

Smart Door Lock Systems

Bandara, S.M.C.P.^{1*}, Theekshana, H.K.J.¹, Lakmal, K.D.R.M.¹, Jayasooriya, L.T.¹

¹*Department of Electrical and Electronics, Faculty of Technology, Faculty of Technology,
Rajarata University of Sri Lanka.*

**ent1718092@tec.rjt.ac.lk*

The Smart Door Lock System is a cutting-edge security solution that employs QR code technology to enhance accessibility and safety. This innovative project introduces a seamless and secure method for unlocking doors through the use of QR codes. The Thyra mobile application serves as the central hub for generating and displaying unique, one-time QR codes that act as digital keys. The primary mechanism involves users accessing the Thyra app, selecting the door they wish to unlock, and generating a QR code on their device screen. This QR code is then presented to the smart door lock, which reads and validates it, granting access to the user. The one-time nature of the QR codes enhances security, mitigating the risk of unauthorized access through the interception or duplication of codes. Additionally, the Smart Door Lock System provides users with an optional layer of security through One-Time Passwords (OTPs). Users can choose to receive an OTP, which serves as an alternative method for unlocking the door. This dual-factor authentication system adds an extra layer of protection, ensuring that only authorized individuals gain entry. The Thyra app interface is designed for user-friendly navigation, making the process of generating QR codes or receiving OTPs intuitive and straightforward. The integration of state-of-the-art security protocols ensures that the Smart Door Lock System meets the highest standards of safety. In conclusion, the Smart Door Lock System combines the convenience of QR code technology with the added security of optional OTPs, providing a reliable and user-friendly solution for modern door access control. This project represents a significant advancement in smart home security systems, offering a seamless and secure experience for users.

Keywords: *Smart door lock system; Mobile application; Enhances security; User-friendly solution*