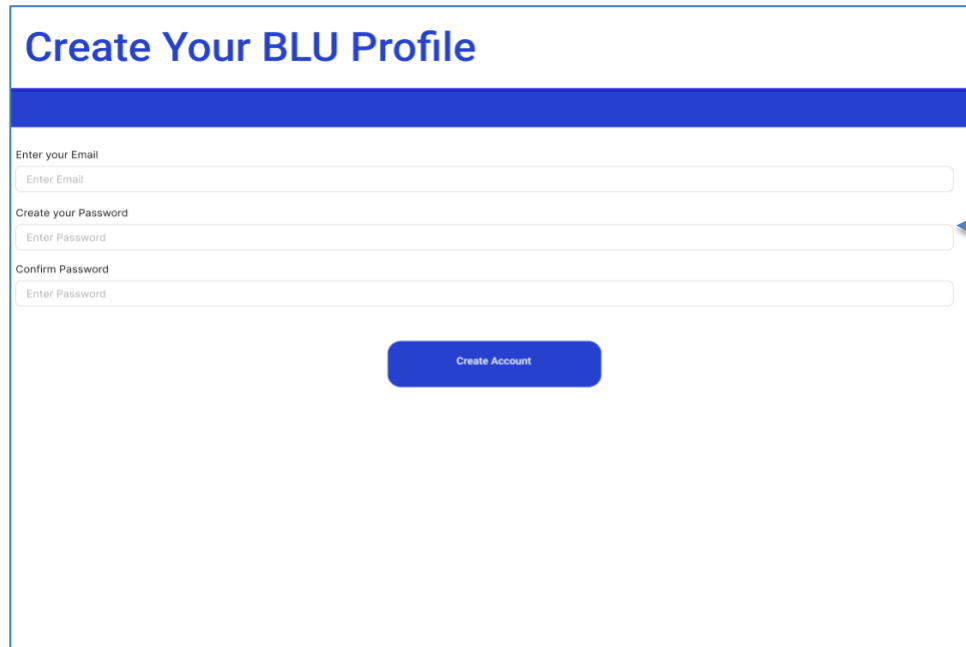
The image shows a login and account setup form for BLU (Bluetooth Low Energy). The form is centered on a white background. At the top is the BLU logo, which consists of a blue circle with a white star-like symbol inside, followed by the text "BLU" in large blue letters and "BLUETOOTH LOW ENERGY" in smaller blue letters below it. Below the logo are two input fields: "Email" and "Password". Each field has a placeholder text "Value". Below the password field is a blue button labeled "Sign In". Below the "Sign In" button are two links: "Forgot password?" and "Create an Account". A blue line from the "Sign In" button points to the "Forgot password?" link, and another blue line from the "Create an Account" link points to the "Forgot password?" link.

This will be the first page the user will see when visiting BLU. The user is given 3 options: logging in, retrieve password, or create account. Logging in with the correct credentials will direct users to the dashboard, password reset will direct users to the reset page, and creating account will direct users to the profile creation page.



