



A Design of AI-based-Smart Glasses, which Offer Navigation in Addition to Correcting Vision

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Abstract

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The human eyes are protected in specialized sockets carved out in the human skull. An average human eye in adult has a diameter of approximately 2.5 cm. Because of lack of outdoor activities, increased use of computer, television and smart phones, youngsters are increasingly experiencing defects of vision, most common are myopia or short-sightedness, hypermetropia or long-sightedness/far-sightedness. Prescription eye glasses are needed to correct these defects. At times, children and adults have to wear 3 types of glasses, one for visualizing things far away, another for computer use and the third one for reading, causing a lot of hassle in changing glasses and creating problems in carrying all of them. AI-based-smart glasses are proposed, which have 3 in 1 features, adjusting to far vision, computer vision and reading vision through ultrasound waves (available in cameras). Additionally, antiglare and photosensitive (darkening the glasses in bright sunlight) features are added. In addition, the author proposes to add 4 tiny cameras, 2 between the left- and the right-eye glasses (C_1 one pointing straight and C_2 tilted to provide a view just in front of toes) and 2 at the end of frame, C_3 and C_4 , resting on each tip of ear, all of the cameras equipped with night-vision capability. Bluetooth connectivity is provided to earphones, smart-wrist watch and smart phone. C_1 is equipped with unusual-motion and explosive-trace detection as well as night-vision capability. C_2 is powered with edge-based algorithm to detect any obstacles in front, sounding alarms in all these situations as well as visual warning on the upper-right-hand corner of the right-eye glass and a mirror setup for the left-eye glass. C_3 and C_4 are employed for back vision and sensors S_1 and S_2 for blind-corner vision. Smart-phone features as well as features of cardless-authorization and charge system are incorporated. These glasses are protected through automatic-lock system, based on voice and 3-D-face recognition as well as real-time transmission to a secure location, identity as well as positional coordinates and momenta of possessor to prevent from unauthorized use or snatching.

[Video-Recorded Presentation](#)

Keywords: *Back and blind-corner vision, Edge-based algorithm, Night vision, Smart-phone features, Unusual-motion and explosive-trace detection*

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