Test Cases

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Test Case 1: RFID Security Monitoring

- **Unique Name/Number:** TC-01
- **Requirement:** Visually be able to see live scans with designated room numbers, RFID, time, and ID scanned.
- **Preconditions:** System Software has been started; the Database is active, RFID scanner is connected, a RFID card is used.
- **Steps:**
    1. Click on the Monitor option.
    2. Scan an RFID card.
    3. View the live feed.
- **Expected Results:** The RFID system will display a live feed on scanned cards since the software was started.

Test Case 2: User Registration

- **Unique Name/Number:** TC-02
- **Requirement:** Ensure users and RFID cards can be registered in the system.
- **Preconditions:** System Software has been started; Database is active, Card RFID is known.
- **Steps:**
    1. Click on the registration option.
    2. Enter necessary user information (e.g., name, ID, rfid) in the software.
    3. Click on the "Register" button.
    4. Navigate to the database or User Data Table to view new users.
- **Expected Results:** The RFID card is successfully registered in the system, and the user information is associated with it.

Test Cases

Test Case 3: User Removal

- **Unique Name/Number:** TC-03
- **Requirement:** Remove users from the system
- **Preconditions:** System Software has been started; Database is active, Card ID is known
- **Steps:**
    1. Click on the User Removal option.
    2. Enter RFID of the user you wish to remove.
    3. Confirm the Deletion
- **Expected Results:** The user and their information is removed from the database.

Test Case 4: Error Handling - Invalid RFID Card

- **Unique Name/Number:** TC-04
- **Requirement:** Validate system behavior when an invalid RFID card is presented.
- **Preconditions:** System is operational, RFID reader is connected, database is active, RFID card is used.
- **Steps:**
    1. Present an unregistered or malfunctioning RFID card to the RFID reader.
    2. If the card is malfunctioning it can not be read or will send an invalid ID.
    3. Invalid RFID cards will add the user to the access denied database.
- **Expected Results:** The system identifies the card as invalid and adds it to the correct database.

Test Cases

Test Case 5: Software-Hardware Integration

- **Unique Name/Number:** TC-05
- **Requirement:** Ensure seamless communication between hardware and software components.
- **Preconditions:** System components are properly connected and configured.
- **Steps:**
  1. Perform various interactions (e.g., card registration, attendance tracking) while monitoring system behavior.
- **Expected Results:** Hardware and software components interact smoothly without any noticeable delays or errors.

Test Case 6: Access

- **Unique Name/Number:** TC-06
- **Requirement:** Verifies user and adds them to appropriate database and gives them access to the system
- **Preconditions:** System Software has been started; Database is active, Card RFID is known.
- **Steps:**
  1. Present registered RFID card to the rfid scanner.
  2. On a successful scan the RFID system signals the RFID scanner to unlock access point
  3. RFID is added to the database with current time and date
- **Expected Results:** The access point is opened if not already. Scanned card is added to the database.

Test Cases

Test Case 7: Access Database Display

- **Unique Name/Number:** TC-07
- **Requirement:** Validate the system's ability to display access records from the database.
- **Preconditions:** System Software has been started; Database is active, Card RFID is known. Access is active
- **Steps:**
  1. Log in to the software application.
  2. Navigate to the database display section.
  3. Select the option to display access records.
- **Expected Results:** The system retrieves and displays access records from the database accurately, including entry times, user information, and access status.

Test Case 8: Access Denied Database Display

- **Unique Name/Number:** TC-08
- **Requirement:** Verify the system's behavior when access is denied and display the corresponding information from the database.
- **Preconditions:** System Software has been started; Database is active, Card RFID is known. Access is active
- **Steps:**
  1. Present an RFID card that is not authorized for access.
  2. Observe the system's response and record the event.
  3. Log in to the software application.
  4. Navigate to the database display section.
  5. Select the option to display access denied events.
- **Expected Results:** The system retrieves and displays access denied events from the database accurately, including timestamps and associated RFID card information.

Test Cases

Test Case 9: User Database Display

- **Unique Name/Number:** TC-09
- **Requirement:** Ensure the system can display user information from the database.
- **Preconditions:** System Software has been started; Database is active, Card RFID is known.
- **Steps:**
  1. Log in to the software application.
  2. Navigate to the user database display section.
  3. Select the option to display user information.
- **Expected Results:** The system retrieves and displays user information from the database accurately, including user names, IDs, and associated RFID card details.