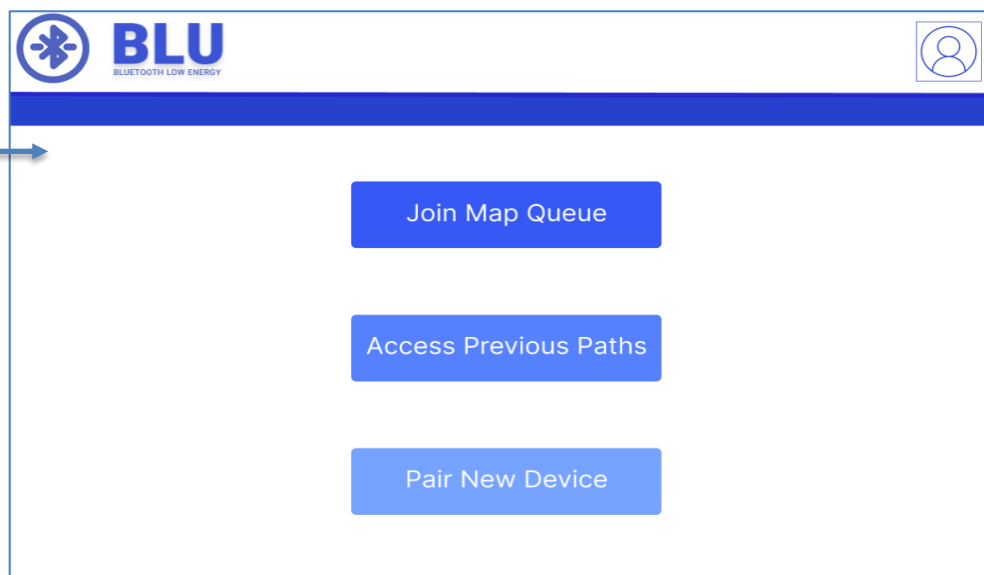
The image shows a password reset form for BLU (Bluetooth Low Energy). The form is centered on a white background. At the top is the BLU logo, which consists of a blue circle with a white star-like symbol inside, followed by the text "BLU" in large blue letters and "BLUETOOTH LOW ENERGY" in smaller blue letters below it. Below the logo is an "Email" input field with a placeholder text "Value". Below the input field are two buttons: "Cancel" and "Reset Password". A blue arrow points from the "Forgot password?" link in the previous form to the "Email" input field.

The password reset page will send the user a reset request which will have them create a new password through their email. Clicking the BLU icon will direct them back to the login page.



The form is titled "Create Your BLU Profile" in a large blue font. Below the title is a solid blue horizontal bar. The form contains three input fields: "Enter your Email" with a placeholder "Enter Email", "Create your Password" with a placeholder "Enter Password", and "Confirm Password" with a placeholder "Enter Password". A blue button labeled "Create Account" is centered at the bottom. A blue arrow points from the right side of the form to the "Create your Password" field.

Here, the user is able to create their own BLU profile. The only credentials we're going to ask for are the user's email, their password, and the user will confirm their password. After the user creates their account, they will be directed to the dashboard.





The dashboard features the BLU logo (a blue star-like icon and the text "BLU BLUETOOTH LOW ENERGY") in the top left and a user profile icon in the top right. A solid blue horizontal bar is below the header. Three blue buttons are centered on the page: "Join Map Queue", "Access Previous Paths", and "Pair New Device". A blue arrow points from the left side of the dashboard to the "Join Map Queue" button.

Once signed in, the user will be directed to the Dashboard page where they have the option to join the current map queue, access previous saved paths, or pair a new device of their choice.

The Dashboard will be accessible from every page through the Bluetooth Logo on the top left corner.

Pairing a New Device



[Join Map Queue](#)
[Access Previous Paths](#)
[Pair New Device](#)

