**FORM 2**

**THE PATENT ACT 1970**

**(39 of 1970)**

**&**

**The Patents Rules, 2003**

**COMPLETE SPECIFICATION**

**(See section 10 and M.13)**

# Live Selfie Camera-Based Age Verification System for Social Media Platforms in India


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**The following specification particularly describes the invention and how it is to be performed**

# Live Selfie Camera-Based Age Verification System for Social Media Platforms in India

**Field of Invention**:

The present invention relates to the field of age verification systems. Specifically, it addresses methods for ensuring age compliance on social media platforms using real-time selfie-based age estimation technologies integrated with artificial intelligence and machine learning algorithms. This invention is designed to protect minors from accessing inappropriate content while maintaining user privacy.

**Background of Invention**:

Age verification on social media platforms has been a persistent challenge. Traditional methods rely on users self-declaring their age, a process that is prone to falsification. This inadequacy often results in minors accessing content that is neither appropriate nor intended for them, leading to ethical, regulatory, and safety concerns.

While document-based age verification offers higher reliability, it often fails to provide a seamless user experience. Moreover, existing biometric solutions are either cost-prohibitive or raise significant privacy concerns under India's evolving data protection laws.

This invention introduces an innovative, live selfie camera-based system that employs advanced AI algorithms for accurate age estimation. By leveraging liveness detection and deep learning models, the proposed solution ensures real-time verification, prevents misuse, and addresses critical gaps in the current age verification processes. Furthermore, it adheres to privacy regulations by encrypting and securely processing data, making it a scalable and compliant solution for social media platforms.

**Summary of Invention**

The **Live Selfie Camera-Based Age Verification System** revolutionizes the way age verification is conducted on social media platforms. It offers a comprehensive solution that combines:

1. **Real-time Live Selfie Capture:** Ensures that only real-time images are accepted, preventing the use of pre-recorded or static images.
2. **AI-Driven Age Estimation:** Employs machine learning models to analyze facial features for precise age determination.
3. **Liveness Detection:** Confirms the authenticity of the image to eliminate fraud.
4. **Privacy-First Design:** Encrypts user data during processing, with provisions for local or secure cloud-based operations to meet Indian data protection standards.

5. **Access Control Mechanism:** Restricts underage users from accessing the platform or transitions them to a child-friendly interface.

The system ensures that minors are flagged appropriately, addressing regulatory compliance and safeguarding the user experience.

## DETAILED DESCRIPTION OF THE INVENTION

### System Components

1. **Live Selfie Capture Module (101):**
    - Captures real-time images through the platform's mobile or web application.
    - Incorporates liveness detection to verify authenticity and prevent fraud using photos or pre-recorded videos.
2. **AI-Based Age Estimation Module (102):**
    - Utilizes advanced AI/ML models trained on diverse datasets tailored to India's demographics.
    - Processes selfies to estimate age with a high degree of precision.
3. **Data Privacy Module (103):**
    - Encrypts image data during processing and ensures automatic deletion post-verification.
    - Adheres to India's data protection laws, ensuring user privacy throughout the workflow.
4. **Age Verification Workflow (104):**
    - Cross-references estimated age with optional government ID databases, such as Aadhaar, to enhance accuracy.
    - Provides platform access only to verified users above the age threshold while redirecting minors to a safer interface.

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## DETAIL DESCRIPTION OF THE DRAWING

**Fig. 1** illustrates the process of implementing the Live Selfie Camera-Based Age Verification System, encompassing user registration, live selfie capture, AI-based age analysis, and subsequent access or restriction based on age compliance.

1. **Register (Block 101)**:
   Represents the user registration process where a new user begins their journey on the platform.
2. **Live Selfie (Block 102)**:
   Indicates the step where the system prompts the user to capture a live selfie for authentication purposes. Liveness detection ensures the photo is real-time and not a pre-recorded image.
3. **AI Process (Block 103)**:
   Refers to the use of artificial intelligence to analyze the live selfie for facial features and estimate the user's age.
4. **18+ Age Decision (Block 104)**:
   Represents the decision point where the system determines if the user's estimated age is 18 or older.
   - **If true (18+ Age):**
     - Proceed to Block 106.
   - **If false (Under 18):**
     - Redirect to Block 105 for further categorization.
5. **Elder Age Decision (Block 105)**:
   This step further evaluates the user's age and restricts access if they are below a certain age threshold or non-compliant with platform policies.
6. **Proceed (Block 106)**:
   Represents granting access to the platform for users above 18 years of age, enabling them to use its features fully.
7. **Restrict (Block 107)**:
   Indicates denial or restriction of access for users flagged as underage or non-compliant, potentially redirecting them to a child-friendly version of the platform or seeking parental approval.

