**1. Face Loading**

* **Directory**: known\_faces/
* A screen shot of a computer screen

  Description automatically generated**Function**: Loads and encodes all known faces at startup using face\_recognition.face\_encodings().

**2. Webcam Streaming**

* **Library**: OpenCV (cv2.VideoCapture)
* A screen shot of a computer

  Description automatically generated**Function**: Continuously captures video frames and processes them for face recognition.

**3. Face Detection & Recognition**

* **Library**: face\_recognition
* A screen shot of a computer program

  Description automatically generated**Function**: Detects face locations, encodes faces, and compares them to known identities using distance threshold (set to be 50%).

**4. Snapshot Saving**

* **Directory**: snapshot/
* **A close up of a person's face

  Description automatically generated**A screen shot of a computer program

  Description automatically generated**Function**: Automatically saves a cropped image of newly detected known faces (once per known person).

A screen shot of a computer program

Description automatically generated**5. Unknown Face Handling**

* **UI**: Tkinter dialog prompt
* **A screenshot of a person's face

  Description automatically generatedFunction**: If an unknown face is detected, user is prompted to name and save it as a new known identity.

**6. Graphical Interface**

* **Library**: Tkinter
* **Components**:
  + Live video feed display
  + Stop button to exit the app
  + Popup windows for unknown face registration

**A black background with text

Description automatically generated**