

USER MANUAL

SECURE IMAGE UPLOAD SYSTEM

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HOMEWORK ONE

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Secure Image Upload System

User Manual

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1. Introduction

1.1 About the Secure Image Upload System

The Secure Image Upload (SIU) system is a platform that allows a user to capture an image and upload it to the server. The server then verifies the authenticity of image received from the user. The system uses advanced cryptographic techniques to ensure that images have not been tampered with and were indeed taken by the user.

1.2 System Requirements

- A smartphone running on Android Operating System.
- Internet connection
- Web browser (Chrome, Firefox, Safari, Edge)
- A user's valid ID number
- Active phone number

2. Getting Started

2.1 Installation

1. For Android mobile users:

Install the app on smartphone running Android Operating system through Android Studio IDE.

2. For Server-side administrators:

Django application runs on a server side and it is accessible locally via this address <http://localhost:8000/admin/login> on a web browser.

2.2 Launching the Application

- Android Mobile User: Tap the SIU app icon on a smartphone screen.
- Server administrator: Navigate to the SIU administrator panel by typing the link given above on the address bar of the desired browser.

3. User Registration

3.1 Creating a New Account

1. Open the SIU app
2. Click/tap on "Register"
3. Fill up the registration form that requires the following inputs:
 - i. ID number
 - ii. Username
 - iii. Email
 - iv. Phone number
 - v. Password and
 - vi. Retype Password.
4. Click "Register" button to complete enrollment.

3.2 Key Generation and Storage

After successful registration, the server generates RSA cryptographic keys stores them in a database and sends its public key to the user.

4. Image Upload and Encryption

4.1 Login

Login into the SIU app by Username and Password.

4.2 Taking a Photo

1. In the SIU app, tap/click on "Take Photo"
2. The camera will open automatically, take the photo of a desired object.

4.2 Uploading a photo

1. After taking a photo, a user then Tap/click the send icon to send the photo where the system will automatically compute hash of the image and encrypt the image using a server's public key then upload encrypted image and hash to the server via API.
2. The system will display a progress indicator during upload

5. Viewing Verification Results

5.1 Verification Status

After uploading an image, a user will be taken to the verification results page, which displays:

- An uploaded image with verification status (Pending, Verified, Failed)
- Timestamp of verification

6. Server-side verification.

6.1 Login

Login into the SIU admin panel by Username and Password.

6.2 The verification details

It has to be noted that the image verification procedure is carried out dynamically in the background as soon as the user uploads an image that is human intervention is not necessary. However, an administrator is able view the steps and the verification details as it is briefly explained as follows.

After successful login, an administrator will see a dashboard that shows general statistics of the number of:

- i. Users registered
- ii. Active users
- iii. Images uploaded
- iv. Images verified
- v. Images not verified

On the left side of the panel is a sidebar menu where an administrator has several options for Users Management and Uploaded Images Management.

6.2.1 Uploaded Images Management

- Confirmation that the image has not been tampered with
- View Image metadata as well as information of the device that was used to capture the image.

6. Account Management

6.1 Updating Profile Information

1. Navigate to "Profile" or "Account Settings"
2. You can update the following information:
 - Profile picture
 - Display name
 - Email address
 - Password

6.2 Key Management

1. Navigate to "Security" or "Key Management"
2. From here, you can:
 - View your public key information
 - Request a new key pair if necessary
 - Back up your private key

7. Troubleshooting

7.1 Registration Issues

- **Problem:** Missing field
 - **Solution:** Ensure all fields in the registration form are correctly filled.
- **Problem:** Input data validation
 - **Solution:** Ensure you entered the correct phone number that is not less than 10 digits
 - **Solution:** Ensure you enter password that has a combination of numbers and letters
 - **Solution:** Ensure you enter email using a correct email format.
 - **Solution:** Ensure you are connected to the network.

7.2 Upload Issues

- **Problem:** Image upload fails
 - **Solution:** Check your internet connection
- **Problem:** Verification fails
 - **Solution:** Check your internet connection
 - **Solution:** Contact support if genuine images fail verification

7.3 Technical Issues

- **Problem:** App crashes or freezes
 - **Solution:** Restart the app
 - **Solution:** Reinstall the app if necessary
- **Problem:** Website doesn't load
 - **Solution:** Clear your browser cache
 - **Solution:** Try a different browser
 - **Solution:** Check your internet connection

8. Frequently Asked Questions

8.1 General Questions

- **Q:** How secure is the Image Verification System?
 - **A:** The system uses industry-standard cryptographic techniques to ensure the security and integrity of your images.
- **Q:** Who can see my uploaded images?
 - **A:** This is an end-to-end system therefore only you and the authorized personnel on the administrator's side can see your uploaded images.

8.2 Technical Questions

- **Q:** Can I use the system offline?
 - **A:** No, the system requires an internet connection to verify images.
- **Q:** What image formats are supported?
 - **A:** The system supports JPEG, PNG, and HEIC formats.

8.3 Support

- **Q:** How do I contact support?
 - **A:** You can contact support through:
 - Phone: +8613512243631 | +8613512954133 | +8617802202032
- **Q:** What information should I provide when contacting support?
 - **A:** Please provide your account email, the specific issue you're experiencing, and any error messages you receive.