**Dated this 3rd of December 2024** **Signature of the Applicant**

**New Horizon College of Engineering**

**Applicant/Inventors Name: New Horizon College of Engineering**

Total number of sheets:2

Sheet No: 1

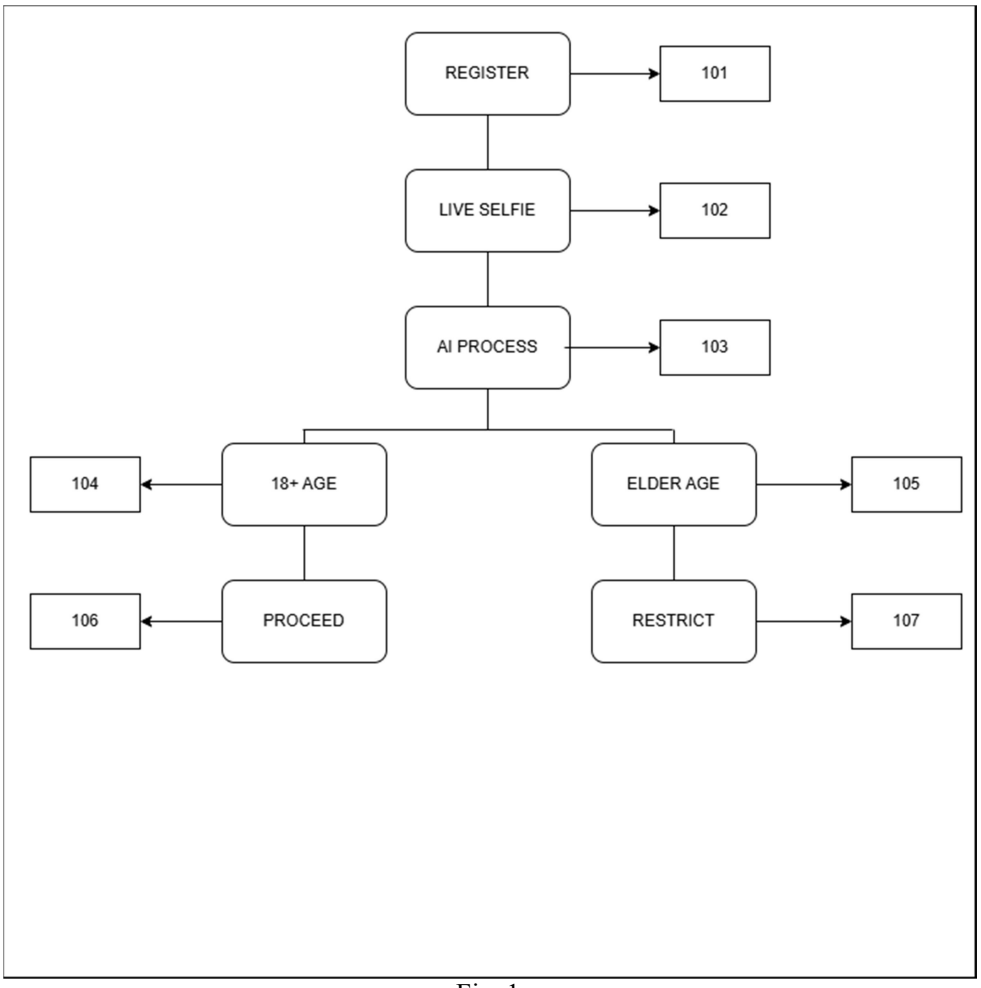


Fig. 1

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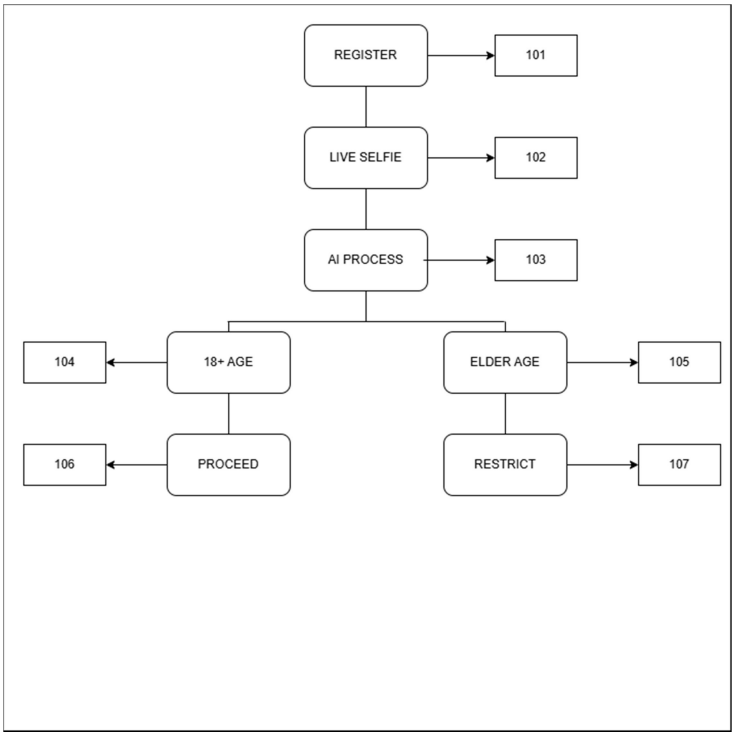
**ABSTRACT OF THE INVENTION**

The **Live Selfie Camera-Based Age Verification System** offers a robust, secure solution for verifying the age of social media users in India. By combining real-time selfie capture, advanced AI-based age estimation, and liveness detection, the system ensures only authorized users gain access. It integrates privacy-first principles, encrypting and processing data securely to meet Indian regulatory standards. Designed for scalability, the system restricts underage users while offering a safe, child-friendly interface, bridging the gap between technological innovation and regulatory compliance.




**Dated this 3rd of December 2024** **Signature of the Applicant**

**New Horizon College of Engineering**

**We Claim**

 A live selfie camera-based age verification system comprising:

- A **Live Selfie Capture Module** for real-time selfie acquisition and liveness verification.
- An **AI-Based Age Estimation Module** for determining user age based on facial features.
- A **Data Privacy Module** for encrypted processing and secure data handling.

 The system of claim 1, wherein the AI/ML model is trained on datasets optimized for Indian demographic and cultural diversity.

 The system of claim 1, further comprising an **Optional Government ID Verification Module** for enhanced verification through Aadhaar or similar databases.

 The system ensures compliance with Indian data protection laws and employs selective data retention mechanisms to enhance privacy.

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**Dated this 3rd of December 2024** **Signature of the Applicant**

**New Horizon College of Engineering**