Register Device

Device Name

Value

MAC Address

Value

IP

Value

Notes

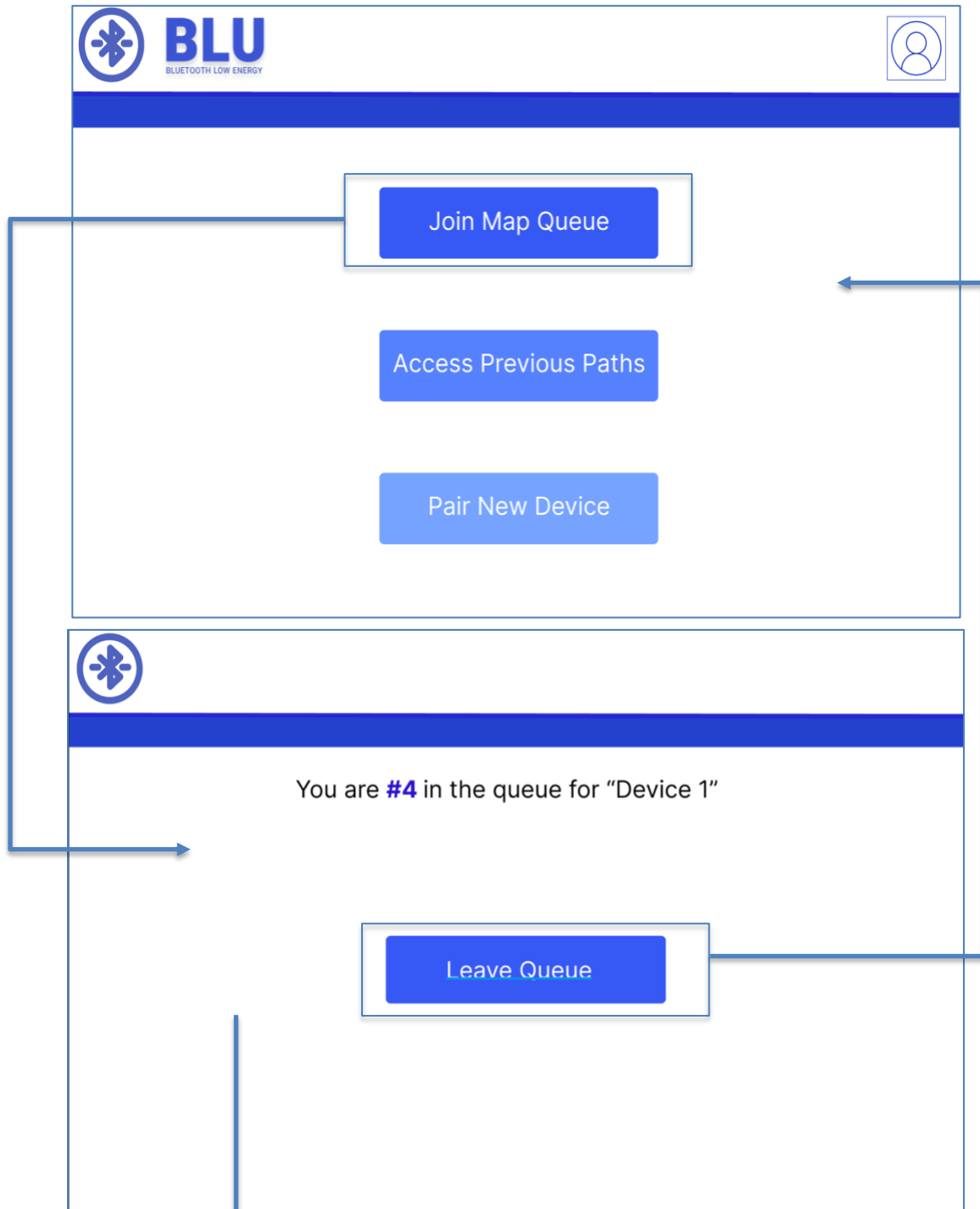
Value

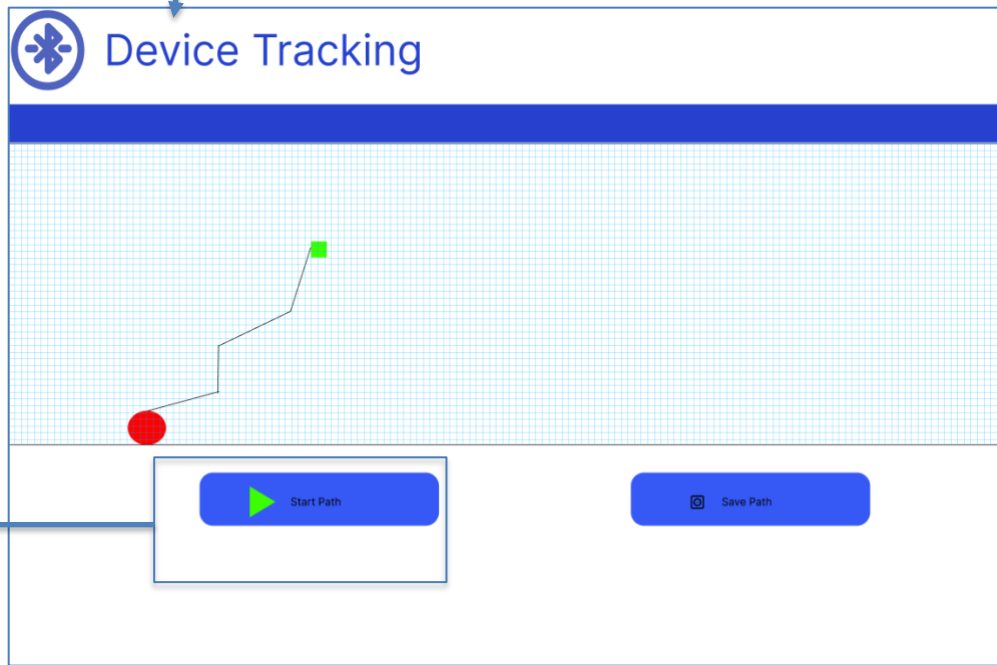
Register

Once the “Pair Device” option has been selected, the user will be directed to the Pair Device options page. The user will be asked for the user to create a name for the BLE