**Echo Vision – Smart Assistive Technology for the Visually Impaired**

**Objective:**

To build a helpful device that gives visually impaired people real-time information about their surroundings, helping them stay safe and move around independently using AI and smart technologies.

**Methodology:**

* Use depth cameras and sensors to detect obstacles and guide navigation.
* Apply AI and machine learning (TensorFlow/PyTorch) for recognizing faces, identifying objects, and understanding emotions.
* Include Optical Character Recognition (OCR) to turn printed text into speech for reading.
* Add health sensors to check vital signs and send SOS alerts in emergencies.
* Provide real-time GPS navigation and language translation using cloud services.

**Key Features:**

* Surrounding Awareness: Wide-angle detection for safer movement.
* Personalized Support: Facial recognition for secure and customized responses.
* Emergency Help: Health tracking with automatic alert systems.
* Accessibility: Text-to-speech and support for multiple languages.
* Efficiency: Lightweight design with fast, cloud-based AI processing.

**Abstract statement:**

Echo Vision is an AI-powered assistive device designed to empower visually impaired individuals with real-time navigation, facial recognition, and text-to-speech technology. By integrating depth cameras, health monitoring sensors, and AI/ML models, the system ensures safety, accessibility, and independence. Key features include obstacle detection, SOS emergency alerts, and multi-language support, all delivered through a lightweight, cloud-connected design. This innovative solution addresses a critical need, offering a practical and transformative experience for users to navigate the world with confidence.

**Expected Outcome:**

A smart, easy-to-use device that boosts confidence, safety, and independence for visually impaired people, making daily life easier and more accessible.

**Impact:**

Echo Vision meets a crucial need, offering a life-changing experience through advanced AI, promoting inclusivity and improving accessibility for everyone