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(57) Abstract :
A wearable augmented reality based visual enhancement device, comprising a frame 101 configured to be worn by a user, a digital display 201 integrated with an inner portion of the frame 101 aligned with the visual axis of the user's eye, an eye tracking sensor 202 embedded near the digital display 201 for continuously monitoring the user's gaze and detecting eccentric fixation points, a high-definition 180-degree camera 102 integrated with the frame 101 to capture wide-field real-time environmental images, a Time-of-Flight (ToF) distance sensor 103 dynamically measures object distance for magnification calculation, a processing unit executing AI based protocols to calculate optimal magnification and alignment based on sensor inputs, an auto-fixation module operatively coupled with the display 201 to realign it in real time using motorized micro-actuators 204, and a voice assistant module 203 for verbal control, night mode operation for low light conditions.

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