device, the MAC Address, IP address, and notes the user wants to add for the device. Afterwards, the website will

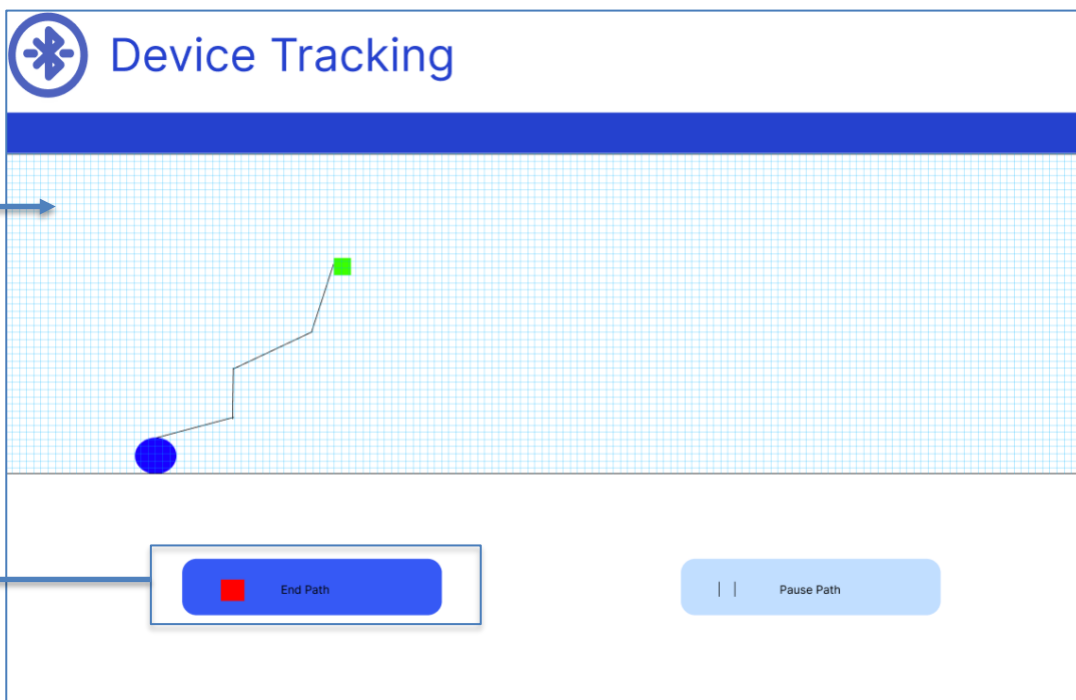
communicate through a cloud and connect with the BLE device. If successful, the device's credentials will be inputted in the database under the user's UID and saved under the user's profile.

