

Electric Bicycle

Sahaji Sutar¹, Vineet Raje², Deep Padharia³, Nitesh Varma⁴, Rohit Bhor⁵

Lecturer, Department of Electronics & Telecommunication¹

Students, Department of Electronics & Telecommunication^{2,3,4,5}

Bharati Vidyapeeth Institute of Technology, Navi Mumbai, Maharashtra, India

Abstract: *An electric bicycle, also known as an e-bike or booster bike, is a bicycle with an integrated electric motor which can be used for propulsion. Proposed embedded system will be an add-on to an e-bike to include features like calorie measurement, biometric lock security and GPS tracking. Enhanced security features can make purchasing the e-bike a low-risk option. User can lock/unlock his bicycle using a centralised interface. A micro-GPS chip added to the bicycle will help in detecting the location in case of an accident or theft. Bicycles can be reserved to be picked up from a particular location by an app and an Aadhaar card number. The billing and user statistics will be synced with this number only. This data can also be used to suggest routes for people with health problems. GPS coordinates along with time data can be used to estimate time to travel from one location to another. The features will be implemented using the existing power supply of the bicycle. The project thus aims to reintroduce the bicycle with more user friendly and low-cost features. An attempt will be made to model a similar design for the simple bicycles.*

Keywords: Electrically Assisted Power Cycle, Metropolis Environment, Prototype, Last Mile.

REFERENCES

- [1]. J. G. Su, M. Winters, M. Nunes, and M. Brauer, "Designing a route planner to facilitate and promote cycling in Metro Vancouver, Canada," *Transportation Research Part A: Policy and Practice*, vol. 44, no. 7, pp. 495–505, 2010. View at: [Publisher Site](#) | [Google Scholar](#)
- [2]. M. Winters, M. Brauer, E. M. Setton, and K. Teschke, "Mapping bikeability: A spatial tool to support sustainable travel," *Environment and Planning B: Planning and Design*, vol. 40, no. 5, pp. 865–883, 2013. View at: [Publisher Site](#) | [Google Scholar](#)
- [3]. M. Winters, G. Davidson, D. Kao, and K. Teschke, "Motivators and deterrents of bicycling: Comparing influences on decisions to ride," *Transportation*, vol. 38, no. 1, pp. 153–168, 2011. View at: [Publisher Site](#) | [Google Scholar](#)
- [4]. C. Reynolds, M. Winters, F. Ries, and B. Gouge, "Active transportation in urban areas: exploring health benefits and risks," *National Collaboration Centre for Environmental Health*, 2010. View at: [Google Scholar](#)
- [5]. B. Gojanovic, J. Welker, K. Iglesias, C. Daucourt, and G. Gremion, "Electric bicycles as a new active transportation modality to promote health," *Medicine and Science in Sports and Exercise*, vol. 43, no. 11, pp. 2204–2210, 2011. View at: [Publisher Site](#) | [Google Scholar](#)
- [6]. J. Paefgen and F. Michahelles, "Inferring usage characteristics of electric bicycles from position information," in *Proceedings of the 3rd International Workshop on Location and the Web, LocWeb 2010*, pp. 16–19, November 2010. View at: [Publisher Site](#) | [Google Scholar](#)
- [7]. K. Flüchter and F. Wortmann, "Implementing the connected e-bike: challenges and requirements of an IoT application for urban transportation," in *Proceedings of the The First International Conference on IoT in Urban Space, Rome, Italy, October 2014*. View at: [Publisher Site](#) | [Google Scholar](#)
- [8]. J. Dill and G. Rose, "Electric bikes and transportation policy," *Transportation Research Record*, no. 2314, pp. 1–6, 2012. View at: [Publisher Site](#) | [Google Scholar](#)