

**[Ecotrack Web Application]**

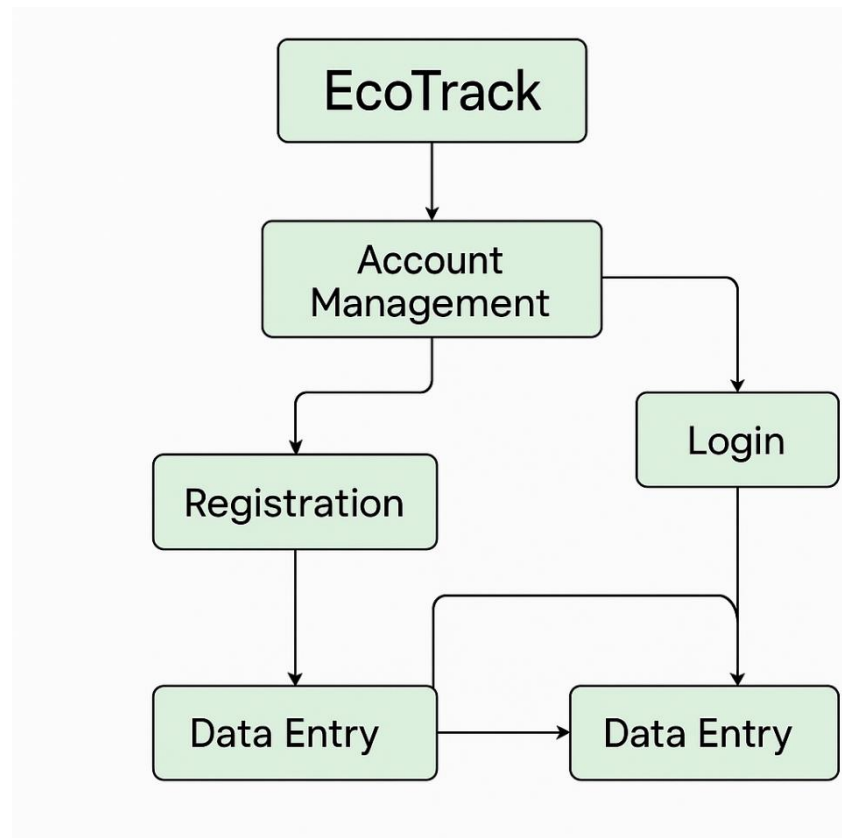
## **Abstract**

EcoTrack is a multi-layered web-based tool that assists individuals in keeping track of, controlling and evaluating their environmental footprint by means of smart digital mechanisms. Being created with the needs of accessibility and applicability this completes an important niche in the sustainability sector that offers people and smaller organizations a lightweight, but capable. EcoTrack also can be more accessible, as incompatible with large-scale enterprise software that can charge a high cost, be excessively complicated or require very technical skills to install. The platform will consist of three main workflows, account management (registration and log in), data entry of sustainability, and accessing data using dashboards. The app also enables users to sign up and create a safe account, log in using the secured log-in credentials, and evaluate or track environmental data with a clean user interface based on forms. bcryptjs is used to encrypt passwords and keep them in secret to withstand typical threats. MongoDB is used to store all user and sustainability data whereas structured schemas are defined and enforced with the help of Mongoose (Erraji et al., 2023). The backend routing uses Express.js, whereas semantic HTML, responsive CSS, and JavaScript are used to build the frontend to leave a minimized impression on the user (Ranjan et al., 2020).

Easy installation and implementation are among the key characteristics of EcoTrack. Given that not all clients will have an option to work at GitHub or version-controlled systems, the package is shipped as a regular ZIP. The ease of extraction, installation of dependencies with npm, and test/run of the app locally on Node.js is possible. The configuration step using .env file provides users with the chance to associate the app with their MongoDB instance without hard coding important information into the project files. Removing this configuration logic allows EcoTrack to be more easily portable and flexible and have more sound security practices at its foundation. Another fundamental design principle entrenched into EcoTrack is called usability. The layout is designed in an identical fashion on the various pages with natural colour schemes, dynamic elements, and open navigation bars to help keep the system intuitive and legible in both computer and mobile platforms (Seifin et al., 2024). The aspects as real-time validation of the input, understandable error messages, and instant redirect behaviours after the login make the whole thing flow well and simple in use. The project is organized into clear folders for routes, models, configuration, and public files, which makes updates and expansions much easier.

EcoTrack is a well-scale based personal and organizational sustainability tracking platform. Both a classroom and internally reporting tool, or part of an outreach package it offers a

practical design, which allows reflective engagement with ecological information. What is more important is that it turns the abstract sustainability intentions into calculable actions and it makes users to take control of their impact. With digital space gradually moving into the sphere of responsible innovation, the role of such tools as EcoTrack in the field of behaviour modelling, building awareness, and assisting the environmentally sustainable choice gains paramount significance. The abstract not only presents a tool, but a functional model of practical ecological responsibility.



## References

Erraji, A., Maizate, A., & Ouzzif, M. (2023). An integral approach for complete migration from a relational database to MongoDB. *Journal of the Nigerian Society of Physical Sciences*, 1089-1089.

Seifi, A., & Moshayeri, A. (2024). The Influence of Color Schemes and Aesthetics on User Satisfaction in Web Design: An Empirical Study. *International Journal of Advanced Human Computer Interaction*, 2(2), 33-43.

Ranjan, A., Sinha, A., & Battewad, R. (2020). *JavaScript for modern web development: building a web application using HTML, CSS, and JavaScript*. BPB Publications.