



Basic Requirements

1. Authentication

- 1.1 The system shall allow users to authenticate using their Google account.
- 1.2 Upon successful authentication, the system shall automatically load the user's profile information, credit balance, and project history.
- 1.3 The system shall maintain persistent user sessions to minimize repeated logins.

2. Sprite Generation Module

- 2.1 The system shall provide a prompt based interface for sprite generation.
- 2.2 Users shall be able to input a text prompt describing the desired sprite.
- 2.3 Users shall be able to upload a reference image to guide color, style, or design consistency.
- 2.4 Users shall be able to select color preferences from a palette or by entering color codes.
- 2.5 The system shall provide pose and rotation options such as front, back, and side views.
- 2.6 A 3D pose reference viewer shall be provided to visually indicate the selected orientation.
- 2.7 The system shall allow users to specify camera angle preferences including front view, top down, and isometric.
- 2.8 Users shall be able to define sprite dimensions such as 64×64 or 128×128 pixels.
- 2.9 The system shall support selection of generation models when multiple trained models are available.

2.10 The system shall provide predefined style categories such as pixel art, chibi, cyberpunk, or realistic.

2.11 The system shall generate multiple preview outputs based on the provided parameters.

2.12 Selecting a preview shall create a new project and store the selected sprite and metadata.

3. Sprite Preview and Project Page

3.1 The system shall display the generated sprite within a project preview page.

3.2 The page shall show relevant metadata including:

- Prompt used
- Creation date
- Rotation or orientation
- Selected style or model

3.3 A rotation slider shall allow users to view generated sprite angles.

3.4 The system shall provide an Edit Sprite option to refine or regenerate the sprite.

3.5 The system shall display a list of animations previously generated for the sprite.

3.6 Each animation shall be previewable and exportable.

3.7 The system shall include an Add Animation button that navigates to the animation editor.

4. Animation Module

4.1 The system shall display the base sprite as the animation reference.

4.2 Preset animations such as walk, idle, attack, and jump shall be available for rapid testing.

4.3 Users shall be able to provide a prompt describing the desired animation loop.

4.4 When applicable, the system shall automatically generate a skeleton rig for the sprite.

4.5 The animation interface shall include a timeline for frame by frame adjustments when using a rig.

4.6 Generated animations shall be previewable, editable, and exportable in GIF, video, or sprite sheet formats.

5. Project History Module

5.1 The system shall provide a dedicated page showing all user projects.

5.2 Each project entry shall display:

- Thumbnail preview
- Original prompt as the project title
- Creation date

5.3 Users shall be able to delete, rename, or share their projects.

5.4 The system shall include an Import feature allowing upload of external sprite files to create new project entries.

6. Profile Management

6.1 Users shall be able to view their profile information including name, email, and profile picture.

6.2 The system shall display the user's credit balance for sprite and animation generation.

6.3 Users shall be able to view and manage their subscription status including upgrades, cancellation, and renewal.

6.4 The system shall track and deduct credits automatically based on generation activity.

7. General Functional Requirements

7.1 The system shall provide persistent project storage accessible after logout.

7.2 Each sprite or animation generated shall be associated with the correct user account.

7.3 The user interface shall support real time previews for features such as rotation, animation playback, and skeleton editing.

7.4 The system shall support image uploads in common formats including PNG, JPG, and WEBP.

7.5 The system shall implement error handling for generation failures, upload problems, and external API timeouts.