Accessing Map and Tracking





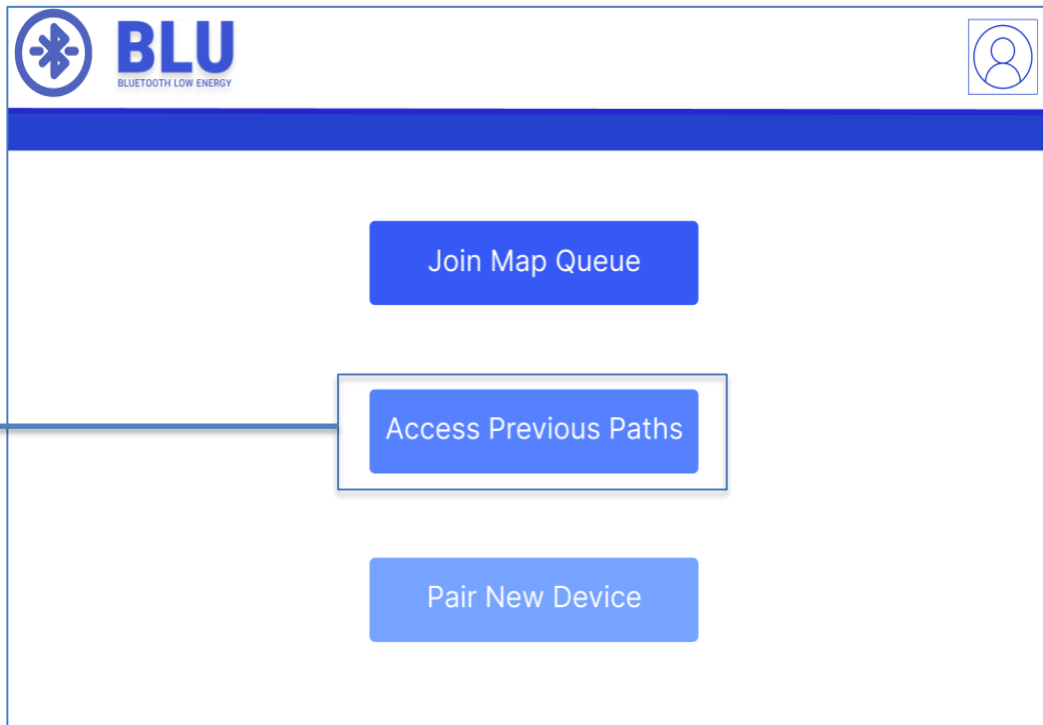
When the user selects the “Join Map Queue” option, they will be directed to the device tracking page. Assuming the user has the receivers and hardware set up, the user will be given the option to start their trail. Once the trail has started, the user will start the trail which will look like the next figure.



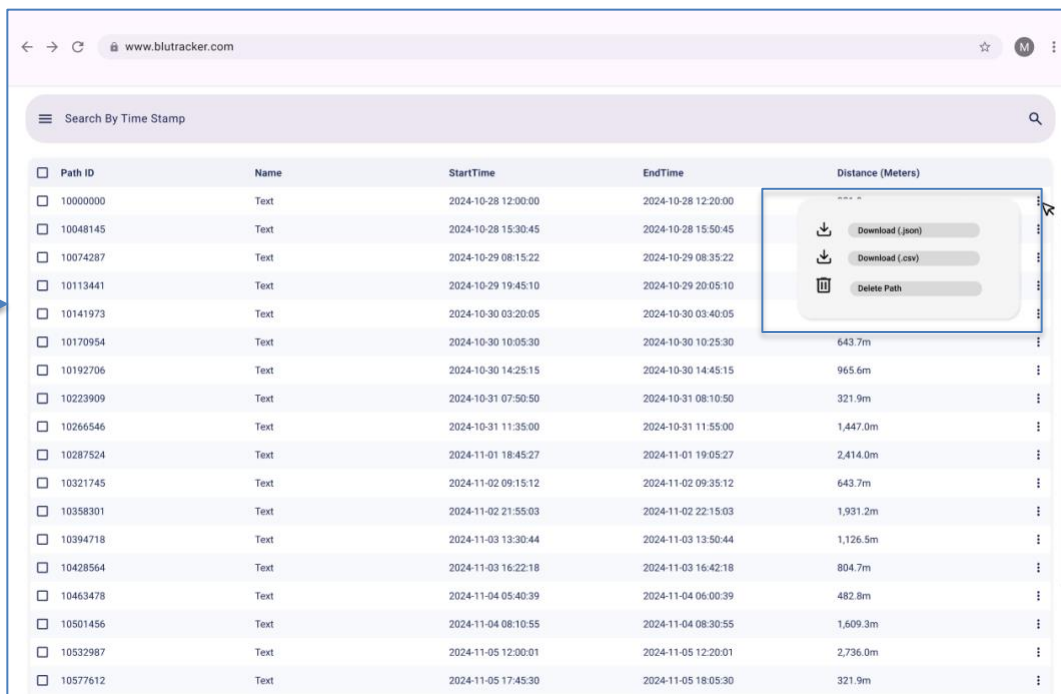
From here, the user can move, and the device and the path will update in real time. The user will be able to pause/resume the trail at any time. Once the user is finished with the trail, they click stop path which will take them to the previous page.



