

IMPROVING VISION FOR VISUAL FIELD DEFECT PATIENTS USING IMAGE PROCESSING 'SUMMARIZATION'

In this groundbreaking research, an innovative solution has been developed to address the challenges faced by patients with Visual Field Defects (VFD), a condition leading to incomplete vision due to damage in the retina, optic nerve, or visual parts of the brain. Traditional interventions have offered limited relief, necessitating a sophisticated approach to enhance the quality of life for these individuals.

The proposed smart spectacle system represents a pioneering fusion of optometry, medical sciences, and cutting-edge technology. By integrating high-quality cameras, advanced image processing techniques, and precision optics, the system captures the visual field and projects it onto the patient's undamaged areas of sight. This approach effectively expands the patient's visual field, significantly improving their ability to perceive the surroundings.

Crucially, the system's effectiveness is enhanced through meticulous calibration by trained optometrists. This calibration process ensures optimal mapping of the captured visual data to the patient's unique condition, thereby customizing the system to individual needs.

During extensive prototype testing on real patients, the results were nothing short of transformative. The smart spectacle demonstrated a remarkable 15-20% increase in the visual field, providing patients with a newfound sense of clarity and expanded awareness of their environment. This outcome signifies a substantial leap forward in the realm of assistive technology, offering tangible hope and improved vision to those afflicted with VFD.

The collaborative efforts of medical professionals, engineers, and researchers have played a pivotal role in bringing this vision-enhancing technology to fruition. This achievement not only addresses a significant gap in existing treatments but also opens avenues for further

advancements. The successful implementation of this prototype underscores the potential of interdisciplinary collaboration and underscores the importance of integrating advanced technology with healthcare, promising a brighter future for individuals grappling with visual impairments.