EL Report

# EL OBSERVATION RECORD

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| Experiential Learning | For the IV Semester B.E PROGRAMS (ACY 2024-25) |
| Class | CS-A |
| Topic | Wallet for the Blind (Department Project) |
| Mentor | Dr. K Badarinath (RVCE faculty), Mr. Shiva G (IBM Mentor) |
| Subject Faculty | Dr. K Badarinath, Dr. Deepmala N, Dr. Krishnappa HK, Dr. Sowmya |

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## Details of the Group

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Student-1 Signature  
  
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## Abstract

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| Section | Details |
| Problem Statement | Visually impaired individuals face significant challenges when performing secure and contactless transactions. Traditional wallets lack accessibility and security measures tailored to their needs. |
| Proposed Solution | A smart wallet designed for blind users that incorporates Near Field Communication (NFC) for contactless payments, combined with haptic-based two-factor authentication (2FA) using a OneButton PIN system. |
| Key Technologies Used | - Near Field Communication (NFC) - EEPROM storage and microcontroller integration - RSA and AES encryption for secure data transfer - OneButtonPIN for accessible haptic feedback-based authentication - Secure mobile/network interface using 4G-enabled microcontroller |
| Workflow Summary | 1. Card data stored in EEPROM, encrypted with RSA/AES 2. User inputs a PIN via a haptic-feedback button 3. PIN is verified and decrypted via microcontroller 4. Encrypted transaction data sent to backend or POS through NFC |
| Evaluation Approach | - Real-time authentication with strong encryption - Uses NFC for contactless and secure transactions - Efficient memory and storage usage within embedded systems |
| Objectives | - Enable secure and accessible digital transactions for blind users - Incorporate low-cost, compact hardware - Provide fallback secure data transfer logic via 4G module |
| Project Outcomes | - Fully functional smart wallet prototype - Successful implementation of haptic-based PIN input - Secure encryption and data transfer system - Real-time transaction simulation |
| Broader Impact | - Empowers the visually impaired with financial independence - Reduces reliance on others for transactions - Paves the way for accessible fintech solutions |
| Contribution to Society | This solution contributes to inclusive design, ensuring that blind and low vision users can access secure, modern payment methods with dignity and independence. |