Accessing Previous Paths/Downloading Path Data



From the dashboard page, the user will have the option to access their previous saved paths that will be designed with a search bar to allow the user to search by time stamp to find and select their past paths. The paths will be displayed in a scrollable list where each path entry shows the details: Path ID, Path Name, Start Time, End Time, and Distance. To select a path, users can simply click on the list entry on the left hand side, which will instantly retrieve and load the specific path data from the database.

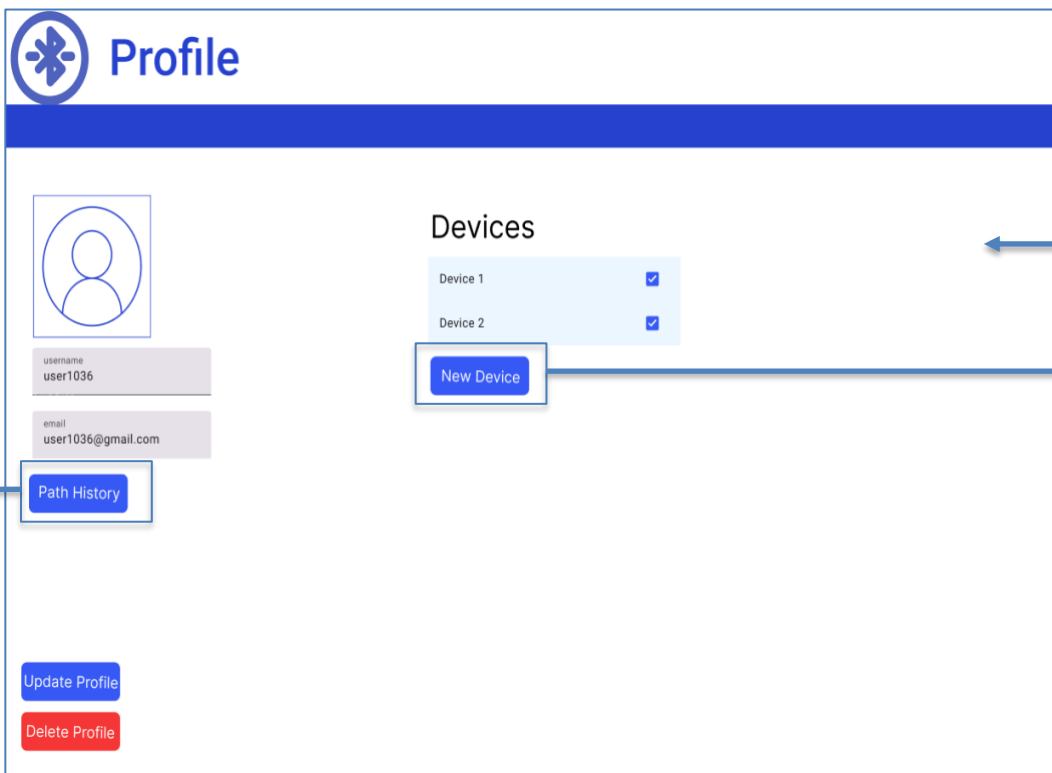
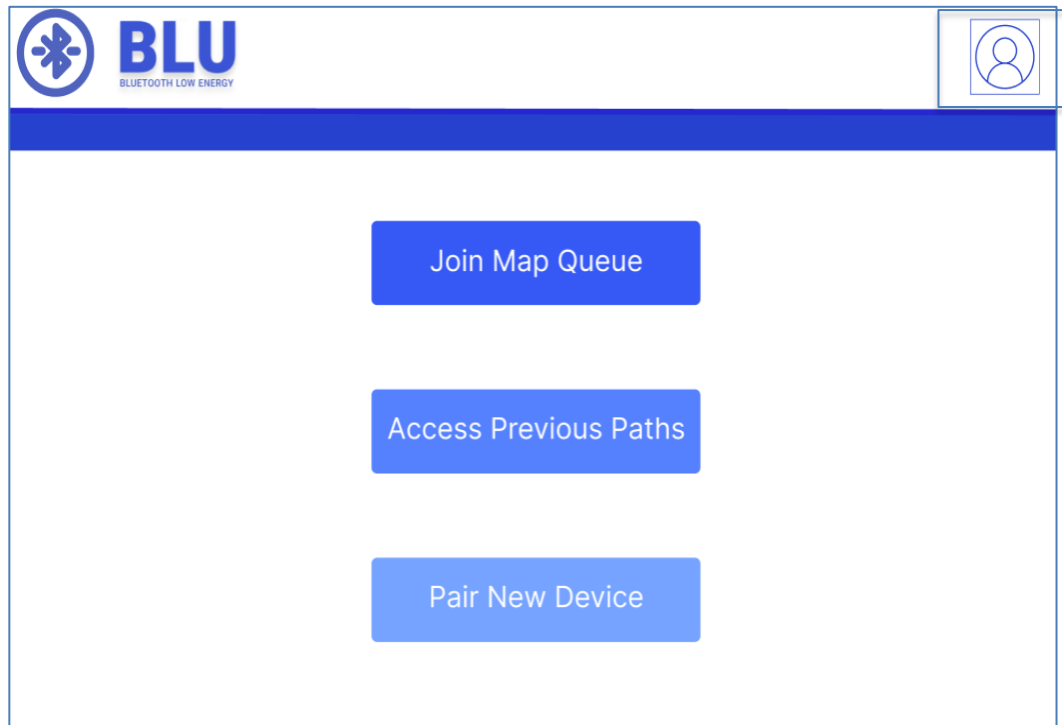


Search By Time Stamp

| <input type="checkbox"/> Path ID | Name | StartTime | EndTime | Distance (Meters) | |
|-----------------------------------|------|---------------------|---------------------|-------------------|---|
| <input type="checkbox"/> 10000000 | Text | 2024-10-28 12:00:00 | 2024-10-28 12:20:00 | | <div> Download (.json) Download (.csv) Delete Path </div> |
| <input type="checkbox"/> 10048145 | Text | 2024-10-28 15:30:45 | 2024-10-28 15:50:45 | | |
| <input type="checkbox"/> 10074287 | Text | 2024-10-29 08:15:22 | 2024-10-29 08:35:22 | | |
| <input type="checkbox"/> 10113441 | Text | 2024-10-29 19:45:10 | 2024-10-29 20:05:10 | | |
| <input type="checkbox"/> 10141973 | Text | 2024-10-30 03:20:05 | 2024-10-30 03:40:05 | | |
| <input type="checkbox"/> 10170954 | Text | 2024-10-30 10:05:30 | 2024-10-30 10:25:30 | 643.7m | |
| <input type="checkbox"/> 10192706 | Text | 2024-10-30 14:25:15 | 2024-10-30 14:45:15 | 965.6m | |
| <input type="checkbox"/> 10223909 | Text | 2024-10-31 07:50:50 | 2024-10-31 08:10:50 | 321.9m | |
| <input type="checkbox"/> 10266546 | Text | 2024-10-31 11:35:00 | 2024-10-31 11:55:00 | 1,447.0m | |
| <input type="checkbox"/> 10287524 | Text | 2024-11-01 18:45:27 | 2024-11-01 19:05:27 | 2,414.0m | |
| <input type="checkbox"/> 10321745 | Text | 2024-11-02 09:15:12 | 2024-11-02 09:35:12 | 643.7m | |
| <input type="checkbox"/> 10358301 | Text | 2024-11-02 21:55:03 | 2024-11-02 22:15:03 | 1,931.2m | |
| <input type="checkbox"/> 10394718 | Text | 2024-11-03 13:30:44 | 2024-11-03 13:50:44 | 1,126.5m | |
| <input type="checkbox"/> 10428564 | Text | 2024-11-03 16:22:18 | 2024-11-03 16:42:18 | 804.7m | |
| <input type="checkbox"/> 10463478 | Text | 2024-11-04 05:40:39 | 2024-11-04 06:00:39 | 482.8m | |
| <input type="checkbox"/> 10501456 | Text | 2024-11-04 08:10:55 | 2024-11-04 08:30:55 | 1,609.3m | |
| <input type="checkbox"/> 10532987 | Text | 2024-11-05 12:00:01 | 2024-11-05 12:20:01 | 2,736.0m | |
| <input type="checkbox"/> 10577612 | Text | 2024-11-05 17:45:30 | 2024-11-05 18:05:30 | 321.9m | |

If the user chooses to click on the 3 dots on the right hand side , they will see the option to download the path data as either a JSON or CSV file. Clicking this will automatically download the path data in the desired format onto the user’s device. Below those options the user will also see the option to delete the saved path, clicking and confirming this choice will remove all path data from the database.

Accessing and Editing User Profile



If the user clicks on the profile icon in the dashboard, they will be directed to their profile page. From here, they are able to view their user information which includes their email, username (the default will be the email), and their registered devices. The user will also be able to register new devices, update their credentials (email, username, and password), and the option to delete their profile. Doing so will update the database accordingly. If the user deletes their profile, the database will delete the UID which will eliminate all the data tied with it as well.

Register Device

Device Name

Value

MAC Address

Value

IP

Value

Notes

Value

Register

www.blutracker.com

Search By Time Stamp

| <input type="checkbox"/> Path ID | Name | StartTime | EndTime | Distance (Meters) | |
|-----------------------------------|------|---------------------|---------------------|-------------------|--|
| <input type="checkbox"/> 10000000 | Text | 2024-10-28 12:00:00 | 2024-10-28 12:20:00 | | |
| <input type="checkbox"/> 10048145 | Text | 2024-10-28 15:30:45 | 2024-10-28 15:50:45 | | |
| <input type="checkbox"/> 10074287 | Text | 2024-10-29 08:15:22 | 2024-10-29 08:35:22 | | <div><div>Download (.json)</div><div>Download (.csv)</div><div>Delete Path</div></div> |
| <input type="checkbox"/> 10113441 | Text | 2024-10-29 19:45:10 | 2024-10-29 20:05:10 | | |
| <input type="checkbox"/> 10141973 | Text | 2024-10-30 03:20:05 | 2024-10-30 03:40:05 | | |
| <input type="checkbox"/> 10170954 | Text | 2024-10-30 10:05:30 | 2024-10-30 10:25:30 | 643.7m | |
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| <input type="checkbox"/> 10394718 | Text | 2024-11-03 13:30:44 | 2024-11-03 13:50:44 | 1,126.5m | |
| <input type="checkbox"/> 10428564 | Text | 2024-11-03 16:22:18 | 2024-11-03 16:42:18 | 804.7m | |
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| <input type="checkbox"/> 10577612 | Text | 2024-11-05 17:45:30 | 2024-11-05 18:05:30 | 321.9m | |

The Path History and Device Pairing can both be accessed from the Update Profile page, relating specific paths and devices to users within their profile.